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ASSESSING STAKEHOLDER PREFERENCES REGARDING CURRENT AND FUTURE BEAR MANAGEMENT OPTIONS

by

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ABSTRACT

ASSESSING STAKEHOLDER PREFERENCES REGARDING CURRENT AND FUTURE BEAR MANAGEMENT OPTIONS

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Over the past decade, several states have experienced increased controversy regarding black bear (Ursus americanus) management. The decision in Michigan to limit hunter entry and the resulting conflicts among bear opinion leaders over preferred methods of allocating hunting permits made it necessary to determine the preferences of bear hunters on a statewide basis. Project objectives also included the evaluation of bear hunting behavior and bear hunter attitudes and beliefs concerning bear hunting regulations, bear management, and use of bait and dogs.

Methods involved six focus groups held in three locations in Michigan followed by a statewide mail survey in 1993. The survey sample was randomly selected from the population of 1992 bear hunter applicants; a 75% response rate was obtained. Data from this study showed that bear hunters specialize by hunting method (e.g., bait, dogs) and these specialist groups differ in their hunting behavior, and attitudes toward bear hunting regulations, the MDNR, and other methods of hunting bear.

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INTRODUCTION

The History of Black Bear Management in Michigan

Hunting Regulations

Black bear (Ursus americanus) was an unprotected species in Michigan until 1925 when hunters were limited to taking only one bear with a deer license during the November deer hunting season (Wildl. Div. 1988). In 1939, the Michigan legislature removed all protection for bear, but gave authority to the Natural Resources Commission (NRC) to establish regulations and seasons when needed. This allowed black bear to be taken at any time, any where, and by any means, unless protective actions were requested by a Board of Supervisors for a particular county (Wildl. Div. 1988). In 1952, the first statewide regulation made trapping illegal as a method for harvesting bear. In 1959, legislation was passed requiring hunters to obtain a bear hunting stamp, with a small game license, or a firearm or archery deer license to hunt bear. A bear hunting license replaced the bear stamp in 1965; however, archery deer license holders could still take a bear. Black bear was removed from, and placed back on the firearm and archery deer licenses several times until 1980. Currently, bear can only be taken in Michigan with a special bear hunting license; the use of both dogs and bait is legal.

The Bear Population

The continuous shifting of bear hunting regulations over the past 50 years has been due in part to ambiguous biological data on black bear. Historical black bear population data show that they were present throughout Michigan during presettlement times, but by the mid

1800's they had begun to disappear from the southern areas of the state (Baker 1983). Earliest records indicate that hunting pressure was low throughout the early 1900's, but as human populations grew, bear habitat decreased, pushing bear to the northern parts of the state (Wild. Div. 1988). Bear population estimates were mainly from harvest data, which the Wildlife Division of the Department of Natural Resources collected through various methods beginning in 1936. Harvest data were not consistently obtained until 1972 when compulsory bear registration was established (Harger 1979). There were few data available for determining bear population size and structure statewide until the 1970's when the Michigan Department of Natural Resources (MDNR) intensified its efforts to collect biological information from harvested bear (Wildl. Div. 1988). MDNR agency personnel were first asked to extract pre-molars when harvested bear, brought to check stations by hunters, were examined. Later, reproductive tracts from harvested females were obtained on a voluntary basis (Boushelle et al. 1990).

Due to their bi-annual breeding habits and tendency to range over wide areas, black bear have been a difficult species to study in the wild (Walker 1985). Live-trapping and radio-collaring bear, which had been experimented with since the 1950's, increased in the 1980's. The biomarker, tetracycline, was also used experimentally to better track populations; however, both of these methods were costly and time-consuming, so, were employed sparingly. Population data are still incomplete, but MDNR biologists estimate that the population is stable or growing in Michigan's Upper Peninsula and northern Lower Peninsula (L.Visser, Mi. Dept. Nat. Res., pers. comm.).

Bear Hunters and Related Issues

Hunter demand was also partly responsible for the constant changing of bear regulations. The number of bear hunters fluctuated around 4,000 from 1959 (the first year

data were available) until 1968, but jumped to 6,977 by 1969. Black bear had become a valued game species with increasing demand from hunters and increasing conflict over methods used to hunt them. Sportsmen's licenses, first sold in 1970, allowed hunters to purchase one license for all types of hunting, including bear. Consequently, much information about bear hunters was lost for several years, but based on harvest data bear hunting was on the rise throughout the 1970's (Harger 1979, Boushelle et al. 1990). Dogs and bait had been an accepted means of harvesting bear for most of Michigan's bear hunting past, but as resource demands increased, hunter segments became increasingly polarized over conflicts associated with these techniques.

In response to diversifying viewpoints, several new bear hunting organizations, United Bear Hunters (UBHA), Upper Peninsula Bear Houndsmen (UPBHA), and Northeastern Michigan Houndsmen (NEMHA) Associations sprang up in the mid-80's, where previously there had been only one, Michigan Bear Hunter's Association (MBHA) (B. Walker, MBHA Pres., pers. comm.). The MBHA had been communicating with the MDNR since its inception in 1946, but its role in decision making, and that of the newly formed bear organizations, increased throughout the 1980's. During this time, bear managers also began to seek input from these groups on proposed regulation changes (J. Stuht, Mi. Dept. Nat. Res., pers. comm.).

Unfortunately, these four organizations did not mirror the characteristics of the bear hunting community. Even though baiters out-numbered houndsmen in Michigan, the majority of the members of each of these groups were houndsmen (Peyton 1989*b*). Therefore, as issues involving hunting methods erupted, baiters were left with little or no organized representation. As a result, in 1985, baiting as a method for hunting bear was challenged. Some hunters believed that bear numbers were decreasing and that commercial baiting activities (placing baits for hunters for a fee) were partly responsible. Efforts to have baiting eliminated were unsuccessful, but as a result, some baiting restrictions were imposed by the NRC.

Consequently, resentment between the houndsmen and baiters grew.

Hunter groups continued to push for increased population studies and stricter controls on bear harvesting throughout the 1980's (Peyton 1989*b*, Wildl. Div. 1988). Anti-hunting activities were also increasing at this time creating even more issues for resource managers. A petition drive was initiated by a disgruntled U.P. landowner to eliminate hunting bear with dogs, a move also supported by some baiters and anti-hunters.

Differences among hunter groups were first quantified in a 1985 statewide survey of bear hunters (Peyton 1989*b*). A questionnaire was mailed to 1,200 individuals who were randomly selected from 1983 bear hunter applicants. Results showed that only 20% of the respondents were houndsmen, while 50% exclusively sat over bait. These specialist hunters were reported as being very loyal to their chosen methods and having little intention of using a different method for future bear hunting. Baiters and dog hunters were shown to be at odds over the ethics, success rates, and interference involved with using these methods. Those who used neither dogs nor bait (13% of respondents) were also intolerant of methods, other than their own, for hunting bear.

Other issues that were causing conflict during the 1980's were hunter trespass, hunting violations, nonresident hunters, hunting seasons, and nuisance bears (Wildl. Div. 1988). In addition, the harvest of bear had been increasing steadily since 1984, and biologists felt that a continuation of this trend would result in annual harvest rates that exceeded production (Boushelle et al. 1990). To address these issues and future needs, the MDNR Wildlife Division developed a Black Bear Management Plan in 1988 (Wildl. Div. 1988). Recommendations for immediate and future actions were made and later reviewed by bear hunting organization leaders (J. Stuht, Mi. Dept. Nat. Res., pers. comm.). Nonresident hunters were limited and seasons were adjusted, but organization leaders continued to actively call for stricter controls on the bear harvest. In 1990, the MDNR established eight bear management

units. With separate units, they could set independent bear harvest quotas based on each area's estimated population level. The quotas established for each unit were designed to limit bear harvest by limiting the number of available harvest tags.

Conflict over the use of dogs and baiting still continued at a disruptive level, but in 1990 another critical problem faced the MDNR: harvest tag allocation. Since the zone and quota system began, there have been more than two bear applicants for every available harvest tag. A random lottery was used in 1990 to issue approximately 4,200 harvest tags to 9,600 applicants. In 1991 and 1992, those who had not yet been drawn for a harvest tag were given preference, including first-time applicants. Problems in this system resulted in 300+ applicants going three consecutive years without receiving a tag, while some other applicants received tags twice in the same three year period (T. Reis, Mi. Dept. Nat. Res., pers. comm.). In 1993, only those who applied in each of the three previous years and had not received a harvest tag were given preference; the remaining tags were issued randomly. Some bear hunters were dissatisfied with this allocation system, claiming that dedicated hunters who wanted to hunt often were taking a back seat to those having a spurious interest. This added more dissention to an already tenuous MDNR/hunter relationship.

Current Issues Surrounding Bear Management

The method used in 1994 and beyond for allocating harvest tags is a critical decision for bear managers. Some bear hunter segments have communicated their opinions concerning this issue to the MDNR mainly through a series of meetings between agency personnel and selected bear opinion leaders. Most of the information that follows was obtained from attending three of these meetings from 1992 to 1993.

The two options that became most viable for allocating bear harvest tags were the random lottery and point preference systems (T. Reis, Mi. Dept. Nat. Res., pers. comm). A

random lottery would give all applicants an equal chance of being drawn in any given year. Point preference gives applicants a point each year they apply for a harvest tag and fail to receive one; applicants with the most points obtain harvest tags first. Over the last decade, Wisconsin and Minnesota have adopted point preference systems to allocate bear harvest tags, but with mixed results. Although applicant numbers have risen dramatically in both states and extended the length of time hunters must wait for a harvest tag, bear managers consider the system a success (D. Schad, Minn. Widl. Div., pers. comm.). Michigan proponents of the random lottery view Minnesota and Wisconsin as proof that using a point preference system artificially inflates the number of bear hunter applicants by forcing those who do not intend to hunt in a given year to remain in the applicant pool. Applicant numbers are also rising in Michigan with over 16,000 individuals applying for 5,000 harvest tags in 1993, but many elements could be contributing to the increase (T. Reis, Mi. Dept. Nat. Res., pers. comm.).

Season lengths are also causing some debate and confusion among bear hunters. Currently, hunt periods vary considerably with two, one-week hunt periods in the Lower Peninsula zone; the second week is only for archery hunters. Drummond Island has a one-week hunt period in which any legal method can be used. The six Upper Peninsula zones have two, 42-day periods that begin five days apart. The first five days, dogs are an illegal form of hunting, so most bait hunters apply for this first hunt period. More hunters apply for the first hunt period than the second in the U.P. mainly because more hunters use bait, but success rates are also highest in the first days of the season (T. Reis, Mi. Dept. Nat. Res., pers. comm.).

Some would like to see hunt periods structured to completely separate dog and bait hunters. Others argue for more separation of bow and gun hunters. Bear organization leaders feel that seasons could be extended to provide more hunting days without affecting the bear population because harvest rates decrease substantially at the end of hunt periods. The length

of time allowed for prehunt dog training and baiting is also a source of conflict. Hunters can train their dogs on bear all year with the exception of a period from April to July and the first five days of the bear hunting season in the Upper Peninsula. Baiters may only begin baiting one month prior to the bear hunting season in that area.

Other issues of importance to hunters involve cost and availability of bear hunting applications and licenses. Hunting organization leaders have been debating the merits of elevating the black bear's big game status with a higher license fee. Concern was expressed that increasing the license fee would put bear hunting out of the reach of lower income hunters and would become over-commercialized. Organization leaders also expressed concern about how extra license dollars would be spent by the MDNR.

Individuals who go along on a hunt with dogs without carrying a firearm must purchase a participation license for the same price as those who receive a harvest tag. However, those participating in baiting activities without a firearm need not obtain a license. This situation has raised cries of inequality among some bear hunters.

Other factors that enter into harvest tag allocation to confound the issue are equitability to comprehensive lifetime license-holders, senior citizens, group or party hunters, and the rights of landowners to protect themselves from property damage due to bears. Hunters are just part of the universe of issues surrounding bear management in Michigan, but the conflict over harvest tag allocation and other hunting regulations is consuming a disproportionate amount of time and effort. It is critical that these problems are dealt with to relieve the tension in MDNR/hunter relations.

Statement of the Research Problem

A system should be in place that allows resource managers to identify user groups associated with a particular resource. These stakeholders could then be monitored to identify

changing stakeholder characteristics, achieve meaningful stakeholder involvement in appropriate management processes, and provide for a rational exchange of ideas among stakeholder groups. Managers should also be part of a continuous process to educate stakeholders regarding the social and ecological aspects of resource management. Such a system would invoke a combination of processes ranging from nonformal, unstructured communication between managers and groups of stakeholders to repeated use of highly structured, interactive meetings and quantitative data collection methods.

The complex array of issues surrounding Michigan bear management involves highly specialized stakeholder groups. Much is known of the attitudes of a small portion of these stakeholders, the opinion leaders; however, it is unknown whether their attitudes are reflected in the remainder of the bear hunting community. To what extent can opinion leaders among these hunter segments be relied on to represent the preferences, attitudes and behaviors of their assumed constituents? Do they represent those bear hunters who are not members of hunting organizations? There are, indeed, signs that the adoption of a lottery system has increased the number of first time bear hunters while decreasing the number of hunters who have been involved for many years. This raises the question of whether the makeup of the bear hunting community in Michigan has been substantially changed by the recruitment and dropout of former hunter types. If so, what are the implications for trends in bear hunting methods and ethics? Will preferences for management strategies be changed and how might this affect the resource and/or other stakeholder groups (e.g., nonconsumptive users, landowners, etc.)? To explore these and other such questions, this study was undertaken. The study goals were to:

> identify attitudes and characteristics of various bear hunter groups and changes that may have occurred in these groups over time;
>
> contrast attitudes and characteristics of the opinion leaders with those of the hunter groups to identify the extent to which opinion leaders accurately represent the views of bear hunters in general;

evaluate the impacts of recent changes in bear hunting regulations on characteristics, attitudes, and behaviors of bear hunters; and

recommend communication processes which will support and advance black bear management in Michigan.

Research Questions

What are current characteristics, attitudes, and behaviors of bear hunters as they relate to their involvement in bear hunting and have they changed over time?

What are current characteristics, attitudes, and behaviors of bear hunters as they relate to the methods used to hunt bear and have they changed over time?

What beliefs and values do bear hunters have toward hunting bear with dogs and bait and have they changed over time?

What factors are involved in creating a satisfying bear hunting experience?

What are bear hunter beliefs pertaining to the biological need for bear harvest restrictions?

What are bear hunter beliefs and attitudes concerning new hunting regulations?

What are bear hunter beliefs and attitudes concerning the MDNR's management of bear and bear hunting?

What types of communication sources are used among bear hunters for information on bear and bear hunting?

Do the positions of opinion leaders on bear and bear hunting issues represent bear hunters in general?

What can be predicted about future bear hunter trends?

LITERATURE REVIEW

Human Dimensions of Fisheries and Wildlife Management

The earliest forms of wildlife management involved "the art of making land produce sustained annual crops of wild game for recreational use" (Leopold 1986:3). Managers relied primarily on the use of biological techniques to manage wildlife on a level similar to agriculture (Decker et al. 1992). Though this view continued unchallenged for several decades, managers began to recognize the need to understand the public's relationship to this resource as well (Kellert and Brown 1985). However, it was not until the late 1970's and early 80's that wildlife management texts began to recognize a new definition of wildlife management that involved manipulating wildlife to meet societal goals (Decker et al. 1992). Unfortunately, in practice, many resource managers continued to emphasize the biological applications associated with measuring and cataloging wildlife populations, while avoiding the human dimensions. This appears to be changing as an increasing number of wildlife managers are studying people, as well as wildlife (Kellert and Brown 1985, Duda 1986, Decker et al. 1992). Kellert and Brown (1985) identify four areas of human dimensions that must be considered further:

> constituency identification;
> multiple satisfactions management;
> social impact and tradeoff analysis;
> and public awareness and education.

Managing a natural resource such as black bear in the 1990's requires that human dimensions be balanced with biological data gathering. As one of the few large mammals remaining that co-exists with humans, black bear present unique management problems.

Managers must deal with property damage to landowners, loss of revenue to farmers, fear and intolerance of the public, over-harvest by hunters, targeted actions of animal rightists, and politically motivated legislation. These sociological factors combine with a lack of detailed biological data on black bear to create a sensitive management situation.

Marketing in Fisheries and Wildlife

An Overview of Marketing

With such a wide array of constituents comes a complex assortment of values and beliefs that are inconsistently communicated to the resource manager on how the resource should be managed. This makes the equitable allocation of resources more difficult (Eberhardt et al. 1990). Marketing strategies could be applied to assist the manager in deciding how to provide services that best meet the needs of many different publics (Duda 1990).

The term "marketing" has different meanings to different people. One way to look at marketing is as a transaction or exchange between parties that is mutually beneficial (Eberhardt et al. 1990). According to Lovelock and Weinberg (1978), modern marketing has two different meanings to people. One connotation conjures up "immoral" elements of selling, influencing and persuading. The other association appears to be less salient in the public's mind and involves serving and satisfying human needs. The latter is the basis for the existence of government or public service institutions such as the Department of Natural Resources.

Public service institutions such as the Michigan Department of Natural Resources have, in the past, avoided the use of marketing techniques. This is primarily due to the perception that the public service sector is markedly different from private business and, therefore, would not be suitable for a marketing program (Kotler 1982). Unlike commercial businesses, public service institutions are subject to intense public scrutiny and are obliged to provide services

that do not result in a profit. However, this does not mean that a different set of marketing principles must be used when dealing with public or nonprofit organizations, rather, the application of these principles must be adjusted to accommodate the demands (Haley 1985). Snavely (1991:313), stated that "all enterprises involved in regular exchanges with customers presumably are able to use marketing techniques to increase the value of their exchanges for themselves and their customers." Lovelock and Weinberg (1978) point out that marketing tools used to assist an agency in achieving objectives are as appropriate for social service type organizations as for commercial organizations.

Realizations that marketing tools could be adapted for use in government and social institutions occurred in the late 1970's (Kotler 1982, Crompton and Lamb 1986). Kotler (1982:490) defined social marketing as "the use of marketing principles and techniques to advance a social cause, idea, or behavior." This mind set resulted from shifts in the social and financial environments of these agencies. The "new" environments were characterized by reduced funding, decreasing client satisfaction, vocal criticisms from constituents, and legislators, and increased competition from the public sector. Marketing became a means to deal with these newly acquired problems.

Unfortunately, many organizations may lose sight of this original mandate and become self-serving. Crompton and Lamb (1986) state that the most difficult task in marketing is focusing the efforts of personnel on satisfying the wants of clientele rather than on their own immediate well-being. Marketing is the function of a public service institution that can keep personnel in constant touch with client needs and ensure that products/services meet these needs (Lovelock and Weinberg 1978). Duda (1990) defines marketing within the context of fisheries and wildlife agencies as "the deliberate and orderly process of understanding fish and wildlife publics in order to provide them with quality fish and wildlife experiences within the constraints of resource protection, and to foster positive fish and wildlife attitudes and

behaviors toward the resource."

Selling and influencing will be part of marketing, but selling follows rather than precedes the creation of a product/service. Marketing analyzes potential customers (their needs, preferences and other characteristics), segments the population, and tailors the product (its promotion, price and distribution) based on the results of the market analysis (Kotler 1982, Cromptom and Lamb 1986, Duda 1990, Eberhardt et al. 1990). The most useful marketing strategies that can be used in managing natural resources may be segmentation and targeting. Segmentation identifies stakeholders (e.g., bear hunters, wildlife viewers, landowners), whereas, targeting can direct the product/service design, promotion and pricing, (e.g., hunting/viewing opportunities, damage control) to fit the needs of the previously identified segments.

The Role of Segmentation

The role of segmentation in marketing is not a new one. Wendell Smith has been credited for publishing the first article on the topic in 1956, in which he described the usefulness of segmenting the market into manageable groups and then developing separate marketing strategies for each group (Pierce and Sorkin 1972, Arndt 1974, Haley 1985).

According to Haley (1985), segmentation will become an increasingly important aspect of marketing as our population grows. The more people there are, the greater the likelihood that segments large enough to be worthwhile can be found among the population. Mass media options such as satellites and cable television also contribute to more efficient targeting of smaller segments.

Identifying potential target markets is the first step in planning an effective marketing strategy (Crompton and Lamb, 1986). "The purpose of market segmentation" [as stated by Pierce and Sorkin (1972:17)] "is to define the variables which uniquely describe various

consumer groups and to classify the respondents into these groups." According to Schlegelmilch and Tynan (1989), segmentation should identify and delineate homogeneous groups of individuals who then form the target audience. Duda et al. (1989) reported that the ways people relate to wildlife vary depending on factors such as gender, age, race, income, level of education, place of residence, knowledge of wildlife, etc. Kotler (1982) pointed out that individuals may be segmented on the basis of demographics (e.g., age, sex, income), geographical location (e.g., region, county, city), or behavior (e.g., knowledge, attitudes). Mandese (1989), felt that a segmentation process should consider demographics and geographics, as well as psychographics, economics, and lifestyle patterns.

Both geographic and demographic information are used today but are considered, in general, poor predictors of specific types of behavior (Haley 1985, Schlegelmilch and Tynan 1989, Rueff 1991). However, this does not mean that this information is not useful. Demographic and geographic data are shown as very useful in separating users of a product/service from the nonusers (Haley 1985). Also, Schlegelmilch and Tynan (1989) consider the combination of geographic and demographic data useful in identifying constituents who make up the "heavy users" of a product/service (based on Twedt's (1964) theory that in many areas of production, 50% of the users account for 80% of the use).

The growth and diversification of society brought new studies aimed at identifying preferences and needs that geographic and demographic data could not. This resulted in "psychographic" segmentation. Psychographic segmentation is considered a more effective means of identifying population attributes that are more closely associated with user behavior (Edris and Meidan 1990). Psychographic data attempt to determine user behavior by analyzing individual personality and attitudinal characteristics. According to Rueff (1991), good psychographic data should give the "hows" and "whys" of consumer behavior by determining how a target thinks, feels, believes and acts. Psychographic research has been popular since

the 1960's in advertising agencies but did not spread to other businesses until computers with large-scale data processing capabilities were widely available (Wells 1974). Computers allowed easier manipulation of the large quantities of data generated in psychographic studies.

Although few individuals agree on the exact set of segmentation variables to consider in a marketing plan, most feel the need to include some demographic, geographic, and attitudinal characteristics (Arndt 1974, Kotler 1982, Haley 1985, Crompton and Lamb 1986, Riche 1989, Edris and Meidan 1990).

Segmentation Analysis

In conducting a segmentation study, a marketer must determine which demographic, geographic, and psychographic variables are needed, and which relationships between these variables are important (Backstrom and Hursh-Cesar 1981). Variables can be divided into either dependent or independent variables (Hopkins et al. 1987, Bless and Achola 1988, Tull and Hawkins 1993). The variable that is being manipulated, measured, or selected is the independent variable. Dependent variables are those which are measured and reflect the impact of the independent variable. Dependent variables are the object of a segmentation study. Researchers hypothesize how dependent variables are "caused" or "forced" by the independent variables (Hopkins et al. 1987).

Marketers must also be aware of whether variables are measuring attitudes, beliefs, or behaviors. Research has indicated that these three components are separate entities which may or may not be related (Oskamp 1991). Oskamp (1991:7) lists several definitions of "attitude" that have been widely adopted, but concludes that attitudes are an individual's "predisposition to respond in a particular way to the attitude object". Beliefs, on the other hand, are an assessment of what a person thinks is true or false (Dillman 1978, Oskamp 1991).

Once the study variables have been identified, they are analyzed using both secondary

(literature review) and primary (questionnaire, focus groups and interviews) data (Haley 1985). Secondary research involves inventorying relevant information from various sources. Professional, government and trade literature, publications, speeches and proceedings are some of the possible sources of information. According to Backstrom and Hursh-Cesar (1981:9), the following questions should be answered with secondary research:

Does the information already exist?
Why do we need the information?
What population are we trying to describe?
What resources do we have?

Analysis of secondary data is followed by primary research. Primary research data can be obtained in several ways. Deciding which research approach to use depends on whether the type of information needed is quantitative, qualitative or both. According to Goldman and McDonald (1987), quantitative research concerns itself with counting things to arrive at statistically projectable data, while qualitative research addresses the nature of attitudes and motivations.

Quantitative data can be obtained through mail, telephone or face-to-face surveys (Dillman 1978, Backstrom and Hursh-Cesar 1981, Tull and Hawkins 1993). Regardless of method, surveys gather generalized information concerning a segment of a population and, in some cases, the entire known population (Backstrom and Hursh-Cesar 1981). Survey research can be a one-time attempt to describe behavior or a multiple-time measure that tracks changes over time.

Qualitative research includes small-group studies or focus groups and individual, in-depth interviews. Goldman and McDonald (1987) stated the underlying goal of this type of research is to explore "the feelings and beliefs people hold, and to learn how these feelings shape overt behavior."

The focus group interview is based on the assumption that individuals who share a

problem will be more willing to talk about it amid the security of others sharing the problem. Focus group interviews consist of 8-12 people in the presence of a trained moderator who guides the discussion in a prearranged, loosely-structured format (Goldman and McDonald 1987). The number of individuals is based on principles of small group dynamics that assume more than 12 people inhibit the freedom of individual expression while under eight puts too much pressure on individuals participating. Focus group sessions typically last one and a half to two hours. This time frame gives the moderator sufficient time to develop a good rapport with respondents and thus get candid answers. Rather than using a structured, question-and-answer methodology, the procedure is to encourage a group to discuss feelings, attitudes, and perceptions about the topic being discussed. This method has gained popularity to the point of being nearly as common as the traditional survey (Wells 1974).

The number of focus groups used in a study varies, but generally, the total number of individuals involved falls short of what is needed to survey for statistically projectable results (Goldman and McDonald 1987). Also, respondents in focus groups are seldom selected on a completely random basis, as in survey research. The utility of focus group data lies in understanding the reasoning beneath certain behavior. The open and flexible structure of focus groups gives the moderator greater latitude in the way questions are phrased and gives the participants the same degree of flexibility in the way they answer. In addition, the presence of other participants may encourage the sharing of ideas and thoughts that may not be brought out using other methods.

Focus group research is used in several different ways. One of the most important uses is in developing hypotheses for quantitative testing. Another use is in testing the suitability of a survey questionnaire and the methodology used to implement it. Steps involved in implementing focus groups include: 1) identifying research objectives; 2) identifying the target audience; 3) developing a discussion guide; 4) contacting participants;

5) arranging for facilities 6) conducting sessions; and 7) analyzing results.

The individual interview is much like the focus group technique, but requires more time. Interviewers collect information in a one-on-one session that generally lasts about an hour (Goldman and McDonald 1987). This type of data collection is mainly used when topics are highly personal. Both types of qualitative studies allow researchers to learn from facial expressions and tone of voice as well as from what they say (Langer 1991). Limiting factors for segmentation studies include time, money and expertise. Unfortunately, public service organizations are generally in short supply of all three. This resource deficiency forces social marketers to work in organizations where marketing activities are poorly understood and weakly appreciated (Lovelock and Weinberg 1978, Bloom and Novelli 1981).

Targeting Identified Segments

A successful segmentation study allows a marketer to identify the target audience for a particular product/service. The size of the target population is important; according to Rueff (1991), many marketers use too large a segment as their target. An adequate segment might only make up 12-20% of the total potential users of a product/service. Too broad a target could lead to unclear positioning and a communication strategy that fails to hit the mark. Other aspects important in choosing effective target segments are measurability and accessibility (Crompton and Lamb 1986). The agency must be able to measure the target groups to justify the development of individual campaigns for selected groups. This also requires accessibility of target groups through communication methods available to the agency.

Selection of the target audience is generally followed by development of the product/service, price, promotion, and distribution, or "marketing mix", to match the interests and characteristics of targeted segments (Kotler 1982, Crompton and Lamb 1986, Duda 1990 Eberhardt et al. 1990). The prime reason for an agency's existence is to provide certain

services and products to targeted individuals and groups (Crompton and Lamb 1986). Targeting current fish and wildlife users to meet their demands for quality wildlife experiences makes sense, but should agencies also be involved in creating demand? Duda (1990) feels that the benefits of creating active users clearly outweigh any potential disadvantages.

Product/service is what the agency offers the public, such as opportunities in hunting and fishing, or wildlife viewing. Focus groups are an excellent method for determining new products/services that an agency may be able to offer.

Pricing the product requires calculating the buyer's perception of all costs associated with the product/service. This could include monetary expenditure (hunting licenses, travel, property damage, etc.) as well as time, effort and psychological cost. Although this is less flexible in a public agency, a misjudgment in pricing could result in lost revenue and constituents. Pricing can be determined by researching successful pricing strategies for similar programs in other states or through research into a potential user's "willingness to pay" (Eberhardt et al. 1990, Beech 1992).

Distribution involves making the product/service available and accessible to users (Kotler 1982, Duda 1990). This is a difficult task for wildlife managers because what may be considered "not enough" by some users could be "too many" for other constituents. For example, bear hunters may consider a certain population density of black bears too low, while farmers may consider the same population too high. Managers must find the balance that will satisfy the greatest number of users.

Promotion of a product/service entails using communication strategies that make the product/service familiar, acceptable and desirable to the target audience (Geller 1989). Wildlife management efforts could include informing the potential users of hunting/viewing opportunities, and providing informational and educational materials to landowners, the public, legislators, etc.

Problems in Social Marketing

Selecting the marketing mix in a public organization like the Michigan Department of Natural Resources has many limitations compared to a private corporation. In the case of black bear, values and beliefs among stakeholders differ concerning the importance of preservation and conservation (Geller 1989). Many people do not realize the value of preserving species diversity, while others feel it may not be worth the effort. The pricing and promotion of this type of product may have to be aimed at maximizing awareness rather than maximizing profits.

Other problems facing the use of marketing strategies in public service agencies are lack of accumulated data and difficulty in acquiring funds for social research (Lovelock and Weinberg 1978, Bloom and Novelli 1982). Social agencies typically have limited funds, making it difficult to justify to donors and taxpayers the necessity of costly research into attitudes and behavior.

Social agencies may also experience difficulty using communication options that are widely available to commercial marketers. Use of paid advertising, for instance, may invoke criticisms of wasted taxpayer dollars (Kotler 1982). This limits advertising, in some cases, to public service announcements, which transfers control of time and frequency of messages out of the marketer's hands. Also, some influential interest groups may not approve of seeing a social issue like wildlife conservation advertised using "hard sell" or "fear appeal" campaigns (Lovelock and Weinberg 1978).

Public service marketers must also deal with obtaining information for products/services that are much more complicated than those in the commercial sector. Behaviors regarding social issues tend to be extremely complex (Bloom and Novelli 1981). The respondent may not be aware of the reasons behind his/her own behavior or unable to articulate them to an interviewer. Also, questions on value based topics are more apt to get

socially desirable answers than questions on commercial products. These types of questions can be threatening to a respondent and may require an open-ended format (e.g., focus groups) to get more significant amounts of information. This method is limited and can be more costly and time consuming.

Segmentation practices may also need restructuring to suit public service marketing. In some cases, marketers are forced to use too large a segment to avoid being construed as discriminatory (Crompton and Lamb 1986). This puts them in the position of having to target groups with strong negative dispositions toward their product/service (Bloom and Novelli 1981). Commercial marketers tend to avoid these types of groups and focus instead on easier-to-persuade audiences who have either a positive or neutral attitude.

In spite of these limitations, marketing efforts in the Department of Natural Resources can be successful. As stated by Schlegelmilch and Tynan (1989), "traditional marketing principles are transferable to the marketing of organizations, people and ideas." They also felt that the choice is not in whether or not to adopt marketing strategies -- no organization can avoid marketing. Rather, the choice lies in whether to do a good job at it or a poor one.

Defining and Providing a Product in Resource Management

A vast array of hunting and wildlife viewing opportunities are among the products that are available when wildlife management is successful, but what aspects of these opportunities are most important to the resource user and how can they best be provided? Jackson (1980) interviewed hunters afield to determine what was important to hunters and to identify their behaviors, experiences, values, and satisfactions with hunting. His study involved waterfowl and deer hunters at various levels of hunting experience and interests. From survey data, a series of five "phases" was identified that hunters passed through from first entering the sport to veteran participant: 1) shooter stage; 2) limiting-out stage; 3) trophy stage; 4) method

stage; and 5) sportsman stage.

Using hunting equipment is the main objective of a hunter at the *shooter stage*. Hunters are less concerned with getting game at this point and tend to be satisfied with their hunting experience if they are able to shoot often. Harvesting game becomes the focus in the *limiting-out* stage, and hunters will measure their satisfaction in these terms. Emphasis goes from number of kills to quality or size of a particular animal in the *trophy stage*. Hunters in the *method stage* become caught up in how game is taken and tend to hunt more often for longer periods of time. Harvesting an animal is lower in importance for these hunters and not necessary for a satisfying hunt, but still part of the experience. The *sportsman stage* is the final phase of hunting when hunters find satisfaction in the total hunting experience. Companionship and appreciation of nature are necessary for hunting satisfaction in this stage. Individuals in this category are generally the older hunters who have been hunting for a large part of their lives.

Though not all hunters go through all of the phases and they may not start at the shooter stage, many hunters reported having similar experiences as they grew into hunting (Jackson 1980). Some hunters experienced many of the phases over the course of a single hunting season, and others reported reverting to earlier phases when they entered a different type of hunting (Jackson 1980).

Decker and Connelly (1989) also believed that changes occur in hunters over time but focused on measurements of hunting motivations rather than behavior. They categorized the majority of reasons for hunting as: 1) affiliative; 2) achievement; and 3) appreciative.

Affiliative-oriented hunters are more interested in the companionship of other hunters or family during the hunting experience. Hunters who are more concerned with certain standards of performance through use of equipment or harvesting particular animals are *achievement-oriented.* Finally, *appreciative-oriented* hunters are those who are more interested

in being in nature and enjoying the out-of-doors experience.

Implications for these theories of hunter satisfaction are important for resource managers to consider in terms of wildlife biology and hunting regulations. Resource managers must be able to use a "multiple satisfaction" approach to manage recreational opportunities for a variety of hunting experiences. It is not enough for managers to only consider amount of allowable harvest per hunter. All aspects of regulation changes must consider not only the affects they will have on the population but motivational impacts on hunting recreation as well. For example, seasons can be adjusted to not only protect wildlife, but to ensure an optimum outdoor experience for hunters by taking into consideration factors such as weather, crowding, and competition with other recreational opportunities.

Social Subworlds and Recreation Specialization

The tendency of hunters to specialize at some point in their hunting experience is also an important characteristic for resource managers, especially bear managers, to understand. Bear hunters, according to Peyton (1989*b*), tend to specialize in one particular method whether it is in dogs, bait, or still hunting.. Ditton et al. (1992) explores recreation specialization from a "social world" theory perspective. Unruh (1979) defines *social worlds* as "an internally recognizable constellation of actors, organizations, events, and practices which have coalesced into a perceived sphere of interest and involvement for participants" (Ditton et al. 1992:5). Social worlds are said to segment into more specialized "subworlds" based on "spatial distinctions, objects, technology and skill, ideology, intersections, and recruitment".

Ditton et al. (1992) also describe a series of phases that individuals pass through upon first entering a subworld to eventually becoming highly involved. Aspects of these phases include: 1) orientation; 2) experience; 3) relationships; and 4) commitment.

Orientation indicates the level of familiarity and centrality a person has in the

subworld. *Experience* is a measure of length of involvement with a particular subworld. The third component, *relationships*, describes the linkage to other members of the subworld. *Commitment* is defined as consistent or focused behavior involving some degree of monetary and emotional investment and some degree of attachment to the rules and regulations associated with that social world.

Ditton et al. (1992) list a series of propositions which link specialization with subworld theory:

> 1) Persons participating in a given recreation activity are likely to become more specialized in that activity over time;
>
> 2) As level of specialization in a given recreation activity increases, the value of side bets will likely increase;
>
> 3) As level of specialization in a given recreation activity increases, the centrality of that activity is a person's life will likely increase;
>
> 4) As level of specialization in a given recreation activity increases, acceptance and support for the rules, norms and procedures associated with the activity will likely increase.
>
> 5) As level of specialization in a given recreation activity increases, the importance attached to equipment and the skillful sue of that equipment will likely increase.
>
> 6) As level of specialization in a given recreation activity increases, dependency on a specific resource will likely increase;
>
> 7) As level of specialization in a given recreation activity increases, level of mediated interaction relative to that activity will likely increase.
>
> 8) As level of specialization in a given recreation activity increases, the importance of activity-specific elements of the experience will decrease relative to nonactivity-specific elements of the experience.

The social world of bear hunting began to show signs of *subworld* segmentation as early as the 1940's when the first special permit dog hunt was approved by the Natural Resources Commission as a direct result of an organized effort by dog hunters. The first bear hunting organization appeared at this time, which catered to the special needs of the dog

hunters. Hunting equipment use was changing as the segments of bear hunters grew, and specialist groups developed around different methods of using bow and arrow, bait, and dogs. The values associated with using dogs, bait, and still hunting and associated equipment such as trail timers, radio collars, and other electronic devices were creating even more segmentation among established subworlds. In the 1980's new bear hunting organizations formed to meet the needs of these subworlds, some of which had once shared a common method of hunting bear, but were now divided on issues of ethics.

The Michigan Bear Hunters Association (mainly dog hunters) pressed the Natural Resource Commission (NRC) and the MDNR for stricter controls on bear hunting. MBHA continues to be in the forefront of bear hunting issues. In addition, this organization is actively recruiting new members and generating funds for various projects. Other hunt segments do not display this same level of commitment. Even though bait hunters make up the vast majority of bear hunters (Peyton 1989*b*), there are no organizations in the bear hunting social world that cater specifically to their specialized needs.

Management implications for this theory suggest that recreation specialists have different resource needs that, if ignored, could cause serious problems. This does not mean that resource managers should consider the interests of specialists at the expense of those recreationalists who are not specialists. However, according to the propositions established by Ditton et al. (1992), specialists are more likely to be involved in organizations that represent the social world. Therefore, care must be taken to realize that these individuals may only represent one subworld (e.g., dog hunters) of the many that may exist inside the social world in question (e.g., bear hunting). By only communicating with some of the subworlds involved, managers are likely to make decisions that will negatively impact other subworlds.

Issue Management

An effective marketing plan will help managers lessen conflict between various subworlds and stakeholder groups, but no marketing plan can completely eliminate conflict. Actually, some degree of issue conflict reflects a healthy democratic system. However, unless managed, conflict can lead to severe confrontational problems for the resource manager (Peyton 1984, Peyton et al. 1990).

Issues having potential for conflict must first be identified by resource managers. According to Greiwe (1980), without an awareness of the public issues, managers will be reacting to people's desires rather than responding to them. How the manager decides to react to these issues may decide if management goals are achieved or fail. Peyton et al. (1990) list three principles that managers should consider when fisheries and wildlife issues are being disputed:

> Issues and disputes are developmental. They evolve through social, psychological and political processes. The earlier a resource manager intervenes, the better.
>
> Public beliefs, public values and priorities, and the adequacy of existing science, all play important roles in creating issues and must be dealt with differently by resource managers.
>
> There are no institutional quick fixes which make issue management and personal involvement of managers unnecessary.

Because issues go through developmental stages, timing is an important factor to successful issue management. Managers must recognize issues at early stages and act on them before they develop into more complex problems (Peyton 1984, Heinz and Coates 1986, Peyton et al. 1990). Greiwe (Peyton 1984) describes these stages as: 1) emerging; 2) existing; and 3) disruptive. *Emerging* issues are those that are being discussed by stakeholders, but are not yet being brought to the attention of resource managers or other authority figures. Issues concerning bear hunting in Michigan were at this stage in the late 1970's as bear hunters were

beginning to quarrel among themselves about conflicting hunting methods (J. Stuht, Wildl. Div., pers. comm.).

The next step in issue development is *existing* issues. At this point, stakeholders are voicing demands, but the resource manager generally remains in control of the situation. Bear hunting moved into this issue level in the 1980's as new bear hunting organizations formed and officers in these organizations began to actively seek out the MDNR to solve their problems (J. Stuht, Mi. Dept. Nat. Res., Pers. Comm.).

The final stage of issue development takes control out of the hands of the resource manager. *Disruptive* issues in Michigan may lead to NRC actions, court rulings, or referendums. The MBHA, on some occasions, has managed to take issues from the emerging stage of development directly to the NRC and higher levels of the MDNR (T. Reis, Mi. Dept. Nat. Res., pers. comm., J. Stuht, Mi. Dept. Nat. Res., pers. comm.). Past association of MBHA officers with NRC members has made this a successful route to regulation changes for this organization.

Peyton (1984) recognized that resource issues have three major components: 1) science/technology, 2) public beliefs, and 3) public values. To determine the appropriate action needed for a particular issue, resource managers must assess to what degree each of these factors is contributing. (Peyton 1984, Peyton et al. 1990). According to Peyton (1984), the *science/technological* component is the least difficult to deal with. Second is *public beliefs*, and finally, the *public values* component is the most arduous of the three. Unfortunately, the bear hunting issue involves all three components: bear science/technology is less than adequate to answer all the questions posed by the stakeholders, and bear hunters and other stakeholder groups have erroneous beliefs and conflicting values concerning hunting methods and regulations (Peyton 1989*b*).

Com

Communication

A communication plan is needed for bear management to identify issues and issue components and to involve the publics in decision-making. Peyton et al. (1990) state that an effective communication plan can help managers to:

educate the public
assure representative planning
develop a sense of ownership among stakeholders
cultivate political and financial support
build credibility
gain public acceptance

According to Decker et al. (1985), there are three types of public information needed for a productive communication plan:

broad--for long-range planning;
comprehensive--for short-range planning, commitment of resources, and establishment of goals and objectives;
and focused--for action decisions and implementation of activities.

Assessing how stakeholders feel about the agency is another important part of the communication process (Decker et al. 1985, Smolka and Decker 1985, Eberhardt et al. 1990). Eberhardt et al. (1990) label this as agency "credibility" and identify two major aspects: 1) competence, and 2) trustworthiness. Smolka and Decker (1985) discuss agency "image" and distinguish three components: 1) image of the agency's management function, 2) image of the agency's personnel, and 3) image of the agency's public communication behavior.

Agency credibility may be the single most important factor that must be considered when making any decisions regarding regulations (Eberhardt et al. 1990). When agency credibility is high, decisions are more likely to be accepted as necessary and the best possible choice, even when they differ from the personal preferences of the stakeholder. Consequently, it is critical that bear managers understand how hunters feel about the agency's ability to effectively manage bear hunting. Bear hunters may not trust the MDNR to make decisions that are in the best interest of hunters. They may also feel that the MDNR is not competent to

make accurate estimations of the bear population when setting harvest tag quotas each year. Although information about Michigan's bear population is increasing, the nature of black bear will continue to make it difficult for biologists to gain detailed data. With low agency credibility, stakeholders will be less willing to accept this biological shortfall and will continue to question the agencies' ability to manage effectively.

A communication program must ensure that messages are received by targeted publics and that the agency, in turn, receives feedback from those publics (Decker et al. 1985, Smolka and Decker 1985). Various approaches can be used for this purpose including focus groups, surveys, advisory committees, meetings, workshops, direct mailings, newsletters and personal communication. The following are some examples of different communication approaches taken by state agencies:

> Idaho bear management utilized a citizen's advisory committee approach that brought together a group of individuals which represented involved stakeholders (Dept. of Resour. Recreation and Tourism 1992). They met at scheduled times to discuss options for bear management that were routinely passed on to wildlife managers for consideration. Even though beliefs and values varied considerably on bear issues among group members, they were able to achieve consensus on many critical issues including baiting, dogs, and spring bear seasons.
>
> Oregon used interactive workshops in dealing with critical issues surrounding elk management as part of their communication plan (Eberhardt et al. 1990). Their strategy combined survey and workshop information to create management options that were then reviewed by the public and revised.
>
> New York State Department of Environmental Conservation developed a deer management plan which obtained input from leaders of New York organizations who represented an array of deer management interests (Smolka and Decker 1985). Beliefs concerning deer management and opinions about the management agency's credibility were gathered via mail questionnaire to create a communication planning model. Objectives of this plan involved segmenting the leaders based on their opinions and targeting different segments with messages that were tailored specifically for that segment. The agency's goal with this program was to increase public support for deer management strategies.
>
> The Montana Department of Fish, Wildlife and Parks developed a communication strategy for increasing public involvement and reducing

> conflict in decisions regarding sport fishing regulations (McMullin and Nielsen 1991). The process involved a five-step plan which included: involving concerned citizens in establishing goals, distributing a draft management plan by mail and placement at various locations, conducting a self-administered questionnaire to obtain information for revising the plan, formally presenting the plan to the Commission, and finally, informing concerned publics on the results via mass media. This communication process allowed resource managers to diffuse most of the controversy at a local level associated with wide-scale regulation changes.

Use of social marketing and issue management tools in Fisheries and Wildlife is becoming more important as human populations and resource demands increase. Black bear management, with its diverse array of stakeholders erratically communicating demands and needs to resource managers, is a case in point. A successful bear management plan needs to incorporate and combine comprehensive biological data gathering, efficacious marketing, proactive issue management, and communication.

METHODS

The 1993 study of Michigan bear hunters attitudes involved a two-phase process of: I) focus groups; and 2) a statewide mail survey.

Phase I-Focus Groups

Focus group objectives for this study included: verifying the importance of identified issues with bear hunters; uncovering previously unidentified issues; and exploring language that would be appropriate for use in a questionnaire. More detailed information about focus group methodology is included in the Literature Review section of this thesis.

It was determined that six focus groups would produce the necessary data given the time and funds that were available. The locations were chosen by obtaining a list of 1992 bear hunter applicants and determining total numbers for each county. Three areas were then selected that would encompass the greatest number of bear hunters in the Upper Peninsula, northern Lower Peninsula, and southern Lower Peninsula. It was assumed that focus group participants would be unwilling to drive more than one hour each way to attend, giving us a circle with a radius of approximately 40-50 miles around each chosen site. Based on this information, Escanaba, Mackinaw City, and Flint, Michigan were selected as focus group sites. Bear hunter applicants living within these circles were then identified by zip codes.

A random sample of applicants from each focus group area was selected and their phone numbers were obtained from 1993 phone books. Those having unlisted numbers were deleted from the list of potential participants. Telephone calls were made to 563 individuals, and of those, 238 were reached (Table 1A). Potential participants were identified, informed of

the purpose of the call, and asked if they were interested in hearing more about the study. They were also told at this time that there would be a monetary incentive of $40 to defray travel expenses. Those individuals who expressed interest in participating were screened with a short questionnaire about their bear hunting interests and questioned about times they would be available to meet (See Appendix III for Screening Questionnaire). All data were recorded on ADVANCED REVELATIONS software. The goal was to identify approximately 150 applicants who were interested in participating in a focus group.

The target audience was bear hunters, with the exception of bear hunting organization leaders who were excluded because attitudes and opinions of these individuals have already been well documented through newsletters and correspondence with the MDNR. Also, professional guides were excluded from these focus groups due to differences in hunting motives.

Using the information obtained through the screening process, potential focus group participants from each of the three areas were placed into two groups based on hunt method: 1) only dogs, or dogs in addition to other methods; 2) only bait, only still hunting, or bait in addition to still hunting. A date and time were identified for each focus group based on what the majority of potential participants said was most convenient. Approximately 20 individuals were selected for each group. Individuals were intentionally selected to ensure a range of years of bear hunting experience in each group. These individuals were recontacted by phone and participation for 60 individuals was confirmed. A total 52 individuals actually attended the focus group sessions (Table 2A). Flint and Mackinaw City each hosted a dog hunter group and a bait/still hunter group, but not enough dog hunters could be contacted in the Escanaba area to make up a focus group; therefore, two bait/still groups were conducted at this location.

Table 1A: Response to phone solicitation of focus group participants

Question	Of 238 Individuals Contacted	
	%(n) Yes	%(n) No
Are you a bear license applicant?	98.3 (234)	1.7 (4)
Would you like more information about the focus groups?	81.1 (193)	17.2 (41)
Are you willing to participate in one of the focus groups?	69.3 (165)	26.1 (62)
Do you use dogs to hunt bear?	17.2 (41)	51.7 (123)
Do you hunt bear over bait?	56.3 (134)	8.4 (20)
Have you ever provided services as a guide?	2.9 (7)	65.9 (157)
Do you belong to a bear hunting organization or club?	8.4 (20)	60.5 (144)
Have you been an officer in a bear hunting organization in the last 5 yrs.?	1.7 (4)	5.5 (13)

Table 2A: Number of bear focus group participants for each location

Group Type	# of Flint Participants	# of Mackinaw City Participants	# of Escanaba Participants
Dog, Dog/Bait, Generalist	9	9	0
Bait, Neither Dogs/Bait	9	9	8, 8
Total	**18**	**18**	**16**

Focus groups were held in hotel conference rooms at each location. Room setup involved conference-style seating, voice recording setup, and on four occasions, video recording setup. Moderators included a Fisheries and Wildlife graduate assistant who conducted two of the groups and myself, who conducted the remaining four. Moderator training involved an intensive literature review on focus groups and moderating several focus groups prior to this study.

Focus group facilitation followed a fully developed discussion guide with the following topics (See Appendix IV for Complete Discussion Guide)

- importance of bear hunting;
- hunting methods;
- hunter satisfaction;
- allocation of bear harvest tags;
- hunting seasons;
- hunting application and license process;
- attitudes toward the MDNR;
- future bear management needs.

Voice recordings from each group were transcribed to written form by Office Services at Michigan State University and the Research/Biometrics Section in the Wildlife Division of the Department of Natural Resources. Data from the discussions were not analyzed using quantitative procedures, but instead, were used as a guide in developing the content and wording of the mail questionnaire-phase II of our study. Summaries of the data gathered in

the focus groups are in Appendix V.

Phase II-Mail Survey

The focus group process generated concepts and hypotheses; however, the representativeness and utility of the information were validated through a statewide survey of bear hunters. A mail, rather than a telephone survey, was used for several reasons: 1) mailing addresses existed for all bear hunter applicants, but not phone numbers; 2) high involvement of bear hunters indicated that an adequate response rate would most likely be obtained; 3) subject matter would involve lengthy questions, which would not be appropriate for a telephone survey; and 4) the longer time period needed to conduct a mail survey was not a problem (Dillman 1978).

Survey questions were developed based on identified research needs and the additional information that was gathered in the six focus groups. The focus groups provided valuable insight for question wording and the prioritizing of topics.

Categories of questions included: 1) hunter involvement in bear hunting; 2) bear hunting satisfaction; 3) opinions about bear hunting; 4) opinions about the MDNR; 5) opinions about bear hunting regulations; 6) opinions about bear harvest tag allocation; 7) sources of bear hunting information used; and 8) demographic, and geographic characteristics of bear hunters.

To measure the "extent or intensity" of the respondent's agreement with attitudes and belief statements a Likert-type scale was used (Oskamp 1991:54). Hunting satisfaction was measured by providing 12 possible reasons for going bear hunting and asking respondents to rate each reason on a five-point scale from "most important" to "not important". Proposed reasons were developed from focus group data and earlier surveys for hunter education purposes to include achievement, affiliative, and appreciative motivations (Decker and

Connelly 1989).

Measuring attitudes toward the MDNR involved developing a set of statements respondents could react to. A five-point scale was used ranging from "strongly agree" to "strongly disagree"; a "not sure" response was provided as the middle choice. Statements were developed based on focus group data which suggested strong credibility problems between the MDNR and bear hunters. Both competence and trustworthiness aspects of credibility were considered in these statements.

Attitudes toward hunting with dogs and bait were also measured with a five-point Likert-type scale using "strongly agree" to "strongly disagree" and "not sure". The statements used in this case were based on survey questions from the 1984 bear hunter opinion survey (Peyton 1989*b*). Some changes were made to reflect a balance of positive and negative statements to avoid the appearance of survey bias. The ten statements were worded to measure the intensity of both the values and beliefs respondents held about hunting with dogs and bait.

When developing regulations, the MDNR must consider both hunter needs and protection of the bear population. Respondents were given a list of factors that the MDNR may consider when making changes to bear hunting regulations and were asked to rate these factors in importance. The list was developed from focus group data and information from MDNR personnel. A six-point Likert scale was used ranging from "most important" to "not important" and "not sure" as the sixth response. (See Appendix VIII for Complete Questionnaire)

Pilot Mail Survey

For pretesting, questionnaires with a cover letter and return envelope were sent to 36 individuals to test the clarity and content of questions. According to Sudman (1983), 20-40 is an adequate sample size for a pilot survey. A 72% overall response rate was obtained. In order to gain input concerning the content of the questionnaire, 12 of the respondents were selected from opinion leaders who were actively involved in bear hunting issues. The remaining 20 respondents were randomly selected from bear hunter focus group participants to help evaluate instrument content and wording.

Respondents were asked to fill out the questionnaire and return it along with any additional written comments they had. Feedback from the pilot surveys resulted in several changes in the questionnaire design.

Sample Selection

The mail survey sample was drawn from a list of 1992 Michigan bear hunter applicants. A total of 11,641 names were stratified based on the method they intended to use to hunt bear in 1992, which was identified on their bear license application form. The application forms identified whether applicants intended to use:: 1) bait-only; 2) dogs-only; 3) dogs and bait; and 4) neither dogs or bait. Unfortunately, the choice "dogs and bait" was ambiguous and included hunters from two different segments: those who intended to use dogs started from bait, and those who would hunt part of the time with dogs and part of the time sitting over bait. These data, therefore, were not used as the basis for segmentation. Instead, to accurately identify this characteristic, respondents were asked on the questionnaire about the method they used to hunt bear.

Peyton (1988) showed that in 1985 the bait-only group was substantially larger than the other hunt groups. Because we were interested in analyzing differences between hunt

methods, we used stratified random sampling to ensure a representative sample from each hunt group (weights were calculated to adjust these proportions accordingly when comparisons were made across the sample) (Table 3A). A sample size of 1,275 individuals was obtained, which would result in a sampling error of plus or minus 3% at a 95% confidence level.

Table 3A: Sampling frame for statewide mail survey

Hunt Method	# (%) of 1992 Harvest Tag Applicants	# (%) in Sample
Dogs Only	909 (7.8)	200 (15.7)
Dogs and Bait	1,297 (11.1)	275 (21.6)
Bait-only	8,554 (73.5)	600 (47.0)
Neither Dogs or Bait	881 (7.6)	200 (15.7)
Total	**11,641 (100)**	**1,275 (100)**

Mail Survey Implementation

Mailing procedures for the questionnaire followed the Total Design Method as recommended by Dillman (1978). The Research/Biometrics Section in the Wildlife Division of the Department of Natural Resources was responsible for all mailings (Table 4A). The first mailing was to 1,275 individuals and included: a cover letter, a 12-page questionnaire, and a stamped return envelope (Appendix VII). The second mailing was a postcard reminder/thank-you, and it went out to all 1,275 individuals. Before the third mailing was sent out, names of those who had returned a completed survey were deleted from the mailing list. The third and fourth mailings were a repeat of the first with slightly different cover letters. We obtained a response rate of 75%. A nonresponse follow-up was not performed due to the high response

rate obtained.

Table 4A: Mailing schedule for statewide mail survey

Mailing	Number in Mailing (%)	Date of Mailing
1	1,247 (100)	7/26/93
2	1,247 (100)	8/11/93
3	755 (59.2)	8/19/93
4	468 (36.7)	9/2/93

Data Entry and Analysis

Data entry was performed by the Research/Biometrics Section in the Wildlife Division of the Department of Natural Resources using FoxPro (version 2.5b) software. The error rate for data entry was less than 1%. Data were subsequently converted to SPSS for WINDOWS version 6.0.

Because bait hunters were under-sampled and dog and still hunters were over-sampled to ensure adequate sample sizes that were cost effective, data were weighted to reflect the actual population of bear hunters based on hunt method. Unweighted data was used only when comparing responses between hunt-method groups.

Responses from individuals reporting that they had been an officer in at least one of the hunting organizations indicated on the survey were combined with pilot survey data from opinion leaders for questions that were the same on both the pilot questionnaire and final mail questionnaire. This allowed for a larger sample size for comparison of those respondents who were considered bear opinion leaders and those who were not.

The purpose of this analysis was to describe differences among various segments of

the bear hunting community. Analysis was done in SPSS using cross-tabs, and Pearson Chi-square tests for percent differences across segments and within the entire sample. Both parametric and nonparametric statistics were used to test equality of means: t-tests and Mann-Whitney U tests for variables having only two values and one-way ANOVA and Kruskal-Wallis tests for variables having more than two values. There were no differences in reported significance (alpha=.05) between the parametric and nonparametric tests of the means, so, only parametric test results are given in the results.

RESULTS

Nonresponse

A total of 320 recipients (25%) of the delivered questionnaires did not respond. The largest proportion (30%) of nonrespondents were those who chose "dog/bait" as their intended method for hunting bear in 1992 (Table 1). Those who intended to use "dogs only" had the smallest proportion of nonrespondents (21%). Differences in response rates could have introduced some error in the total percent of each hunt method reported for the population. However, Dolsen and Machlis (1991) state that a substantive response bias can be ruled out when at least a 65 percent response rate is obtained. Also, the primary goal of this study was to analyze differences among groups, which is not dependent on using population estimates.

Table 1: Response, nonresponse, and nondeliverables for statewide mail survey

Choices on Application Form	Number (%) of Respondents	Number (%) of Nonrespondents	Number (%) of Nondeliverables
Dogs Only	159 (79.5)	42 (20.5)	
Dogs and Bait	188 (68.4)	82 (29.8)	
Bait-only	447 (74.5)	143 (23.8)	
Neither Dogs or Bait	145 (72.5)	53 (26.5)	
Total	**939 (74.6)**	**320 (25.4)**	**16 (1.3)**

Survey Results

Demographics

Respondents in the weighted sample averaged 42 years of age, and 93% were males. Only 10% had not completed high school and 20% had acquired a college degree. Most resided in the southern Lower Peninsula of Michigan (Table 2).

Segmentation Criteria

Respondents were segmented based on the methods they have used since 1980 to hunt bear in Michigan (Table 3). A substantial proportion (16%) of respondents had not yet bear hunted in Michigan, or had gone along on a hunt, but without a harvest tag. Most respondents (60%) used only one method to hunt bear: many (44%) indicated that they only hunt bear over bait; 6% reported using dogs exclusively; an additional 5% use only dogs but sometimes start them from bait piles (dog/bait); and 5% do not use dogs or bait (still hunter). Those in the generalist category used more than one method to hunt bear.

Another basis for segmenation in this study was membership in hunting organizations. Membership was identified for eight hunting organizations; four "bear hunting organizations", which were focused specifically on bear hunting (Michigan Bear Hunters, United Bear Hunters, Northeastern Michigan Houndsmen, and U.P. Bear Houndsmen Associations), and four "other hunting organizations", which were not specific to bear hunting, but were involved in bear and bear hunting issues (Michigan Hunting Dog Federation, Michigan Coon Hunters, Michigan Bow Hunters, and Michigan United Conservation Clubs). Only 12% were current members of a bear hunting organization, but 31% were current members of at least one of the four other hunting organizations (Table 3).

Table 2: Demographic characteristics of the weighted sample*

Characteristic	Number of Respondents	% of Respondents
Age (mean=42yrs.)		
14-19	25	2.7
20-24	52	5.5
25-29	96	10.5
30-34	147	16.0
35-39	128	13.8
40-44	128	13.9
45-49	111	12.0
50-54	73	7.9
55-59	52	5.8
60-64	40	4.2
65-69	35	3.7
70 and older	38	4.1
Sex		
Male	853	93
Female	66	7
Education		
Grade School	29	3.1
Some High School	61	6.7
Completed High School	281	30.8
Vocational Training	78	8.6
Some College	286	31.3
Completed College	108	11.8
Grad. or Professional School	71	7.8
Residence (region I, II, III)		
I-Upper Peninsula	190	20.7
II-Northern Lower Peninsula	241	26.2
III-Southern Lower Peninsula	464	50.5
Nonresident of Michigan	24	2.6

*Weights calculated to reflect representation in the population of Michigan Bear Hunters

Table 3: Main characteristics used to segment respondents

Characteristic	Actual # (%) of Respondents	Weighted # (%) of Respondents*
Hunt Method		
Dog/Bait	88 (9.6)	46 (5.0)
Dog-only	110 (12.1)	56 (6.1)
Bait-only	298 (32.7)	404 (44.0)
Still-only	58 (6.4)	42 (4.6)
Generalist	230 (25.2)	227 (24.7)
Not Hunted	128 (14.0)	143 (15.6)
Members		
Bear Hunting Organ.	142 (18.0)	102 (12.0)
Other Hunting Organ.	269 (33.5)	260 (30.5)
Cohort		
Before	537 (67.4)	499 (63.5)
After	260 (32.6)	288 (36.5)

*Weights calculated to reflect representation in the population of Michigan Bear Hunters

The dog segments had a much higher proportion of current members in bear hunting organizations, but current membership in other hunting organizations was not significantly different among the hunt-method groups (Table 4).

Table 4: Percent of each hunt-method group who were members of hunting organizations

	Membership in Hunting Organizations			
Hunt Method	% Members of Bear Hunting Organ.	Statistical Tests	% Members of Other Hunting Organ.	Statistical Tests
Dog/Bait n=76	52.6	X^2=177.7, P<0.001	36.0	X^2=6.4, P=0.265
Dog-only n=96	52.1	df=5	43.2	df=5
Bait-only n=249	7.2		31.1	
Still-only n=47	2.1		33.3	
Generalist n=193	11.9		35.9	
Not Hunted n=105	6.7		28.4	

Respondents were also segmented based on the length of time that they had been involved in bear hunting. Those who began bear hunting in or after 1990, when bear hunting went to a limited entry system for harvest tags, were placed into the "after" cohort, and those who started before 1990, the majority of respondents, were the "before" cohort (Table 3).

The "after" cohort consisted mainly of bait-only respondents with a significantly smaller percent of respondents in the dog groups (Table 5).

Table 5: Percent of each hunt-method group in the "before" and "after" cohorts

Hunt-method Group	Cohort		
	% of each Hunt Method in Before Cohort n=485	% of each Hunt Method in After Cohort n=284	Statistical Tests
Dog/Bait	7.6	2.6	X^2=32.9, P<0.001, df=4
Dog-only	8.9	4.3	
Bait-only	47.4	60.6	
Still-only	4.9	6.1	
Generalist	31.3	26.5	
Not Hunted	NA	NA	
Total	100	100	

Hunting Characteristics

Most respondents only hunted bear with a gun, but many reported using both a gun and bow (Table 6). The bait-only group showed the highest use of a bow compared to other hunt-method groups (Table 7). The "before" cohort had a larger percent of gun only respondents than did the "after" cohort (Table 8).

A large majority of respondents did all their bear hunting in only one area of the state; mainly, the western Upper Peninsula (Table 6). Of the hunt-method groups, those in the bait-only and still-only groups were the least likely to hunt in more than one area (Table 7). All hunt-method groups showed a strong tendency for one particular area with the dog/bait, bait-

only, still-only, and generalist groups using the western U. P., and dog-only hunters the eastern U.P. A larger proportion of the "after" cohort hunted in the western U.P. than the "before" cohort (Table 8).

Only 9% of the hunters said they paid someone to assist them in some aspect of bear hunting (Table 6). Respondents in the bait-only group had the highest rate of payment for hunting assistance (Table 7). Those in the "after" cohort were more likely to pay for assistance than respondents in the "before" cohort (Table 8).

Respondents first went bear hunting in 1984 and spent 7.5 days afield in 1992, on the average (Table 9). The bait-only group began bear hunting more recently than the other hunt-method groups. Members of bear hunting organizations generally began bear hunting before nonmembers, but did not spend significantly more days hunting in 1992 than did nonmembers.

Of those who had hunted with a harvest permit, an average of 1.6 bear per hunter was harvested in a lifetime of hunting, but 44% had not yet taken a bear (Table 6). The dog/bait group had the highest average number of bears harvested and still-only hunters were least likely to have harvested a bear (Table 7). As would be expected, a larger percent of respondents in the "before" cohort had harvested a bear; however, over one-third of the respondents in the "after" cohort reported that they had harvested at least one bear (Table 8). Members of bear hunting organizations had a higher rate of harvest than nonmembers, but there was no significant difference between other hunting organization members and nonmembers (Tables 10 and 11).

Almost all respondents (97%) participated in some type of hunting in addition to bear hunting. The largest proportion of respondents hunted whitetail deer, and small game (Table 6). Dog-only respondents participated in other types of hunting less frequently than other hunt-method groups with the exception of small game hunting (Table 7).

Table 6: Hunting characteristics of weighted sample*

Characteristic	Number of Respondents	% of Respondents
Equipment Used to Hunt Bear		
Gun	409	44.9
Bow	168	18.4
Both	335	36.7
Area Hunted Since 1980		
WUP only	332	42.9
EUP only	188	24.3
LowP only	140	18.1
More than one	114	14.8
Bear Harvested in Lifetime (mean=1.6)		
0 Bear	348	44.3
1 Bear	204	26.0
2 Bear	99	12.6
3-5 Bear	92	11.7
6 or More	42	5.3
Paid for Hunting Assistance (at least once 1990-1992)	60	8.7
Number of Days Hunted in 1992 (mean=7.5)		
1-3 days	66	21.9
4-6 days	102	33.7
7-9 days	58	19.2
10-12 days	38	12.4
12 or more days	43	12.8
Other Types of Hunting Since 1990		
Whitetail Deer	894	95.1
Other Big Game	185	19.7
Small Game	830	88.3
Turkey	427	45.4
Upland Game Birds	673	71.6
Waterfowl	327	34.7

*Weighted n=940

Table 7: Hunting characteristics analyzed by hunt-method group

Characteristic	Dog/Bait n=88	Dog-only n=110	Bait-only n=298	Still-only n=58	Generalist n=230	Not Hunted n=128	Statistical Tests
Equip. Used to Hunt Bear							
Gun	91.8%	86.7%	34.7%	58.9%	46.5%	48.7%	X^2=164.2, P<0.001
Bow	0.0	0.0	25.9%	8.9%	11.4%	14.2%	df=10
Both	8.2%	13.3%	39.5%	32.1%	42.1%	37.2%	
Area Hunted Since 1980							
WUP only	50.0%	16.8%	44.0%	56.4%	41.0%	NA	X^2=84.5, P<0.001
EUP only	15.1%	43.0%	23.9%	25.5%	21.1%		df=12
LowP only	5.8%	12.1%	22.2%	14.5%	15.4%		
> one area	29.1%	28.0%	9.9%	3.6%	22.5%		
Bear Harvested in Lifetime							
0 Bear	22.1%	40.4%	45.2%	66.7%	45.8%	NA	X^2=50.3, P<0.001
1 Bear	36.0%	24.8%	29.3%	7.0%	24.7%		df=16
2 Bear	9.3%	11.9%	11.9%	8.8%	13.7%		
3-5 Bear	19.8%	14.7%	9.9%	7.0%	11.0%		
6 or More	12.8%	8.3%	3.7%	10.5%	4.8%		
mean	2.7	1.8	1.3	1.5	1.5		
Paid for Hunting Assistance (at least once 1990-1992)	3.8%	1.0%	12.5%	2.1%	6.9%	NA	X^2=18.9, P<0.001 df=4
Other Hunting Since 1980							All: df=5
Whitetail Deer	84.1%	88.2%	98.3%	91.4%	97.0%	89.1%	X^2=39.2, P<0.001
Other Big Game	15.9%	9.1%	19.8%	10.3%	21.7%	19.5%	X^2=11.5, P=0.042
Small Game	92.0%	92.7%	90.9%	89.7%	87.0%	82.8%	X^2= 9.6, P=0.088
Turkey	28.4%	33.6%	53.4%	36.2%	41.7%	33.6%	X^2=30.2, P<0.001
Game Birds	63.6%	61.8%	76.2%	77.6%	74.3%	64.8%	X^2=15.6, P=0.008
Waterfowl	22.7%	17.3%	38.6%	37.9%	35.2%	35.9%	X^2=22.3, P<0.001

Table 8: Hunting characteristics analyzed by cohorts

Characteristic	Before Cohort n=499	After Cohort n=288	Statistical Tests
Equipment Used to Hunt Bear			
Gun	57.1%	47.7%	X^2=6.3, P=0.043
Bow	13.0%	14.8%	df=2
Both	30.0%	37.5%	
Area Hunted Since 1980			
WUP only	40.7%	46.6%	X^2=77.3, P<0.001
EUP only	23.1%	26.6%	df=3
LowP only	13.1%	25.9%	
> one area	23.0%	0.9%	
Bear Harvested in Lifetime			
0 Bear	33.7%	62.2%	X^2=128.9, P<0.001
1 Bear	22.7%	32.1%	df=4
2 Bear	17.4%	4.5%	
3-5 Bear	18.2%	0.7%	
6 or More	8.1%	0.5%	
mean	2.2	0.5	
Paid for Hunting Assistance (at least once 1990-1992)	7.7%	10.2%	X^2=1.3, P=0.249 df=1
Other Types of Hunting			(All Below) df=1
Whitetail Deer	95.2%	97.9%	X^2=3.8, P=0.052
Other Big Game	20.5%	17.0%	X^2=1.4, P=0.229
Small Game	90.5%	87.7%	X^2=1.6, P=0.207
Turkey	46.9%	47.3%	X^2=0.01, P=0.910
Game Birds	72.9%	73.9%	X^2=0.1, P=0.751
Waterfowl	34.4%	36.0%	X^2=0.2, P=0.644

Table 9: Mean year respondents began bear hunting and mean number of days hunted in 1992 for bear

Characteristic		First Year Bear Hunted mean 19- (SE)	Statistical Tests	# of Days Hunted 1992 mean (SE)	Statistical Tests
All Respondents		84 (0.36)		7.5 (0.36)	
Hunt-method Group					
Dog/Bait		78 (1.14)	F ratio=19.9, P=<0.001	9.5 (1.7)	F ratio=1.0, P=0.387
Dog-only		79 (1.13)	df=4	9.6 (1.0)	df=4
Bait-only		86 (0.42)		7.9 (0.72)	
Still-only		79 (2.25)		6.7 (1.13)	
Generalist		82 (0.70)		7.7 (0.63)	
Membership					
Bear Hunting Organ.	Member	80 (0.99)	t=4.5, P=<0.001	8.8 (1.58)	t=-1.0, P=0.327
	Nonmember	85 (0.38)	df=710	7.4 (0.39)	df=276
Other Hunting Organ.	Member	83 (0.61)	t=1.8, P=0.078	6.9 (0.66)	t=1.1, P=0.278
	Nonmember	84 (0.44)	df=711	7.7 (0.45)	df=282
Cohort					
Before		79 (0.45)	t=-28.1, P=<0.001	8.1 (0.60)	t=1.28, P=0.201
After		92 (0.04)	df=507.2	7.2 (0.44)	df=299

Table 10: Bears harvested analyzed by membership in bear hunting organizations

Characteristic	Bear Hunting Organ. % of Members n=102	% of Nonmembers n=748	Statistical Tests
Bear Harvested in Lifetime			
0 Bear	28.3	46.8	X^2=27.4, P<0.001, df=4
1 Bear	24.0	27.2	
2 Bear	13.9	12.1	
3-5 Bear	21.4	10.2	
6 or More	12.3	3.8	
# of Bears Harvested (mean)	2.6 (S.E.=0.39)	1.3 (S.E.=0.10)	t=-3.15, P=0.002, df=102.93

Table 11: Bears harvested analyzed by membership in other hunting organizations

Characteristic	Other Hunting Organ. % of Members n=260	% of Nonmembers n=593	Statistical Tests
Bear Harvested in Lifetime			
0 Bear n=286	42.2	44.2	X^2=8.9, P=0.064, df=4
1 Bear n=180	24.1	29.0	
2 Bear n=78	11.8	12.5	
3-5 Bear n=79	16.8	9.2	
6 or More n=35	5.1	5.1	
# of Bears Harvested (mean)	1.6 (S.E.=0.18)	1.4 (S.E.=0.11)	t=-1.36, P=0.174, df=708

Importance of Bear Hunting

Bear hunting was rated as their most important recreational activity by 12% of the respondents and as one of their more important recreational activities by an additional 52% (Table 12). The level of importance differed among hunt-method groups, with the dog groups rating it higher and the still-only group rating it lower in importance than did the other hunt-method groups. Respondents in the dog groups who owned their own bear dogs reported an even higher level of importance than those who didn't own dogs (Table 13). Members of bear hunting organizations reported that bear hunting was more important than did nonmembers (Table 12). Respondents in the "before" cohort indicated that bear hunting was more important than did those in the "after" cohort (Table 12). Also, those who had not yet harvested a bear considered bear hunting less important than those who had (Table 14).

Table 12: Importance of bear hunting compared to other recreational activities

Segment		% Most important	% One of the more important	% No more important	% Less important	% Not at all important
All Respondents n=940 (X^2=732.2, P<0.001, df=4)		12.3	52.1	26.4	8.0	1.1
Hunt-method Group (X^2=120.6, P<0.001, df=20)						
Dog/Bait n=87		36.8	47.1	11.5	3.4	1.1
Dog-only n=108		28.7	48.1	18.5	4.6	0.0
Bait-only n=297		9.8	56.9	24.2	7.7	1.3
Still-only n=57		3.5	24.6	50.9	21.1	0.0
Generalist n=228		10.5	54.8	25.9	7.5	1.3
Not Hunted n=127		9.4	44.1	29.9	13.4	3.1
Membership						
Bear Hunting Organ.	Member n=101	30.9	56.5	7.1	4.0	1.5
(X^2=54.4 P<0.001, df=4)	Nonmember n=745	9.3	54.2	29.1	8.4	0.9
Other Hunting Organ.	Member n=258	14.4	50.1	25.6	7.6	2.2
(X^2=4.5, P=0.348, df=4)	Nonmember n=588	11.3	53.7	27.1	7.1	0.9
Cohort (X^2=36.2, P<0.001, df=4)						
Before n=496		17.0	52.8	23.8	5.9	0.4
After n=285		6.0	54.6	28.6	9.2	1.6

Table 13: Importance of bear hunting analyzed by respondents in hunt-method groups who own bear dogs*

Hunt-method Group	Own Bear Dogs	% Most Important	% One of the More Important	Statistical Tests
Dog/Bait	Yes n=55 No n=30	54.5 3.3	38.2 63.3	X^2=26.6, P<0.001 df=4
Dog-only	Yes n=61 No n=46	45.9 4.3	49.2 47.8	X^2=37.0, P<0.001 df=3
Generalist	Yes n=29 No n=196	17.2 9.2	69.0 53.6	X^2=9.0, P=0.061 df=4

*Likert-type Rating Scale: 1=Most Important Recreational Activity, 2=One of the More Important, 3=No More Important, 4=Less Important, 5=Not at all Important

Table 14: Importance of bear hunting analyzed by number of bear harvested*

Bear Harvested	Importance (mean)	S.E.	Statistical Tests
0 Bear n=338	2.5	0.05	F ratio=13.2,
1 Bear n=211	2.3	0.06	P<0.001, df=4
2 Bear n=97	2.1	0.08	
3-5 Bear n=94	2.0	0.08	
6 or More Bear n=49	1.8	0.11	

*Likert-type Rating Scale: 1=Most Important, 2=One of the More Important, 3=No More Important, 4=Less Important, 5=Not at all Important

Loyalty to Hunt Methods

We questioned respondents about their intentions to use each hunting method over the next five years (Table 15A). Loyalty to hunting methods was very high among the groups who used only one method to hunt bear, with the exception of still-only respondents. Most respondents in the dog and bait-only groups reported that they intended to use only those methods to hunt bear in the next five years. Only about half of the still-only group planned to continue with their method; many intended to use only bait or more than one method to hunt bear. Almost none of the still only group planned on using dogs. This group also had the highest proportion of respondents who intended to drop out of bear hunting over the next five years. The percent of individuals in each hunt-method group over the next five years will change somewhat based on the intentions of respondents (Table 15B). More of those who have not yet hunted plan to use only bait and fewer intend to use only dogs than those respondents who had been bear hunting.

Reasons for Going Bear hunting

Respondents reported that the most important reasons for going bear hunting were "to be in the woods," "to have the opportunity to see a bear in its natural habitat," and "to use hunting skills" (Table 16). Dog hunters indicated that the most important reason for going hunting was to see and hear bear dogs work. Dog hunters also thought being with friends was more important than did other hunt-method groups, but being with family ranked fairly low with all hunt-method groups. "To have the opportunity to get a shot at a bear" and "to harvest a bear" were rated as more important by the bait-only, generalists, and not hunted groups than by the dog groups.

Table 15A: Percent of hunt-method groups who intend to use each method to hunt bear over the next 5 years

Hunt-method Group	Methods Respondents Intend to Use Over Next 5 Years				
	% Dogs Started over Bait	% Dogs not Started over Bait	% Bait Sitting	% Neither Dogs nor Bait	% Do not Plan on Hunting Bear
Dog/Bait n=88	87.5	86.4	6.8	3.4	2.3
Dog Only n=110	6.4	94.5	5.5	1.8	2.7
Bait Only n=298	5.0	5.4	94.3	8.4	4.0
Still Only n=58	1.7	1.7	31.0	67.2	15.5
Generalist n=230	18.7	27.0	78.3	45.2	7.0
Not Hunted n=128	10.2	18.0	77.3	23.4	4.7

Table 15B: Potential changes in hunt-method groups over the next five years

Hunt-method Group	Hunt-method Group Over Next 5 Years				
	Dogs/Bait	Dog-only	Bait-only	Still-only	> One Method
Dog/Bait n=88	78.4	10.2	0.0	0.0	9.1
Dog-only n=109	5.5	83.6	0.9	0.0	7.3
Bait-only n=296	0.0	0.3	81.2	1.0	13.4
Still-only n=58	0.0	0.0	19.0	53.4	12.1
Generalist n=229	6.1	3.5	22.6	3.5	57.4
Not Hunted n=126	5.5	3.1	51.6	7.8	27.3

Table 16: Mean rating of importance for why respondents go bear hunting analyzed by hunt-method group*

How important is this as a reason why you would go bear hunting?	Dog/Bait n=88 mean (SE)	Dog-only n=110 mean (SE)	Bait-only n=298 mean (SE)	Still-only n=58 mean (SE)	Generalist n=230 mean (SE)	Not Hunted n=128 mean (SE)	Overall n=939 mean (SE)
spend time with bear hunting friends (F ratio=16.5, P<0.001, df=5)	1.6 (0.10)	1.8 (0.10)	2.7 (0.09)	3.2 (0.23)	2.5 (0.10)	2.7 (0.13)	2.6 (0.05)
get away from work, school, or stress and to relax (F ratio=1.2, P=0.315, df=5)	2.4 (0.15)	2.3 (0.14)	2.0 (0.08)	2.4 (0.23)	2.2 (0.09)	2.3 (0.12)	2.2 (0.05)
use hunting skills (F ratio=6.1, P<0.001, df=5)	2.2 (0.13)	2.2 (0.13)	1.7 (0.06)	1.7 (0.14)	1.7 (0.06)	1.9 (0.10)	1.8 (0.03)
have bear meat (F ratio=9.3, P<0.001, df=5)	3.6 (0.16)	3.7 (0.14)	2.8 (0.08)	3.1 (0.20)	2.9 (0.09)	3.0 (0.13)	2.9 (0.05)
have the opportunity to get a shot at a bear (F ratio=41.8, P<0.001, df=5)	4.0 (0.14)	3.6 (0.14)	2.1 (0.07)	2.9 (0.19)	2.3 (0.09)	2.4 (0.13)	2.4 (0.05)
be in the woods (F ratio=0.9, P=0.483, df=5)	1.6 (0.09)	1.5 (0.09)	1.4 (0.05)	1.5 (0.11)	1.4 (0.05)	1.4 (0.07)	1.4 (0.03)
harvest a bear (F ratio=26.5, P<0.001, df=5)	3.9 (0.14)	3.7 (0.14)	2.4 (0.08)	2.7 (0.19)	2.7 (0.10)	2.5 (0.13)	2.6 (0.05)
spend time with family (F ratio=5.1,P<0.001,df=5)	3.0 (0.19)	2.6 (0.15)	3.3 (0.09)	3.7 (0.21)	3.2 (0.10)	2.8 (0.14)	3.2 (0.05)
have the challenge of hunting a dangerous animal (F ratio=5.7, P<0.001, df=5)	3.0 (0.17)	3.4 (0.15)	2.6 (0.09)	2.8 (0.21)	2.6 (0.10)	2.5 (0.13)	2.6 (0.05)
enjoy the prehunt baiting activities (F ratio=64.4, P<0.001, df=5)	3.7 (0.15)	4.6 (0.11)	2.2 (0.07)	4.3 (0.16)	2.8 (0.10)	2.8 (0.12)	2.7 (0.05)
have the opportunity to see a bear (F ratio=5.8, P<0.001, df=5)	1.8 (0.12)	1.7 (0.11)	1.4 (0.04)	1.7 (0.15)	1.4 (0.05)	1.5 (0.08)	1.5 (0.03)
see and hear bear dogs work (F ratio=176.6, P<0.001, df=5)	1.2 (0.07)	1.3 (0.08)	4.6 (0.06)	4.8 (0.11)	3.5 (0.12)	3.8 (0.15)	4.0 (0.05)

*Likert-type Rating Scale: 1=Most Important Reason to 5=Not Important

Spending time with bear hunting friends was rated higher in importance by members of hunting organizations than by nonmembers (Table 17). In contrast, harvesting a bear and having bear meat were both rated lower in importance to members compared to nonmembers of hunting organizations. Members of bear hunting organizations rated getting shots at bears as lower in importance than did nonmembers; however, there was no difference between members and nonmembers of other hunting organizations on this reason for bear hunting.

Harvesting a bear and getting a shot at a bear were more important to the "after" cohort than the "before" cohort as reasons for going bear hunting (Table 18). Those respondents who had bear hunted, but had not yet harvested a bear rated these two factors as more important than those who had harvested one or more bears (Table 19).

Table 17: Mean rating of importance for why respondents go bear hunting analyzed by membership in hunting organizations*

How important is this as a reason why you would go bear hunting?	Membership in Bear Hunting Organizations			Membership in Other Hunting Organizations		
	Member mean (SE)	Nonmember mean (SE)	Statistical Tests	Member mean (SE)	Nonmember mean (SE)	Statistical Tests
spend time with bear hunting friends	**2.0 (0.13)**	**2.7 (0.06)**	**t=5.2, P<0.001, df=139.6**	**2.4 (0.08)**	**2.7 (0.06)**	**t=2.9, P=0.005, df=552.6**
get away from work, school, or stress and to relax	2.2 (0.13)	1.3 (0.05)	t=0.4, P=0.710, df=808	2.2 (0.08)	2.2 (0.06)	t=-0.20, P=0.844, df=809
use hunting skills	1.8 (0.11)	1.8 (0.04)	t=-0.3, P=0.742, df=828	1.7 (0.06)	1.8 (0.04)	t=0.9, P=0.398, df=829
have bear meat	**3.4 (0.14)**	**2.9 (0.05)**	**t=-3.7, P<0.001, df=820**	**3.2 (0.09)**	**2.8 (0.06)**	**t=-3.6, P<0.001, df=822**
have the opportunity to get a shot at a bear	**3.2 (0.15)**	**2.3 (0.05)**	**t=-5.6, P<0.001, df=120.3**	2.5 (0.09)	2.3 (0.06)	t=-1.4, P=0.164, df=824
be in the woods	1.5 (0.08)	1.4 (0.03)	t=-0.3, P=0.735, df=829	**1.4 (0.04)**	**1.5 (0.03)**	**t=2.1, P=0.038, df=597**
harvest a bear	**3.5 (0.14)**	**2.5 (0.05)**	**t=-6.5, P<0.001, df=817**	**2.9 (0.08)**	**2.5 (0.06)**	**t=-3.5, P=0.001, df=818**
spend time with family	3.0 (0.16)	3.2 (0.06)	t=1.4, P=0.153, df=802	**3.0 (0.10)**	**3.3 (0.06)**	**t=2.1, P=0.032, df=802**
have the challenge of hunting a dangerous animal	2.8 (0.15)	2.6 (0.05)	t=-1.2, P=0.251, df=813	2.7 (0.09)	2.6 (0.06)	t=-1.2, P=0.244, df=815
enjoy the prehunt baiting activities	**3.2 (0.17)**	**2.6 (0.05)**	**t=-3.1, P=0.002, df=117.9**	2.8 (0.09)	2.6 (0.06)	t=-1.2, P=0.215, df=816
have the opportunity to see a bear	1.6 (0.10)	1.4 (0.03)	t=-1.0, P=0.321, df=119.9	1.4 (0.05)	1.5 (0.04)	t=0.8, P=0.402, df=827
see and hear bear dogs work	**2.5 (0.19)**	**4.2 (0.05)**	**t=8.8, P<0.001, df=115.6**	3.9 (0.11)	4.1 (0.07)	t=1.8, P=0.078, df=448.1

*Likert-type Rating Scale: 1=Most Important Reason to 5=Not Important

Table 18: Mean rating of importance for why respondents go bear hunting analyzed by cohorts*

How important is this as a reason why you would go bear hunting?	**Before Cohort n=499 mean (SE)**	**After Cohort n=288 mean (SE)**
spend time with bear hunting friends (t=-4.36, P<0.001, df=779)	2.6 (0.07)	2.7 (0.09)
get away from work, school, or stress and to relax (t=0.2, P=0.825, df=739)	2.2 (0.06)	2.2 (0.08)
use hunting skills (t=-0.62, P=0.539,df=759)	1.8 (0.05)	1.8 (0.06)
have bear meat (t=0.7, P=0.476, df=641.36)	3.0 (0.07)	2.9 (0.08)
have the opportunity to get a shot at a bear (t=2.8, P=0.005, df=657.6)	**2.5 (0.07)**	**2.2 (0.07)**
be in the woods (t=0.5, P=0.586, df=765)	1.5 (0.04)	1.4 (0.05)
harvest a bear (t=4.2, P<0.001, df=649.7)	**2.8 (0.07)**	**2.4 (0.08)**
spend time with family (t=0.9 ,P=0.322, df=734)	3.3 (0.07)	3.1 (0.09)
have the challenge of hunting a dangerous animal (t=1.4, P=0.167, df=655)	2.7 (0.07)	2.6 (0.08)
enjoy the prehunt baiting activities (t=-0.1, P=0.908, df=644.2)	2.7 (0.07)	2.7 (0.08)
have the opportunity to see a bear (t=-1.1, P=0.262, df=756)	1.4 (0.04)	1.5 (0.05)
see and hear bear dogs work (t=-5.7, P<0.001, df=674)	**3.7 (0.08)**	**4.4 (0.08)**

*Likert-type Rating Scale: 1=Most Important Reason to 5=Not Important

Table 19: Mean rating of importance for why respondents go bear hunting analyzed by bear harvested*

How important is this as a reason why you would go bear hunting?	0 Bear n=345 mean (SE)	1 Bear n=212 mean (SE)	2 Bear n=97 mean (SE)	3 - 5 Bear n=94 mean (SE)	6 or More Bear n=49 mean (SE)
spend time with bear hunting friends (F ratio=3.0, P=0.017, df=4)	**2.6 (0.08)**	**2.2 (0.10)**	**2.6 (0.16)**	**2.4 (0.15)**	**2.3 (0.21)**
get away from work, school, or stress and to relax (F ratio=1.4, P=0.220, df=4)	2.1 (0.07)	2.2 (0.09)	2.3 (0.15)	2.5 (0.16)	2.2 (0.20)
use hunting skills (F ratio=0.6, P=0.659, df=4)	1.9 (0.06)	1.8 (0.08)	1.9 (0.12)	1.8 (0.11)	1.6 (0.14)
have bear meat (F ratio=0.9, P=0.486, df=4)	3.1 (0.08)	3.1 (0.10)	2.9 (0.15)	3.2 (0.15)	2.9 (0.24)
have the opportunity to get a shot at a bear (F ratio=8.1, P<0.001, df=4)	**2.4 (0.08)**	**2.7 (0.11)**	**2.7 (0.16)**	**3.2 (0.15)**	**3.3 (0.21)**
be in the woods (F ratio=0.9, P=0.465, df=4)	1.5 (0.05)	1.4 (0.05)	1.4 (0.08)	1.5 (0.09)	1.6 (0.12)
harvest a bear (F ratio=10.4, P<0.001, df=4)	**2.6 (0.08)**	**3.0 (0.12)**	**2.8 (0.15)**	**3.5 (0.15)**	**3.5 (0.24)**
spend time with family (F ratio=0.1, P=0.976,df=4)	3.1 (0.08)	3.2 (0.12)	3.2 (0.16)	3.1 (0.16)	3.1 (0.23)
have the challenge of hunting a dangerous animal (F ratio=0.7, P=0.590, df=4)	2.7 (0.08)	2.8 (0.11)	2.8 (0.17)	2.9 (0.17)	3.0 (0.24)
enjoy the prehunt baiting activities (F ratio=1.1, P=0.335, df=4)	3.2 (0.08)	3.0 (0.11)	2.9 (0.16)	2.9 (0.17)	2.9 (0.26)
have the opportunity to see a bear in its natural habitat (F ratio=0.6, P=0.645, df=4)	1.6 (0.05)	1.5 (0.06)	1.4 (0.09)	1.5 (0.10)	1.6 (0.15)
see and hear bear dogs work (F ratio=4.8, P<0.001, df=4)	**3.7 (0.10)**	**3.3 (0.13)**	**3.3 (0.19)**	**3.0 (0.20)**	**2.6 (0.29)**

*Likert-type Rating Scale: 1=Most Important Reason to 5=Not Important

Bear Hunting Regulations

On the average, respondents rated "protection of the bear population," "number of years hunters wait for a bear harvest permit," and "freedom to choose what area of Michigan to bear hunt in" as the most important factors the DNR should consider when determining regulations (Table 20). Less important, but still moderately important, were "freedom to choose when to hunt" and "interference among bear hunters in the woods". The "length of bear hunting season" and "chances of harvesting a bear" were the least important factors and were rated moderate to low.

The number of years that hunters wait for a harvest tag was less important to those in the dog groups compared to other hunt-method groups (Table 20). Respondents in the dog groups also reported that the length of the bear season was more important than did other hunt-method groups.

Members of bear hunting organizations rated chances of harvesting a bear as less important and protection of the bear population as more important than nonmembers did; whereas, length of the bear season was more important to members than nonmembers (Table 21). Members and nonmembers of other hunting organizations did not differ in importance ratings for these factors with the exception of number of years wait for a tag; nonmembers rated this more important than members did (Table 22).

Those who were in the "after" cohort rated harvest rate as more important than the "before" cohort, but they still rated it less important than all other factors (Table 23). Interference among hunters in the woods was also more important to respondents in the "after" cohort.

Table 20: Mean importance of each of the following factors analyzed by hunt-method group*

Factors	Dog/Bait mean (SE)	Dog-only mean (SE)	Bait-only mean (SE)	Still-only mean (SE)	Generalist mean (SE)	Not Hunted mean (SE)	Overall mean (SE)
Interference among hunters (F ratio=4.5, P<0.001, df=5)	**3.1 (0.16)**	**2.9 (0.14)**	**2.4 (0.08)**	**2.7 (0.22)**	**2.6 (0.10)**	**2.5 (0.12)**	2.6 (0.05)
Protection of the bear population (F ratio=1.6, P=0.157, df=5)	1.4 (0.07)	1.4 (0.07)	1.6 (0.05)	1.6 (0.13)	1.6 (0.06)	1.6 (0.07)	1.5 (0.03)
Length of the bear hunting season (F ratio=4.6, P<0.001, df=5)	**2.3 (0.13)**	**2.4 (0.12)**	**2.9 (0.08)**	**2.8 (0.19)**	**2.6 (0.09)**	**2.8 (0.12)**	2.7 (0.04)
Number of yrs. wait for a tag (F ratio=10.5, P<0.001, df=5)	**2.7 (0.14)**	**2.2 (0.13)**	**1.9 (0.06)**	**2.1 (0.14)**	**1.9 (0.07)**	**1.9 (0.09)**	2.0 (0.04)
Chances of harvesting a bear (F ratio=9.6, P<0.001, df=5)	**3.8 (0.13)**	**3.5 (0.13)**	**3.0 (0.07)**	**3.2 (0.17)**	**3.0 (0.09)**	**2.8 (0.12)**	3.1 (0.04)
Freedom to choose hunt area (F ratio=0.3, P=0.904, df=5)	1.9 (0.13)	1.8 (0.11)	1.9 (0.07)	1.8 (0.14)	1.8 (0.08)	2.0 (0.11)	1.9 (0.04)
Freedom to choose when to hunt (F ratio=2.1, P=0.069, df=5)	2.2 (0.15)	2.3 (0.14)	2.4 (0.08)	2.6 (0.19)	2.3 (0.09)	2.7 (0.14)	2.4 (0.05)

*Likert-type Rating Scale: 1=Most Important Factor to 5=Not Important

Table 21: Mean importance of each of the following factors analyzed by membership in bear hunting organizations*

Factors	Bear Hunting Organ.		Statistical Tests
	Members mean (SE)	Nonmembers mean (SE)	
Interference among hunters	2.8 (0.15)	2.5 (0.05)	t=-2.5, P=0.014, df=776
Protection of the bear population	1.3 (0.06)	1.6 (0.03)	t=4.1, P<0.001, df=159.3
Bear hunting season length	2.6 (0.14)	2.8 (0.05)	t=2.1, P=0.039, df=812
Number of yrs. wait for a tag	2.1 (0.13)	1.9 (0.04)	t=-1.3, P=0.212, df=115.9
Chances of harvesting a bear	3.5 (0.14)	3.0 (0.05)	t=-3.2, P=0.002, df=121.7
Freedom to choose hunt area	1.7 (0.11)	1.9 (0.04)	t=1.3, P=0.183, df=824
Freedom to choose when to hunt	2.3 (0.14)	2.5 (0.05)	t=1.6, P=0.117, df=815

*Likert-type Rating Scale: 1=Most Important Factor to 5=Not Important

Table 22: Mean importance of each of the following factors analyzed by membership in other hunting organizations*

Factors	Other Hunting Organ.		Statistical Tests
	Members mean (SE)	Nonmembers mean (SE)	
Interference among hunters	2.5 (0.08)	2.5 (0.06)	t=0.2, P=0.880, df=780
Protection of the bear population	1.5 (0.05)	1.6 (0.04)	t=1.8, P=0.077, df=541.2
Bear hunting season length	2.9 (0.08)	2.7 (0.05)	t=-1.2, P=0.229, df=815
Number of yrs. wait for a tag	2.1 (0.07)	1.8 (0.04)	t=-2.9, P=0.004, df=412.3
Chances of harvesting a bear	3.1 (0.08)	3.0 (0.05)	t=0.8, P=0.430, df=820
Freedom to choose hunt area	1.9 (0.07)	1.9 (0.05)	t=-0.3, P=0.731, df=824
Freedom to choose when to hunt	2.5 (0.08)	2.5 (0.06)	t=0.01, P=0.990, df=817

*Likert-type Rating Scale: 1=Most Important Factor to 5=Not Important

Table 23: Mean importance of each of the following factors analyzed by cohorts*

Factors	Before Cohort mean (SE)	After Cohort mean (SE)
Interference among hunters (t=2.5, P=0.013, df=594.5)	**2.6 (0.07)**	**2.4 (0.08)**
Protection of the bear population (t=0.2, P=0.840, df=751)	1.6 (0.04)	1.5 (0.05)
Length of the bear hunting season (t=-0.3, P=0.805, df=743)	2.8 (0.06)	2.8 (0.07)
Number of yrs. wait for a tag (t=-1.57, P=0.116, df=750)	1.9 (0.05)	2.0 (0.06)
Chances of harvesting a bear (t=2.7, P=0.007, df=747)	**3.2 (0.06)**	**2.9 (0.07)**
Freedom to choose hunt area (t=1.0, P=0.325, df=752)	1.8 (0.05)	1.9 (0.07)
Freedom to choose when to hunt (t=-1.2, P=0.224, df=744)	2.4 (0.06)	2.5 (0.08)

*Likert-type Rating Scale: 1=Most Important Factor to 5=Not Important

Respondents reported that they would wait an average of two to three years for a harvest tag and still remain satisfied with bear hunting (Table 24). They reported they would quit applying for a harvest tag after an average waiting time of four years (Table 25). The not hunted and dog groups were willing to wait the longest. There was no significant difference between members of hunting organizations for number of years they were willing to wait to remain satisfied with bear hunting. Members of bear hunting organizations, however, would wait longer than nonmembers before quitting the application process.

On the average, respondents indicated that they would be satisfied with a hunting season of 18 days, given the current system where dog and bait hunters are, for the most part, in the woods together (Table 26). If the bear hunting season were split to completely separate dog hunters from bait and still hunters, the season length that respondents needed in order to be satisfied averaged four to five days less than with the current system (Table 27). To be satisfied with bear hunting, the dog hunter groups required a considerably longer season than the other hunt-method groups. Members of bear hunting organizations needed a considerably longer season than nonmembers; however, members of other hunting organizations were not significantly different from nonmembers. Respondents in the "after" cohort were, on the average, satisfied with a shorter hunting season than was the "before" cohort.

Table 24: Longest respondents would wait for a harvest tag and still be satisfied with bear hunting

Segment		# of Yrs. mean (S.E.)	Statistical Tests
All Respondents		2.3 (0.03)	
Hunt Method			
Dog/Bait		2.6 (0.15)	F ratio=11.4, P<0.001
Dog-only		2.5 (0.13)	df=5
Bait-only		2.2 (0.04)	
Still-only		2.2 (0.13)	
Generalist		2.2 (0.05)	
Not Hunted		2.8 (0.10)	
Membership			
Bear Hunting Organ.	Member	2.4 (0.11)	t=-1.4, P=0.172
	Nonmember	2.3 (0.03)	df=816
Other Hunting Organ.	Member	2.4 (0.06)	t=-1.1, P=0.262
	Nonmember	2.3 (0.04)	df=817
Cohort			
Before		2.2 (0.04)	t=0.4, P=0.723
After		2.2 (0.05)	df=750

Table 25: Longest respondents would wait for a harvest tag before they would quit applying

Segment		# of Yrs. mean (S.E.)	Statistical Tests
All Respondents		4.1 (0.07)	
Hunt Method			
Dog/Bait		5.1 (0.25)	F ratio=9.9, P<0.001
Dog-only		4.6 (0.23)	df=5
Bait-only		3.9 (0.12)	
Still-only		3.8 (0.27)	
Generalist		3.6 (0.13)	
Not Hunted		4.6 (0.17)	
Membership			
Bear Hunting Organ.	Member	4.9 (0.22)	t=-3.9, P<0.001
	Nonmember	4.0 (0.08)	df=106.3
Other Hunting Organ.	Member	4.2 (0.13)	t=-1.4, P=0.170
	Nonmember	4.0 (0.09)	df=692
Cohort			
Before		4.0 (0.10)	t=1.5, P=0.130
After		3.8 (0.12)	df=523.3

Table 26: Mean season length that respondents would be satisfied with, given the current overlapping seasons

Segment		# of Days with Overlapping Seasons mean (S.E.)	Statistical Tests
All Respondents		17.9 (0.38)	
Hunt Method			
Dog/Bait		26.8 (1.44)	F ratio=29.6 P<0.001
Dog-only		25.2 (1.29)	df=5
Bait-only		15.4 (0.56)	
Still-only		14.6 (1.19)	
Generalist		17.1 (0.68)	
Not Hunted		14.6 (0.80)	
Membership			
Bear Hunting Organ.	Member	22.0 (1.34)	t=4.6, P<0.001 df=112
	Nonmember	15.7 (0.35)	
Other Hunting Organ.	Member	16.2 (10.1)	t=0.4, P=0.728
	Nonmember	16.5 (10.0)	df=794
Cohort			
Before		17.6 (0.51)	t=2.21, P=0.028
After		15.9 (0.57)	df=637.5

Table 27: Mean season length that respondents would be satisfied with, given split seasons

Segment		# of Days with Split Seasons mean (S.E.)	Statistical Tests
All Respondents		13.1	
Hunt Method			
Dog/Bait		21.6 (1.28)	F ratio=34.1, P<0.001
Dog-only		20.4 (0.99)	df=5
Bait-only		12.3 (0.40)	
Still-only		11.9 (0.76)	
Generalist		13.4 (0.49)	
Not Hunted		11.7 (0.54)	
Membership			
Bear Hunting Organ.	Member	17.1 (1.10)	t=-4.0, P<0.001
	Nonmember	12.6 (0.25)	df=88.8
Other Hunting Organ.	Member	12.5 (0.45)	t=1.3, P=0.181
	Nonmember	13.2 (0.30)	df=759
Cohort			
Before		14.2 (0.39)	t=3.5, P<0.001
After		12.3 (0.36)	df=678.1

Hunter success rate was reported as unimportant by 42% of the respondents (Table 28). Of the remaining respondents, 33% reported that a success rate where one or two out of ten hunters are harvesting a bear would be satisfactory.[1] The mean satisfactory success rate was highest for the dog/bait group. Those respondents in the "after" cohort reported the need for a higher success rate. There was not a significant difference for desired success rate between members and nonmembers of hunting organizations.

Use of Dogs and Bait to Hunt Bear

Respondents using one hunt method exclusively, whether dogs, bait sitting, or still hunting, tended to be critical of other methods of hunting bear. Only about half of the dog-only and still-only hunters indicated that baiting for bear should continue in Michigan (Table 29). A similar proportion of the bait-only group thought hound hunting should continue, but less than a third of the still-only hunters indicated that dog hunting should continue (Table 30).

We also looked at respondents' values and beliefs about hunting bear with dogs and bait to better understand the reasons respondents had for wanting baiting and dog hunting to be discontinued in Michigan (Tables 29 and 30). Only about half of the dog-only group reported that baiting for bear is ethical, and conversely, about half of the bait-only group considered dog hunting ethical. Most of the still-only group did not feel that dog hunting was ethical, and though more of this segment considered baiting ethical, it was not highly supported.

Most of the dog-only and almost half of the still-only group indicated bait hunters take more than their share of bear. Nearly half of the still-only group also agreed that dog hunters take more than their share, as did about one-third of the bait-only respondents.

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[1]The state's bear harvest in 1992 averaged approximately three out of ten hunters.

The majority of respondents in the bait-only and still-only group thought dog hunting interfered with other methods of hunting bear, but only about one-third of dog-only indicated that baiting interfered with other methods.

Of those respondents who thought baiting should not continue to be allowed in Michigan, a high proportion reported that baiting is not ethical and that baiters take more than their share of the bear (Table 31). Fewer of these respondents, but still the majority, thought that baiting interferes with other methods of hunting bear or that baiters have a greater chance of harvesting a bear.

Of those respondents who thought hunting bear with dogs should not continue, almost all felt that dog hunting was not ethical and that it interferes with other methods of hunting bear (Table 32). Many of these respondents also felt that dog hunters have a greater chance of harvesting a bear than baiters and fewer, but still a majority reported that dog hunters take more than their share of the bear.

Table 28: Hunter success rate (per 10 hunters) needed to be satisfied with bear hunting and percent who reported that success rate is not important

Segment		Hunter Success Rate (mean per 10 hunters)	"Success rate is not important"
All Respondents n=924		2.2	42.0%
Hunt Method			
(F ratio=2.9, P=0.014, df=5)			
Dog/Bait n=85		2.7 (0.18)	60.0%
Dog-only n=107		2.0 (0.16)	55.1%
Bait-only n=292		2.3 (0.09)	40.1%
Still-only n=58		2.0 (0.19)	56.9%
Generalist n=227		2.1 (0.09)	38.8%
Not Hunted n=126		2.3 (0.13)	39.7%
Membership			
Bear Hunting Organ.	Member n=100	2.4 (0.11)	54.6%
(t=-1.4, P=0.172, df=816)	Nonmember n=738	2.3 (0.03)	40.2%
Other Hunting Organ.	Member n=257	2.4 (0.06)	46.3%
(t=-1.1, P=0.262, df=817)	Nonmember n=584	2.3 (0.04)	40.6%
Cohort (t=-3.8, P<0.001, df=396)			
Before n=486		2.0	44.4%
After n=287		2.4	39.0%

Table 29: Opinions on hunting bear over bait analyzed by hunt-method group

Statements About Hunting Over Bait	Response	% of each Hunt-method Group					
		Dog/Bait n=88	Dog-only n=110	Bait-only n=298	Still-only n=58	Generalist n=230	Not Hunted n=128
There is nothing unethical or immoral about hunting bear over bait. (X^2=186.6, P<0.001, df=10)	Agree	72.4	52.3	98.0	56.9	89.1	87.3
	Disagree	17.2	37.6	0.7	34.5	5.2	7.1
	Not Sure	10.3	10.1	1.3	8.6	5.7	5.6
Bait hunters take more than their share of the bear. (X^2=258.2, P<0.001, df=10)	Agree	48.3	60.2	3.4	37.9	15.0	14.3
	Disagree	25.3	17.6	78.1	24.1	61.7	58.7
	Not Sure	26.4	22.2	18.5	37.9	23.3	27.0
Baiting activities interfere with other methods of hunting bear. (X^2=158.6, P<0.001, df=10)	Agree	19.3	36.1	3.4	36.2	6.6	8.7
	Disagree	70.5	49.1	91.2	41.4	79.9	71.4
	Not Sure	10.2	14.8	5.4	22.4	13.5	19.8
Bait sitters have a greater chance of harvesting a bear than hunters who use dogs. (X^2=346.4, P<0.001, df=10)	Agree	71.6	79.6	7.1	16.1	20.5	17.6
	Disagree	18.2	10.2	78.8	44.6	63.3	59.2
	Not Sure	10.2	10.2	14.1	39.3	16.2	23.2
Hunting bear with bait should continue to be allowed in Michigan (X^2=209.5, P<0.001, df=10)	Agree	68.2	52.8	98.7	49.1	89.5	88.9
	Disagree	13.6	31.5	0.7	28.1	3.9	5.6
	Not Sure	18.2	15.7	0.7	22.8	6.6	5.6

Table 30: Opinions on hunting bear with dogs analyzed by hunt-method group

Statements About Hunting with Dogs	Response	% of each Hunt-method Group					
		Dog/Bait n=88	Dog-only n=110	Bait-only n=298	Still-only n=58	Generalist n=230	Not Hunted n=128
There is nothing unethical or immoral about hunting bear with dogs. (X^2=146.2, P<0.001, df=10)	Agree	98.9	98.1	54.4	33.9	64.6	59.2
	Disagree	0.0	0.9	35.7	51.8	22.3	30.4
	Not Sure	1.1	0.9	9.9	14.3	13.1	10.4
Hunters who use dogs take more than their share of the bear. (X^2=186.9, P<0.001, df=10)	Agree	2.3	1.9	31.9	45.6	24.1	26.2
	Disagree	88.6	93.5	36.3	21.1	49.1	38.9
	Not Sure	9.1	4.6	31.9	33.3	26.8	34.9
Hunting with dogs interferes with other methods of hunting bear. (X^2=202.1, P<0.001, df=10)	Agree	6.8	17.9	67.2	67.2	50.9	55.6
	Disagree	80.7	76.4	21.3	17.2	33.3	28.6
	Not Sure	12.5	5.7	11.5	15.5	15.8	15.9
Dog hunters have a greater chance of harvesting a bear than bait sitters. (X^2=240.1, P<0.001, df=10)	Agree	6.8	0.9	48.0	46.4	43.4	42.1
	Disagree	85.2	94.4	28.0	19.6	40.4	27.8
	Not Sure	8.0	4.6	24.0	33.9	16.2	30.2
Hunting bear with dogs should continue to be allowed in Michigan (X^2=155.4, P<0.001, df=10)	Agree	98.9	98.2	53.7	31.0	64.6	63.0
	Disagree	0.0	0.0	28.4	51.7	18.8	26.0
	Not Sure	1.1	1.8	17.9	17.2	16.6	11.0

Table 31: Response to statements about hunting bear over bait analyzed by respondents who indicated baiting "should continue", "should not continue", or are "not sure"

Statements About Hunting Bear with Bait	Response	% Responding: Hunting bear with bait...		
		...should continue n=770	...should not continue n=84	Not Sure n=75
There is nothing unethical or immoral about hunting bear over bait. (X^2=709.2, P<0.001, df=4)	Agree	95.4	14.3	38.7
	Disagree	2.0	83.3	22.7
	Not Sure	2.6	2.4	38.7
Hunters who sit over bait take more than their share of the bear. (X^2=287.5, P<0.001, df=4)	Agree	12.1	80.7	57.3
	Disagree	64.2	8.4	10.7
	Not Sure	23.7	10.8	32.0
Bait sitting interferes with other methods of hunting bear. (X^2=371.3, P<0.001, df=4)	Agree	4.7	67.9	32.4
	Disagree	85.3	20.2	29.7
	Not Sure	10.0	11.9	37.8
Bait sitters have a greater chance of harvesting a bear than hunters who use dogs. (X^2=114.9, P<0.001, df=4)	Agree	21.3	65.9	56.0
	Disagree	62.5	18.3	25.3
	Not Sure	16.2	15.9	18.7

Table 32: Response to statements about hunting bear with dogs analyzed by respondents who indicated dog hunting "should continue", "should not continue", or "not sure"

Statements About Hunting Bear with Dogs	Response	% Responding: Hunting bear with dogs... ...should continue n=613	...should not continue n=196	Not Sure n=121
There is nothing unethical or immoral about hunting bear with dogs. (X^2=845.8, P<0.001, df=4)	Agree	93.0	4.1	28.9
	Disagree	3.1	91.8	28.1
	Not Sure	3.9	4.1	43.0
Hunters who use dogs take more than their share of the bear. (X^2=423.9, P<0.001, df=4)	Agree	6.9	66.3	38.8
	Disagree	72.3	9.2	12.4
	Not Sure	20.8	24.5	48.8
Hunting with dogs interferes with other methods of hunting bear. (X^2=327.8, P<0.001, df=4)	Agree	29.6	94.9	76.0
	Disagree	56.1	2.0	3.3
	Not Sure	14.2	3.1	20.7
Dog hunters have a greater chance of harvesting a bear than bait sitters. (X^2=319.2, P<0.001, df=4)	Agree	19.6	77.4	53.3
	Disagree	63.8	5.6	10.0
	Not Sure	16.6	16.9	36.7

Options for Limiting the Number of Bear Harvested

Four options were described for limiting the number of bear harvested each year and respondents were asked if they approved or disapproved of each (Table 33). The highest approval was for a method that would "limit the number of bear hunters by using some form of drawing." About one-third approved of "not limiting the number of hunters, but setting a very short season." Only 29% approved of "not limiting the number of hunters, but closing the season each year after a set quota of bear harvests was reached." The lowest approval was for "not limiting the number of hunters, but restricting methods used to hunt bear."

Respondents in the still-only group were the biggest supporters of restricting methods (Table 34). The dog groups showed less support for setting a very short season than those in other hunt groups.

Table 33: Approval of four methods for limiting the number of bear harvested each year in Michigan*

Methods	Approve %(n)	Disapprove %(n)	Not Sure %(n)
Limit the number of bear hunters by using some form of drawing.	52.4 (474)	32.6 (296)	15.0 (136)
Close the season each year after a set quota of bear have been harvested.	29.1 (262)	54.7 (493)	16.3 (147)
Set a very short season to limit the number of bear harvested.	34.0 (308)	51.8 (469)	14.3 (129)
Restrict the methods used to harvest bear.	17.5 (158)	70.6 (637)	11.9 (107)

*P<0.001 for each statement

Table 34: Approval of four methods for limiting the number of bear harvested each year in Michigan analyzed by hunt-method group

Methods	Response	Dog/Bait n=88	Dog-only n=110	Bait-only n=298	Still-only n=58	Generalist n=230	Not Hunted n=128
Limit the number of bear hunters by using some form of drawing. (X^2=9.8, P=0.461, df=10)	Approve	56.0	47.2	51.1	48.1	48.2	58.9
	Disapprove	33.3	40.7	34.2	29.6	37.1	29.0
	Not Sure	10.7	12.0	14.8	22.2	14.7	12.1
Close the season each year after a set quota of bear have been harvested. (X^2=19.2, P=0.038, df=10)	Approve	20.5	27.6	30.6	19.2	30.8	24.6
	Disapprove	66.3	61.0	53.5	51.9	57.1	54.1
	Not Sure	13.3	11.4	15.8	28.8	12.1	21.3
Set a very short season to limit the number of bear harvested. (X^2=51.7, P<0.001, df=10)	Approve	17.9	19.2	35.2	41.5	41.3	25.4
	Disapprove	75.0	73.1	51.2	47.2	45.8	51.6
	Not Sure	7.1	7.7	13.6	11.3	12.9	23.0
Restrict the methods used to harvest bear. (X^2=88.7, P<0.001, df=10)	Approve	3.6	15.4	13.0	56.4	17.0	19.7
	Disapprove	92.8	78.8	74.0	32.7	70.4	67.2
	Not Sure	3.6	5.8	13.0	10.9	12.6	13.1

Harvest Tag Allocation

Two possible ways for issuing harvest tags when supply is less than demand are random lottery and point preference systems. Descriptions of these two allocation methods were described in the the mail questionnaire (See Appendix VIII). Data from the focus groups suggested that preference for one of these systems over the other depended on perceived wait time involved. Therefore, in the mail survey we provided two scenarios: the first approximates the current wait time of three years, and the second was an estimate of what the wait time could eventually become if the number of applicants continued to increase at the present rate.

Respondents reported that if they had to wait three years to get a harvest tag under a point preference system or had a one-in-three chance of being drawn in a random lottery, the majority would rather have a point preference system (Table 35). However, if the wait time was increased to five years or the probability lowered to one-in-five, more preferred a random lottery system (Table 36).

Those in the dog groups showed a higher rate of support for the random lottery for both scenarios than other hunt groups (Tables 35 and 36). Respondents who had not yet hunted favored the point preference over the random lottery system in both scenarios, but to a lesser degree when the perceived wait time was longer. There was no significant difference between the "before" and "after" cohorts when the wait was short, but for the longer wait, a larger percent of the "after" cohort compared to the "before" cohort chose the random lottery system (Tables 35 and 36). Responses of members of hunting organizations did not differ from those of nonmembers on these questions.

Table 35: Choice of point preference or random lottery to allocate harvest tags, given a short wait

Segment	3 Year Wait or 1/3 Chance of Being Drawn for a Tag			
	Random Lottery	Point Preference	Either or Not Sure	Statistical Tests
All Respondents n=912	27.8	53.6	18.6	X^2=468.2,P<0.001, df=3
Hunt Method				
Dog/Bait n=87	40.2	47.1	12.6	X^2=31.4, P=0.008, df=15
Dog-only n=105	39.0	41.0	20.0	
Bait-only n=287	27.9	50.9	21.3	
Still-only n=58	24.1	51.7	24.1	
Generalist n=221	29.0	51.1	19.9	
Not Hunted n=126	18.3	69.8	11.9	
Membership				
Bear Hunting Organ.				
Member n=101	35.7	50.2	14.0	X^2=4.2, P=0.241, df=3
Nonmember n=734	27.1	54.0	18.9	
Other Hunting Organ.				
Member n=259	22.9	56.9	20.2	X^2=4.2, P=0.240, df=3
Nonmember n=577	29.6	51.9	18.5	
Cohort				
Before n=480	28.4	52.2	19.3	X^2=3.8, P=0.283, df=3
After n=282	32.2	47.7	20.2	

Table 36: Choice of point preference or random lottery to allocate harvest tags, given a long wait

Segment		5 Year Wait or 1/5 Chance of Being Drawn for a Tag			
		Random Lottery	Point Preference	Either or Not Sure	Statistical Tests
All Respondents n=906		40.8	35.3	23.8	X^2=255.0, P<0.001, df=3
Hunt Method					
Dog/Bait n=84					
Dog-only n=105		50.0	33.3	16.6	X^2=31.4, P=0.008, df=15
Bait-only n=287		46.7	23.8	29.5	
Still-only n=58		41.5	32.4	26.1	
Generalist n=221		44.8	32.8	22.4	
Not Hunted n=123		39.8	33.5	26.7	
		30.1	52.8	17.0	
Membership					
Bear Hunting Organ.	Member n=100	43.3	31.6	25.1	X^2=2.2, P=0.541, df=3
	Nonmember n=733	40.6	36.2	23.2	
Other Hunting Organ.	Member n=257	36.2	41.0	22.9	X^2=3.8, P=0.284 df=3
	Nonmember n=578	41.5	34.3	24.2	
Cohort					
Before n=475					
After n=284		39.2	35.7	25.1	X^2=9.0, P=0.029, df=3
		48.7	26.1	25.1	

Bear Management

Only 37% of the respondents reported that they were satisfied with current bear management (Table 37). Most hunt-method groups were dissatisfied, especially the dog-only and generalist groups. There were no significant differences between how members of hunting organizations and nonmembers responded to this question; however, those in the "before" cohort were less satisfied than those in the "after"cohort.

Only one-third of the respondents agreed with a statement that the MDNR had enough information on the bear population to correctly decide how many bear to harvest, while a similar percent either disagreed or were not sure (Table 38A). A slightly higher percent agreed that they trust the MDNR to fairly consider the interests of hunters when setting bear hunting regulations, but responses again were highly polarized (Table 38B).

Most hunt-method groups were also split on these two statements, with almost as many agreeing, disagreeing, or not sure, but the still-only and not hunted groups showed a higher tendency to agree with both statements (Tables 38A and 38B). A larger proportion of respondents in the "after" compared to the "before" cohort agreed with both statements. Members of bear hunting organizations were more likely than nonmembers to disagree with both statements. Responses of members and nonmembers of other hunting organizations differed only on the second statement; members were more likely to disagree (Table 38B).

Table 37: Satisfaction with current bear management

Segment		Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Statistical Tests
All Respondents n=924		36.6	20.3	43.2	X^2=124.8, P<0.001 df=4
Hunt Method					
Dog/Bait n=85		38.8	23.5	37.7	X^2=31.9, P=0.044
Dog-only n=106		29.3	17.9	52.8	df=20
Bait-only n=294		41.2	16.0	42.8	
Still-only n=58		38.0	24.1	37.9	
Generalist n=223		28.7	19.7	51.6	
Not Hunted n=125		35.2	28.8	36.0	
Membership					
Bear Hunting Organ.	Member n=99	36.0	13.9	50.2	X^2=8.0, P=0.090
	Nonmember n=737	37.6	21.1	41.3	df=4
Other Hunting Organ.	Member n=256	34.6	21.3	44.1	X^2=2.9, P=0.581
	Nonmember n=582	38.4	19.2	42.4	df=4
Cohort					
Before n=489		27.0	16.1	51.9	X^2=34.5, P<0.001
After n=283		45.3	23.7	30.9	df=4

Table 38A: Agreement/disagreement to statements about the MDNR

Segment		I am confident the MDNR has enough information to correctly decide how many bear to harvest			
		Agree	Disagree	Not Sure	Statistical Tests
All Respondents n=928		33.2	33.4	33.4	X^2=0.1, P=0.978 df=2
Hunt Method					
Dog/Bait n=88		36.4	28.4	35.2	X^2=19.7, P=0.032
Dog-only n=107		30.8	40.2	29.0	df=10
Bait-only n=296		30.4	36.1	33.4	
Still-only n=57		47.4	26.3	26.3	
Generalist n=224		27.2	38.4	34.4	
Not Hunted n=125		44.0	27.2	28.8	
Membership					
Bear Hunting Organ.	Member n=101	32.1	43.7	24.2	X^2=7.0, P=0.031
	Nonmember n=739	32.6	31.9	35.5	df=2
Other Hunting Organ.	Member n=258	30.3	32.5	37.1	X^2=2.3, P=0.321
	Nonmember n=584	33.6	34.5	31.9	df=2
Cohort					
Before n=492		28.2	39.6	32.2	X^2=16.7, P<0.001
After n=285		36.6	25.3	38.1	df=2

Table 38B: Agreement/disagreement to statements about the MDNR

Segment		I trust the MDNR to fairly consider the interests of hunters when setting regulations			
		Agree	Disagree	Not Sure	Statistical Tests
All Respondents n=924		39.6	32.9	27.4	X^2=21.4, P<0.001 df=2
Hunt Method					
Dog/Bait n=88		34.1	36.4	29.5	X^2=21.7, P=0.017
Dog-only n=107		25.2	42.1	32.7	df=10
Bait-only n=295		39.0	33.2	27.8	
Still-only n=58		51.7	24.1	24.1	
Generalist n=224		35.7	40.2	24.1	
Not Hunted n=124		46.8	25.8	27.4	
Membership					
Bear Hunting Organ.	Member n=101	28.7	48.7	22.6	X^2=13.4, P=0.001
	Nonmember n=735	41.3	30.7	28.1	df=2
Other Hunting Organ.	Member n=258	33.0	35.6	31.4	X^2=7.1, P=0.028
	Nonmember n=580	42.6	31.9	25.6	df=2
Cohort					
Before n=490		32.7	39.8	27.5	X^2=20.8, P<0.001
After n=285		46.8	25.0	28.2	df=2

Fifty-three percent of the respondents agreed and 17% disagreed that the MDNR limited the harvest of bear more because of political pressure than because of biological evidence of decreasing bear populations (Table 38C). Still hunters reported a considerably lower rate of agreement with this statement than all other hunter segments. Members of hunting organizations were more likely to agree to this statement than nonmembers.

The Bear Population

A majority of respondents (72%) reported that the bear population in the area they hunt most often was increasing or staying the same, while only 7% thought that it was decreasing (Table 39). Respondents in the dog groups were the least unsure about the bear population. Those in the "after" cohort were more unsure than respondents in the "before" cohort and nonmembers of bear hunting organizations were more unsure than members.

Table 38C: Agreement/disagreement to a statement about the MDNR

Segment		The MDNR limited the harvest of bear more because of political pressure than because of biological evidence of decreasing bear populations			
		Agree	Disagree	Not Sure	Statistical Tests
All Respondents n=926		52.8	16.6	30.6	X^2=197.2, P<0.001 df=2
Hunt Method					
Dog/Bait n=88		59.1	19.3	21.6	X^2=47.3, P<0.001
Dog-only n=108		67.6	11.1	21.3	df=10
Bait-only n=296		55.1	17.6	27.4	
Still-only n=56		28.6	35.7	35.7	
Generalist n=223		60.5	11.2	28.3	
Not Hunted n=125		44.0	13.6	42.4	
Membership					
Bear Hunting Organ.	Member n=101	66.0	17.2	16.8	X^2=10.7, P=0.005
	Nonmember n=737	51.2	16.5	32.3	df=2
Other Hunting Organ.		62.2	13.4	24.3	X^2=11.8, P=0.003
	Member n=258	49.5	16.5	34.0	df=2
	Nonmember n=583				
Cohort					
Before n=491		56.9	17.8	25.4	X^2=4.2, P=0.124
After n=285		51.8	16.0	32.2	df=2

Table 39: What is happening to the bear population in the area you hunt most often

Segment		What is happening to the bear population in the area that you hunt most often?				
		Increasing	About the Same	Decreasing	Not Sure	Statistical Tests
All Respondents n=881		40.7	31.6	7.2	20.6	X^2=409.4, P<0.001 df=3
Hunt Method						
Dog/Bait n=88		38.6	47.7	5.7	8.0	X^2=44.8, P<0.001
Dog-only n=110		30.9	54.5	8.2	6.4	df=15
Bait-only n=295		45.8	30.7	6.8	16.9	
Still-only n=58		27.6	31.0	17.2	24.1	
Generalist n=228		44.7	33.3	8.3	13.6	
Membership						
Bear Hunting Organ.	Member n=102	51.0	37.1	5.0	7.0	X^2=8.5, P=0.036
	Nonmember n=696	42.5	32.9	7.4	17.2	df=3
Other Hunting Organ.	Member n=246	44.4	31.5	7.9	16.3	X^2=0.7, P=0.880
	Nonmember n=554	42.6	34.2	7.1	16.1	df=3
Cohort						
Before n=495		46.7	35.0	8.9	9.4	X^2=43.9, P<0.001
After n=285		35.7	30.5	6.5	27.2	df=3

Sources of Information about Bear Hunting

Overall, respondents received most of their information about bear and bear hunting from their bear hunting friends and from magazines (Table 40). MDNR employees were least used as an information source. All other information sources that were provided in the questionnaire were used "frequently" or "sometimes" by about half of all respondents.

The dog hunter groups reported using hunting organization publications and bear hunting friends more frequently than other hunt-method groups (Table 41).

As would be expected, members of hunting organizations used organization publications more than nonmembers; however, this was not the most frequently used source of information (Table 42). Bear hunting organization members used bear hunting friends for information more than nonmembers did; whereas, members of other hunting organizations used magazines and newspapers more frequently than nonmembers did.

"Before" cohort respondents used bear hunting friends and hunting organization organization publications more frequently than "after" respondents (Table 43).

Over half of the respondents expressed high or moderate interest in attending workshops and /or other types of informational meetings about bear and bear hunting (Table 44). Of the hunt-method groups, the still-only group showed the lowest level of interest. Members of hunting organizations showed more interest in attending than nonmembers did.

Table 40: Percent and number of respondents who use information sources "frequently", "sometimes", "rarely", and "never"*

Information Source	Use	Respondents % (n)
Bear Hunting Friends	Frequently	61.8 (548)
	Sometimes	25.9 (229)
	Rarely	7.6 (67)
	Never	4.8 (42)
Magazines	Frequently	51.4 (454)
	Sometimes	32.2 (284)
	Rarely	8.6 (76)
	Never	7.8 (69)
License Guide	Frequently	31.3 (269)
	Sometimes	26.7 (229)
	Rarely	17.3 (148)
	Never	24.7 (212)
Newspapers	Frequently	20.2 (177)
	Sometimes	32.3 (284)
	Rarely	26.9 (236)
	Never	20.7 (181)
Hunting Organ. Public.	Frequently	20.9 (181)
	Sometimes	31.0 (269)
	Rarely	27.3 (237)
	Never	20.8 (181)
Television	Frequently	16.0 (139)
	Sometimes	35.0 (304)
	Rarely	28.5 (247)
	Never	20.4 (177)
MDNR Employees	Frequently	9.4 (82)
	Sometimes	24.3 (212)
	Rarely	24.6 (215)
	Never	41.7 (364)

*Likert-type Rating Scale: 1=Frequently, 2=Sometimes, 3=Rarely, 4=Never

Table 41: Mean frequency of use of information sources analyzed by hunt-method group*

Information Source	Dog/Bait mean (SE)	Dog-only mean (SE)	Bait-only mean (SE)	Still-only mean (SE)	Generalist mean (SE)	Not Hunted mean (SE)
Bear Hunting Friends (F ratio=15.6, P<0.001, df=5)	**1.1 (0.05)**	**1.2 (0.05)**	**1.6 (0.05)**	**2.2 (0.14)**	**1.5 (0.05)**	**1.7 (0.09)**
Magazines (F ratio=2.1, P=0.064, df=5)	1.9 (0.10)	2.0(0.11)	1.7 (0.05)	2.0 (0.15)	1.8 (0.06)	1.7 (0.08)
License Guide (F ratio=2.6, P=0.024, df=5)	**2.4 (0.14)**	**2.3 (0.12)**	**2.3 (0.07)**	**2.4 (0.19)**	**2.5 (0.08)**	**2.1 (0.10)**
Newspapers (F ratio=1.4, P=0.227, df=5)	2.2 (0.12)	2.3 (0.11)	2.5 (0.06)	2.4 (0.15)	2.4 (0.07)	2.4 (0.10)
Hunting Organ. Public. (F ratio=9.2, P<0.001, df=5)	**1.9 (0.12)**	**2.1 (0.11)**	**2.5 (0.06)**	**3.0 (0.14)**	**2.5 (0.07)**	**2.4 (0.01)**
Television (F ratio=0.7, P=0.627, df=5)	2.4 (0.12)	2.6 (0.10)	2.5 (0.06)	2.6 (0.14)	2.6 (0.07)	2.5 (0.09)
MDNR Employees (F ratio=2.1, P=0.065, df=5)	2.8 (0.11)	2.9 (0.10)	3.0 (0.06)	3.0 (0.15)	2.9 (0.07)	3.2 (0.09)

*Likert-type Rating Scale: 1=Frequently, 2=Sometimes, 3=Rarely, 4=Never

Table 42: Mean frequency of use of information sources analyzed by membership in hunting organizations*

Information Source	Bear Hunting Organization			Other Hunting Organ.		
	Member mean (SE)	Nonmember mean (SE)	Statistical Tests	Member mean (SE)	Nonmember mean (SE)	Statistical Tests
Bear Hunting Friends	**1.3 (0.05)**	**1.6 (0.03)**	**t=5.1, P<0.001 df=190.5**	1.6 (0.05)	1.5 (0.04)	t=-0.1, P=0.894 df=827
Magazines	1.7 (0.09)	1.7 (0.03)	t=0.8, P=0.418 df=818	**1.6 (0.05)**	**1.8 (0.04)**	**t=3.0, P=0.003 df=821**
License Guide	2.3 (0.12)	2.4 (0.04)	t=0.1, P=0.911 df=801	2.3 (0.07)	2.4 (0.05)	t=1.3, P=0.206 df=805
Newspapers	2.3 (0.09)	2.5 (0.04)	t=1.9, P=0.058 df=819	**2.3 (0.06)**	**2.6 (0.04)**	**t=3.9, P<0.001 df=822**
Hunting Organ. Public.	**1.8 (0.10)**	**2.6 (0.04)**	**t=7.7, P<0.001 df=809**	**2.0 (0.06)**	**2.7 (0.04)**	**t=8.5, P<0.001 df=509.4**
Television	2.5 (0.10)	2.5 (0.04)	t=0.8, P=0.422 df=808	2.5 (0.06)	2.5 (0.04)	t=-0.1, P=0.960 df=811
MDNR Employees	2.9 (0.11)	3.0 (0.04)	t=0.8, P=0.220 df=814	2.9 (0.07)	3.0 (0.04)	**t=2.1, P=0.040 df=819**

*Likert-type Rating Scale: 1=Frequently, 2=Sometimes, 3=Rarely, 4=Never

Table 43: Mean frequency of use of information sources analyzed by cohorts*

Information Source	Before Cohort mean (SE)	After Cohort mean (SE)
Bear Hunting Friends (t=-2.4, P=0.018, df=521.5)	**1.5 (0.04)**	**1.6 (0.05)**
Magazines (t=1.1, P=0.291, df=738)	1.8 (0.04)	1.7 (0.05)
License Guide (t=-0.6, P=0.564, df=719)	2.4 (0.06)	2.4 (0.07)
Newspapers (t=-1.7, P=0.082, df=735)	2.4 (0.05)	2.6 (0.06)
Hunting Organ. Public. (t-value=-3.5, P<0.001, df=727)	**2.4 (0.05)**	**2.7 (0.06)**
Television (t=-0.4, P=0.689, df=626.8)	2.5 (0.05)	2.6 (0.06)
MDNR Employees (t=-1.5, P=0.125, df=586.5)	2.9 (0.05)	3.0 (0.06)

*Likert-type Rating Scale: 1=Frequently, 2=Sometimes, 3=Rarely, 4=Never

Table 44: Percent of respondents interested in attending workshops and/or meetings on bear hunting

Segment		% Very Interested	% Moderately Interested	% Slightly Interested	% Not at all Interested
All Respondents n=918 (X^2=28.4, P<0.001, df=3)		28.2	30.9	22.8	18.0
Hunt Method (X^2=31.3, P=0.008, df=15)					
Dog/Bait n=82		36.9	30.9	18.7	13.5
Dog-only n=108		32.6	30.2	20.8	16.4
Bait-only n=291		31.6	31.9	20.3	16.2
Still-only n=57		12.4	27.1	21.1	39.5
Generalist n=225		24.2	28.3	26.0	21.5
Not Hunted n=125		26.7	32.3	29.7	11.3
Members					
Bear Hunting Organ.	Member n=102	47.9	32.1	12.6	7.4
(X^2=28.1, P<0.001, df=3)	Nonmember n=748	25.8	30.5	24.4	19.2
Other Hunting Organ.	Member n=259	37.9	33.5	15.8	12.8
(X^2=24.4, P<0.001, df=3)	Nonmember n=593	25.4	28.8	25.8	20.1
Cohort (X^2=4.7, P=0.192, df=3)					
Before n=486		28.8	30.0	20.2	21.1
After n=283		28.5	32.1	24.1	15.3

Changes in Hunting Due to 1990 Regulations

Thirty percent of the respondents indicated that they had become less interested in bear hunting due to the 1990 change to a drawing system to allocate harvest tags (Table 45). Fewer (17%) said that they had become more interested due to the change. The bait-only and still-only groups had a larger proportion of respondents who reported becoming more interested in bear hunting (Table 46). Close to half of the still-only and generalists had become less interested. Eighteen percent of the respondents in the "after" cohort reported becoming more interested in bear hunting due to the drawing compared to 16% of the "before" cohort (X^2=13.3, P=0.001, df=2).

Only 11% of all respondents reported that this new system caused them to change the method used to hunt bear, but a larger proportion reported changing who they go hunting with and where they go (Table 45). Twenty percent of the respondents in the still-only group indicated that they changed the method they used to hunt bear because of the drawing for tags (Table 46). Fewer than 5% in either dog group reported a change in method. The dog groups also showed the lowest proportion that changed who they bear hunted with.

More respondents (36%) thought that the change led to an increase in the number of days they spent bear hunting in a season compared to the 11% who reported a decrease in days spent (Table 45). The bait-only and generalist groups were twice as likely to report an increase in days as the other hunt-method groups (Table 46).

Over a third reported that this change in allocation systems caused them to be more likely to shoot the first legal bear they saw, however, a slightly larger proportion said that it caused them to be more selective about the size of the bear shot (Table 45). Over a third of the generalist and bait-only groups said that they were more likely to shoot the first legal bear they saw (Table 46).

Table 45: Percent of respondents who reported changing their hunting practices because of the drawing to issue tags*

Did the change to a drawing for harvest tags cause you to...	Yes %(n)	No %(n)	Not Sure %(n)
...become more interested in bear hunting.	16.8 (111)	75.1 (497)	8.1 (54)
...become less interested in bear hunting.	30.1 (199)	61.5 (405)	8.4 (55)
...be more likely to shoot the first legal bear you see.	35.0 (229)	58.0 (380)	7.1 (46)
...be more selective about the size of the bear you shoot.	38.6 (255)	52.9 (350)	8.5 (56)
...be more likely to hire a bear hunting guide.	10.3 (68)	86.0 (567)	3.6 (24)
...change the method you use to hunt bear.	11.2 (74)	84.2 (554)	4.6 (30)
...increase the number of days you spend bear hunting in a season.	36.0 (237)	58.4 (384)	5.6 (37)
...decrease the number of days you spend bear hunting in a season.	11.1 (72)	83.0 (539)	5.8 (37)
...change who you go bear hunting with.	21.3 (140)	76.6 (504)	2.1 (14)
...change the area that you hunt for bear.	18.8 (123)	75.6 (495)	5.6 (37)

*$P<0.001$ for all questions

Table 46: Percent of each hunt-method group who reported changing their hunting practices because of the drawing to issue tags

Did the change to a drawing for harvest tags cause you to...	% Dog/Bait n=88	% Dog-only n=110	% Bait-only n=298	% Still-only n=58	% Generalist n=230	Statistical Tests df=8
...become more interested in bear hunting.	6.7	10.9	21.5	19.6	11.8	X^2=22.0, P=0.005
...become less interested in bear hunting.	17.6	3.8	25.8	42.6	42.1	X^2=30.4, P<0.001
...be more likely to shoot the first legal bear you see.	20.0	31.6	38.4	26.1	35.9	X^2=22.9, P=0.004
...be more selective about the size of the bear you shoot.	46.8	33.7	38.6	43.5	35.7	X^2=6.8, P=0561
...be more likely to hire a bear hunting guide.	5.3	1.1	11.8	2.1	11.7	X^2=19.6, P=0.012
...change the method you use to hunt bear.	1.4	4.3	10.1	19.1	15.8	X^2=27.4, P<0.001
...increase the number of days you spend bear hunting in a season.	18.7	20.4	39.5	21.3	41.0	X^2=28.6, P<0.001
...decrease the number of days you spend bear hunting in a season.	13.3	18.1	7.9	14.9	15.1	X^2=12.8, P=0.385
...change who you go bear hunting with.	14.5	14.9	20.7	17.0	28.1	X^2=15.5, P=0.050
...change the area that you hunt for bear.	18.4	14.9	17.9	21.3	21.1	X^2=6.9, P=0.549

Comparison of Opinion Leaders with the General Bear Hunting Population

Survey data from respondents who reported that they had been an officer of at least one of the eight hunting organizations listed on the survey were pooled with the data from pilot questionnaire respondents who were identified by the MDNR as bear opinion leaders (Table 47). All pilot questionnaire respondents who were used in the analysis had been officers in at least one of the eight hunting organizations. This combined group is referred to from this point on as the "leader" group. For questions that were the same for both the pilot and final questionnaire, responses were grouped and compared to those of the nonleaders (any respondent who had not reported being an officer in one of the hunting organization on the state-wide mail survey). A sample size of 56 "leaders" was obtained and results were used to determine if their responses were significantly different from bear hunters in general (nonleaders).

Table 47: Representation of hunting organizations in the leader group

Hunting Organization	# Officers*
Bear Hunting Organizations	
Michigan Bear Hunters Association	15
UP Bear Houndsmen Association	2
United Bear Hunters Association	4
Northeastern Michigan Houndsmen	4
Other Hunting Organizations	
Michigan United Conservation Clubs	8
Michigan Hunting Dog Federation	6
Michigan Coon Hunters	11
Michigan Bow Hunters Association	17

*Several respondents reported having been officers for more than 1 of the above organizations

Nearly half (48%) of the respondents in the leader group were dog-only or dog/bait (Table 48). This is inconsistent with the make-up of the bear hunting population as a whole. Given the differences found among hunt-method groups (e.g., dog-only vs. bait-only), it would be expected that the responses of the leader group would be significantly different from nonleaders on many bear hunting issues, and such was the case.

Table 48: Bear hunting methods of "leader" and "nonleader"

Hunt-method Group	Leaders %(n)	Nonleaders %(n)	Statistical Tests
Hunt Method			
Dog/Bait	18.5 (10)	8.6 (63)	X^2=34.9, P<0.001
Dog-only	29.6 (16)	10.6 (77)	df=5
Bait-only	14.8 (8)	35.3 (257)	
Still-only	3.7 (2)	6.9 (50)	
Generalist	31.5 (17)	23.9 (174)	
Not Hunted	1.9 (1)	14.8 (108)	
Totals	**7.0 (56)**	**93.0 (749)**	

Respondents in the leader group had been hunting bear for more years and had harvested significantly more bear in their lifetime of hunting than respondents in the nonleader group (Table 49).

Table 49: Hunting characteristics of "leader" and "nonleader"

Characteristic	Leader mean (SE)	Nonleader mean (SE)	Statistical Tests
First Year Bear Hunted (19-)	76 (1.41)	83 (0.41)	t=-5.2, P<0.001 df=682
Number of Bear Harvested	4.8 (1.91)	1.4 (0.10)	t=5.3, P<0.001 df=682
Number of Days Spent Bear Hunting in 1992	9.8 (1.57)	8.0 (0.47)	t=1.0, P=0.321 df=256

Leaders also rated bear hunting as being more important than did nonleaders (Table 50).

Table 50: Importance rating of bear hunting compared to other recreational activities for "leader" and "nonleader"

Importance	% of Leaders n=56	% of Nonleaders n=744	Statistical Tests
Most Important	33.9	13.3	X^2=22.2, P<0.001
One of the More Important	50.0	50.3	df=4
No More Important	12.5	26.7	
Less Important	1.8	8.5	
Not at all Important	1.8	1.2	

Intended use of hunting methods over the next five years was significantly different for leaders compared to nonleaders (Table 51). A higher percentage of respondents in the leader group reported that they intended to use dogs, especially dogs only, and a smaller percent intended to sit over bait compared to nonleaders.

Table 51: Intent to use bear hunting methods over the next 5 years for 'leader' and 'nonleader'*

Intended Hunt Method	% of Leaders n=56	% of Nonleaders n=749	Statistical Tests
Dogs Started over Bait	27.3	16.3	X^2=19.1, P<0.001, df=3
Dogs not Started over Bait	71.4	27.8	X^2=90.6, P<0.001,df=3
Sitting over Bait	41.1	66.4	X^2=101.2, P<0.001, df=3
Neither Dogs nor Bait	23.2	22.7	X^2=136.1, P<0.001, df=3
Do Not Plan to Hunt in the Next 5 Yrs.	1.8	5.7	X^2=150.0, P<0.001, df=3

*Respondents could choose all methods that applied to them

Harvesting a bear was less important to respondents in the leader group than for those in the nonleader group (Table 52). On a scale of one to five with one being "most important" and five "not important", 46% of the nonleaders rated harvesting a bear as a "1" or "2" compared to 22% of the leader group.

Table 52: Mean rating of importance for reasons why respondents go bear hunting analyzed by "leader" and "nonleader"

How important is this as a reason why you would go bear hunting?	Leader mean (SE)	Nonleader mean (SE)
To spend time with my bear hunting friends (t=-0.6, P=0.529, df=776)	2.4 (0.18)	2.5 (0.05)
To get away from work, school, or stress and to relax (t=1.2, P=0.240, df=66.4)	2.4 (0.15)	2.2 (0.05)
To use my hunting skills (t=1.0, P=0.337, df=787)	1.9 (0.14)	1.8 (0.04)
To have bear meat (t=0.0, P=0.998, df=776)	3.0 (0.18)	3.0 (0.05)
To harvest a bear (t=2.6, P=0.011, df=774)	**3.3 (0.20)**	**2.8 (0.06)**
To spend time with my family (t=-0.9, P=0.391, df=760)	3.0 (0.21)	3.2 (0.06)
To have the challenge of hunting a dangerous animal (t=1.3, P=0.200, df=773)	3.0 (0.20)	2.7 (0.06)
To see and hear bear dogs work (t=-4.6, P<0.001, df=767)	**2.4 (0.24)**	**3.6 (0.07)**

Likert-type Scale: 1=Most Important to 5=Not Important

A plurality of respondents in both the leader and nonleader groups reported a lack of confidence in the MDNR having enough information about the bear population to correctly decide how many bear to harvest (Table 53). There was also no significant difference in the response to a statement involving the degree of trust that the leaders and nonleaders had for the MDNR to fairly consider the interests of hunters when setting bear hunting regulations, with about a third agreeing, disagreeing, or not sure. There was, however, a difference in the response to the statement, "...the MDNR limited the harvest of bear more for political pressure than biological evidence of decreasing bear populations", with 72% of the respondents in the leader group and 54% in the nonleader group agreeing.

Table 53: Agreement/disagreement to statements about the MDNR analyzed by "leader" and "nonleader"

Statement	Response	% of Leaders n=56	% of Nonleaders n=749
I am confident that the MDNR has enough information on the bear population ... (X^2=1.7, P=0.424,df=2)	Agree Disagree Not Sure	31.5 42.6 25.9	32.7 34.5 32.8
I trust the MDNR to fairly consider the interests of hunters ... (X^2=1.6, P=0.451,df=2)	Agree Disagree Not Sure	29.6 40.7 29.6	38.2 35.2 26.6
... the MDNR limited the harvest of bear more for political pressure than biological evidence of decreasing bear populations (X^2=6.6, P=0.038, df=2)	Agree Disagree Not Sure	**72.2** **11.1** **16.7**	**54.4** **16.2** **29.4**

Nearly all (93%) respondents in the leader group reported that the bear population was increasing or stable compared to 77% of the nonleader group (X^2=10.2, P=0.017, df=3). Leaders and nonleaders reported that protection of the bear population was a most important factor for the MDNR to consider when setting bear hunting regulations (Table 54). Length of the bear hunting season was more important and chances of harvesting a bear less important to leaders compared to nonleaders.

Table 54: How much importance should the MDNR assign to the following factors analyzed by "leader" and "nonleader"

Factors	Leader mean (SE)	Nonleader mean (SE)
Interference among hunters (t=1.9, P=0.056, df=738)	3.0 (0.19)	2.6 (0.05)
Protection of the bear population (t=-2.8, P=0.006, df=67.2)	**1.3 (0.09)**	**1.6 (0.03)**
Length of the bear hunting season (t=-2.6, P=0.012, df=66.1)	**2.4 (0.14)**	**2.7 (0.05)**
Number of yrs. wait for a tag (t=1.1, P=0.285, df=53.1)	3.9 (1.80)	2.0 (0.04)
Chances of harvesting a bear (t=2.2, P=0.026, df=772)	**3.5 (0.17)**	**3.1 (0.05)**
Freedom to choose hunt area (t=0.01, P=0.934, df=780)	1.9 (0.15)	1.9 (0.04)
Freedom to choose when to hunt (t=-1.1, P=0.273, df=62.6)	2.2 (0.17)	2.4 (0.05)

*Likert-type Rating Scale: 1=Most Important Factor to 5=Not Important

Responses to the statement "hunting bear with bait should continue to be allowed in Michigan" were significantly different for leaders compared to nonleaders; 22% of the leaders and 8% of the nonleaders disagreed with this statement (Table 55). Also, a larger percent of leaders, compared to nonleaders agreed that baiting interferes with other methods of hunting bear. The majority of leaders agreed that there is nothing unethical about sitting over bait, but an even larger percent of nonleaders agreed to this statement.

Table 55: Opinions on hunting bear over bait analyzed by "leader" and "nonleader"

Statement	Response	% of Leaders n=56	% of Nonleaders n=749
There is nothing unethical or immoral about hunting bear over bait. (X^2=15.7, P<0.001, df=2)	Agree	67.9	85.3
	Disagree	26.8	9.8
	Not Sure	5.4	5.0
Bait hunters take more than their share of the bear. (X^2=7.9, P=0.019, df=2)	Agree	32.7	20.2
	Disagree	56.4	55.2
	Not Sure	10.9	24.6
Baiting activities interfere with other methods of hunting bear. (X^2=15.2, P<0.001, df=2)	Agree	28.6	11.1
	Disagree	64.3	76.0
	Not Sure	7.1	12.9
Bait sitters have a greater chance of harvesting a bear than hunters who use dogs. (X^2=16.1, P<0.001, df=2)	Agree	48.2	25.1
	Disagree	46.4	57.6
	Not Sure	5.4	17.3
Hunting bear with bait should continue to be allowed in Michigan (X^2=13.5, P=0.001, df=2)	Agree	70.9	84.6
	Disagree	21.8	7.5
	Not Sure	7.3	7.9

Leaders were more likely to agree than nonleaders (91% and 64% respectively) that using dogs to hunt bear should continue to be allowed in Michigan (Table 56). Respondents in the leader group also were more likely than nonleaders to agree that there is nothing unethical about hunting bear with dogs. A larger percent of nonleaders versus leaders agreed that dog hunters take more than their share of the bear and have a greater chance of harvesting a bear.

Table 56: Opinions on hunting bear with dogs analyzed by "leader" and "nonleader"

Statement	Response	% of Leaders n=56	% of Nonleaders n=749
There is nothing unethical or immoral about hunting bear with dogs. (X^2=21.7, P<0.001, df=2)	Agree	94.6	64.2
	Disagree	3.6	26.4
	Not Sure	1.8	9.4
Hunters who use dogs take more than their share of the bear. (X^2=22.3, P<0.001, df=2)	Agree	9.1	24.2
	Disagree	81.8	48.9
	Not Sure	9.1	27.0
Hunting with dogs interferes with other methods of hunting bear. (X^2=8.6, P=0.014, df=2)	Agree	40.0	49.9
	Disagree	54.5	36.0
	Not Sure	5.5	14.1
Dog hunters have a greater chance of harvesting a bear than bait sitters. (X^2=18.7, P<0.001, df=2)	Agree	21.8	35.2
	Disagree	70.9	41.3
	Not Sure	7.3	21.5
Hunting bear with dogs should continue to be allowed in Michigan (X^2=17.7, P<0.001, df=2)	Agree	91.1	64.3
	Disagree	1.8	22.0
	Not Sure	7.1	13.8

The responses of leaders were not statistically different from those of nonleaders for two of the four alternative methods for limiting the bear harvest (Table 57). Differences were found in responses to setting a short season and restricting methods; a larger percent of leaders disapproved of these methods compared to nonleaders.

Table 57: Approval of four methods for limiting the number of bear harvested each year in Michigan analyzed by "leader" and "nonleader"

Methods	Response	% of Leaders n=56	% of Nonleaders n=749
Limit the number of bear hunters by using some form of drawing. (X^2=1.2, P=0.561, df=2)	Approve Disapprove Not Sure	58.2 30.9 10.9	51.0 34.5 14.5
Close the season each year after a set quota of bear have been harvested. (X^2=3.7, P=0.157, df=2)	Approve Disapprove Not Sure	24.1 68.5 7.4	28.4 56.4 15.2
Set a very short season to limit the number of bear harvested. (X^2=9.1, P=0.010, df=2)	Approve Disapprove Not Sure	**22.2** **74.1** **3.7**	**32.4** **54.0** **13.6**
Restrict the methods used to harvest bear. (X^2=8.5, P=0.014, df=2)	Approve Disapprove Not Sure	**9.3** **88.9** **1.9**	**18.0** **70.9** **11.0**

Leaders were not different from nonleaders for the number of years they would wait for a harvest tag and still be satisfied with bear hunting; however, leaders would wait four years compared to three years for nonleaders before quitting the application process (Table 58). The season length that respondents needed to be satisfied averaged 22 days for leaders and 18 for nonleaders.

Table 58: Longest respondents would wait for a harvest tag and still be satisfied with bear hunting and before they quit applying

Characteristic	Leader mean (SE)	Nonleader mean (SE)	Statistical Tests
Years wait for satisfaction	2.5 (0.14)	2.3 (0.04)	t=0.9, P=0.351 df=766
Years wait before quitting	4.1 (0.31)	3.1 (0.08)	t=3.1, P=0.003 df=52.2
Days in the bear hunting season	21.7 (1.87)	17.5 (0.41)	t=2.1, P=0.041 df=58.3

Choice of the random lottery system as a means for allocating harvest tags was not statistically different between leaders and nonleaders (Table 59).

Table 59: Choice of point preference or random lottery to allocate harvest tags analyzed by "leader" and "nonleader"

Perceived Waiting Time	Response	Leader	Nonleader
3 Years or 1/3 Chance (X^2=6.4, P=0.092, df=3)	Random Lottery	42.6	28.4
	Point Preference	37.0	52.1
	Either or Not Sure	20.4	19.5
5 Years or 1/5 Chance (X^2=1.7, P=0.639, df=3)	Random Lottery	47.3	40.2
	Point Preference	34.5	34.7
	Either or Not Sure	18.2	25.1

Comparison of Dog-Leaders with Dog-Nonleaders

Responses of those who hunted using dogs only or dogs started over bait who were also in the leader group (dog-leader, n=26) were compared to the responses of dog-nonleaders (n=140) to determine if the leaders represented their constituents. Ideally, the bait-leaders, generalist-leaders, and still-leaders also should have been compared to their nonleader counterparts, but due to small sample sizes in these groups, these comparisons were not made.

Few significant differences were found when the responses of the dog-leader and dog-nonleader groups were compared. The mean number of bears harvested was higher for dog-leaders (3.9) than dog-nonleaders (1.7) ($t=3.0$, $P=0.006$, $df=30.1$). Also, dog-leaders had been hunting bear longer than dog-nonleaders, since 1974 and 1980, respectively ($t=-3.1$, $P=0.002$, $df=159$). The number of days they spent hunting in 1992, however, did not differ.

Dog-leaders and dog-nonleaders were not significantly different in their responses to the statements involving confidence in the MDNR's having correct information about the bear population or trust in the MDNR to consider the interests of hunters. However, nearly all dog-leaders (92%) agreed that the MDNR limited the bear harvest more because of political pressure compared to agreement by 60% of the dog-nonleader group ($X^2=9.7$, $P=0.008$, $df=2$).

Dog-leaders and dog-nonleaders differed somewhat in their opinions about hunting bear with bait. Half of the dog-leaders agreed that baiting interferes with other methods of hunting bear compared to 23% of dog-nonleaders ($X^2=8.3$, $P=0.016$, $df=2$). Also, 39% of dog-leaders indicated that baiting for bear should not continue to be allowed in Michigan compared to only 17% of dog-nonleaders ($X^2=6.7$, $P=0.035$, $df=2$).

DISCUSSION

Overall Findings

Segmentation of Respondents

Respondents to the mail survey were segmented based on their method used to hunt bear. Bear hunter types included: specialists, those who use only dogs, bait, or neither dogs nor bait; generalists, those who use a combination of methods; and respondents who had not yet hunted bear with a harvest tag in Michigan. A majority of respondents (60%) were in one of the specialist groups; however, most were in the bait-only group. The dog groups and the still-only group, combined, represented less than 16% of respondents.

Other important segmentation criteria that were analyzed included length of time that respondents had been involved in bear hunting, and membership in hunting organizations. Respondents who started bear hunting before 1990 were put into the "before" cohort, and respondents beginning in or after 1990 were placed in the "after" cohort. Because 1990 was the first year that bear harvest tags were limited, these two groups were compared to determine if beliefs and attitudes of respondents who began bear hunting before 1990 differed from those beginning after. Almost two-thirds of the respondents were in the "before" cohort. A plurality (47%) of respondents in the "before" cohort were bait-only hunters and about a third were generalists. Only 17% were in one of the dog groups. The "after" cohort had even fewer (7%) respondents in the dog groups with 61% in the bait-only group.

Respondents who had bear hunted harvested a mean of 1.6 bears in their lifetime. Those respondents who reported using no bait or dogs had harvested fewer bears than other hunt-method groups and those who used both bait and dogs reported the highest success rate.

Also, the still-only group had the largest percent of respondents who had not yet harvested a bear; whereas, the dog/bait group had the smallest percent.

The eight hunting organizations identified for membership and officer status were grouped into two types: four are bear hunting organizations, and four are other hunting organizations that are not specific to bear hunting, but are involved in bear hunting issues. Over half of the respondents in the dog groups were members of at least one bear hunting organization. The remaining hunt-method groups had far fewer members in bear hunting organizations with generalists having the largest percent (12%). Membership in the other hunting organizations was not significantly different among hunt-method groups.

Bear Hunting Characteristics and Behaviors of Respondents

The dog-only groups were more loyal to their hunting methods than other hunt-method groups, with fewer than 10% reporting that they would use a method other than dogs to hunt bear. However, few respondents in any other hunt-method group intended to use dogs over the next five years. Bait-only were also loyal to their method having less than 15% who intended to use another method. Half of those who had not yet hunted bear in Michigan planned to only hunt over bait for the next five years. These results may point to increased bait hunting in the future and a decrease in dog hunting. A lower use of dogs in the "after" cohort compared to the "before" cohort also supports this trend.

Using only a gun to hunt bear was characteristic of the dog groups, whereas the bait-only group reported the highest use of bow and arrow by any of the hunt-method groups. Because the majority of respondents were in the bait-only group and those who had not yet hunted bear reported that they intended to mainly sit over bait to hunt bear in the next five years, use of bows will probably continue to increase in the future. There was, however, no significant difference between equipment use for the "before" and "after" cohorts.

Most of the respondents who had hunted bear in Michigan were more likely to hunt in only one area of the state. With the exception of the dog-only group, respondents were most likely to use only the western Upper Peninsula to hunt bear. The dog-only group hunted, for the most part, in only the eastern Upper Peninsula. Almost half of the "after" cohort hunted only in the western Upper Peninsula. If continued, this tendency for bear hunters to use only one particular area may limit a hunters chances for obtaining a harvest tag. In a lottery system it is advantageous to the hunter to adjust the area they hunt in depending on the number of tags issued in a given area.

Respondents in the dog groups spent more days in the field and had the highest lifetime harvest rate of bear compared to other hunt-method groups. In contrast, the still-only group spent the fewest days and had the largest proportion who had not harvested a bear. Members of bear hunting organizations had a higher lifetime harvest rate and hunted longer than did nonmembers. The "before" cohort was not significantly different from the "after" cohort for days spent afield, but the number of bear harvested in a lifetime was higher for the "before" cohort, as would be expected. Interestingly, the "after" cohort had been hunting only three years or less (the majority began in 1992), but in this short time over a third had harvested a bear. This is probably due to increasing success rates since 1990, but based on Jackson's (1980) theory that hunters go through a series of "phases", harvesting earlier in an individuals hunting career could accelerate movement into phases having less emphasis on the taking of bear.

Importance of Bear Hunting Compared to Other Recreation

The dog groups rated bear hunting as being more important than the other hunt-method groups did; whereas, still-only respondents rated bear hunting lower in importance. Bear hunting was more important to members of bear hunting organizations than to

nonmembers. Differences in importance may be because a hunter who is more apt to join a bear hunting organization is more involved in that sport, or because most members of bear hunting organizations are dog hunters and there is a high level of involvement among the dog hunters.

Reasons for Going Bear Hunting

Appreciative-oriented aspects of bear hunting (i.e., being in the woods, seeing bear) were rated as more important reasons for going bear hunting than the achievement-oriented (i.e., harvesting a bear, getting a shot) for all segments (Decker and Connelly 1989). Of the reasons listed on the survey, seeing bear dogs work was the most important reason for dog hunters to go bear hunting. The affiliative-oriented aspect of being with friends was also very important to respondents in the dog group, but less important to other hunt-method groups. However, all segments rated spending time with family as lower in importance than being with friends and lower in importance than most other reasons for going bear hunting. Respondents in the "after" cohort placed a higher importance on harvesting a bear than those in the "before" cohort. Because the "after" cohort had a higher proportion who had not yet harvested a bear, it appears that harvesting a bear becomes less important compared to other aspects of bear hunting once a bear is harvested. In support of this reasoning, respondents who had not yet harvested a bear, compared to those who had harvested at least one bear, rated getting a shot at a bear and harvesting a bear as more important. Harvesting and getting a shot was even less important for respondents who had harvested more than three bears compared to one or two bears.

Attitudes toward Regulation Trade-offs

All segments thought that protection of the bear population was the most important factor that the MDNR should consider when determining hunting regulations. It appears that respondents, regardless of hunt method, were thinking of the good of the resource before the good of the hunter. Moderately high in importance was waiting time for a harvest tag as was freedom to choose what area in Michigan to bear hunt in. This could be due to the tendency of bear hunters to hunt in only one area of the state. Moderately low was season length and hunter success. It is of importance to bear managers that respondents appear to be more concerned about how frequently they will get to hunt and where they will be able to do it, rather than how long the season will last or if they will harvest a bear.

The dog hunter group thought that waiting time for a harvest tag was less important criteria for setting regulations than did other hunt-method groups. This is probably because dog hunters can purchase a participation permit and participate in a chase without a harvest tag. Also, previously mentioned data showing that dog hunters were most interested in experiencing bear dogs work than harvesting a bear supports this reasoning. The length of the bear season was considered more important criteria for the dog groups compared to other hunt-method groups which is consistent with a higher level of involvement in a recreational activity. Interestingly, the dog/bait group rated interference among hunters in the woods as moderately low in importance. During focus group discussions, this group was perceived as being the biggest contributor to interference problems by bait, still, and dog-only hunters.

Members of bear hunting organizations rated protection of the bear population higher in importance and harvest rate lower in importance than did nonmembers. Harvest rate was less important to the "before" cohort compared to the "after" cohort. Although the "after" cohort was hunting at a time when there were fewer hunters in the field due to the limited entry system, they rated interference among hunters as more important than did the "before"

group. Increased exposure to these issues in recent years may be the reason for this higher rate of concern; however, members of bear hunting organizations who should also be exposed to these issues rated interference lower in importance that nonmembers did.

Attitudes toward Waiting for a Harvest Tag

Respondents indicated they would wait only two to three years before becoming dissatisfied with bear hunting, but reported they would not begin to drop out of the application process until they had waited about four years. Current wait for a harvest tag averages about three years; therefore, many hunters should already be dissatisfied with the wait. If Wisconsin and Minnesota are any indication of trends for future bear applicants, Michigan will soon move closer to an intolerable waiting time where hunters say they will begin dropping out. If some actually do drop out, will newcomers be replacing the more experienced hunters?

Results show that the "before" cohort is willing to wait longer before dropping out of the application process than the "after" cohort. Those who have not yet hunted bear and the dog hunter groups were willing to wait longer than other hunt-method groups. Also, members of bear hunting organizations were willing to wait longer than nonmembers before dropping out of the application process. This may mean that there will be a high rate of first-time hunters who are willing to wait longer to try bear hunting, but they will have a higher rate of quitting than those hunters who have more years of experience. The result could be increased applicant numbers and increasing numbers of inexperienced hunters in the woods during bear season. If this were the case, achievement-oriented aspects of bear hunting may become more important relative to appreciative aspects in the future. Also, those hunters who choose to remain in the system will tend to be dissatisfied with the length of time they must wait for a harvest tag causing more issue management problems for the agency.

Attitudes toward Season Length

The number of days that respondents needed in a season to be satisfied with bear hunting was fairly low. This is consistent with the low level of importance that respondents placed on hunting seasons as a factor the MDNR should consider when setting regulations. In the U.P., where most respondents hunted bear, hunters can be in the field for 46 days. Most reported that they would be satisfied with 16 days or less.

The dog hunter group needed considerably longer seasons than other hunt-method groups. Respondents in the "before" cohort required longer seasons than the "after" cohort, probably due to the larger percent of dog hunters in the "before" compared to the "after" cohort. MDNR meetings with bear hunter opinion leaders have focused in large part on the length of the bear season, while it appears that the emphasis on season length may not be shared by bear hunters in general.

Attitudes toward Hunter Success

Hunter success rate was another aspect of bear hunting regulations that was considered in the mail survey. Many respondents indicated that success rate was not important to them. Almost all of those, who indicated a success rate, reported a rate that was comparable or less than the state average. The dog/bait group, who had the highest mean number of harvested bears, indicated that more success was needed to be satisfied than did the other hunt-method groups. However, the success rate of the dog/bait group was still comparable to the current state average for harvest rates.

Respondents in the "after" cohort needed a better chance at being successful compared to those in the "before" cohort. This is another indication that the less experienced hunters place more emphasis on the achievement oriented aspects of bear hunting than the more experienced hunters.

Attitudes and Beliefs Concerning Use of Bait and Dogs

Respondents in the dog, bait, and still-only groups tended to be critical of methods used to hunt bear other than their own. Many of the respondents in the dog and still-only groups had negative beliefs about baiting, but fewer actually thought that baiting should not be allowed in Michigan. Even higher proportions of the bait and still-only groups had negative beliefs about dog hunting, but again, fewer were willing to report that it should be made illegal.

Results showed that most of the respondents who believed hunting bear with dogs or bait should not be continued (i.e., anti-dog, anti-bait) had a problem with the ethics involved with using these methods. In addition to the ethical problems, nearly all of the respondents in the anti-dog group believed that dogs interfere with other methods of hunting bear. The majority of anti-baiters also believed that baiting interferes with other methods of hunting bear, but a larger percent believed that baiters take more than their share of bear. A large majority of both anti- dog and bait respondents also believed that using these methods gives hunters a greater chance of harvesting a bear. Because this disagreement of methods is due in large part to the ethics involved, there is less likelihood that the conflict will be resolved through increased information. However, the scope of the problem could be reduced by cancelling out the erroneous beliefs that most of these respondents hold about the use of dogs and bait.

Beliefs about the Bear Population

Most felt that the bear population was either increasing or stable. A smaller proportion of the dog groups were "not sure" about the population than were other hunt-method groups. Members of bear hunting organizations were more sure that the population was increasing than were nonmembers. Also, the "before" cohort was more sure than the "after" cohort.

Preferences for Harvest Tag Allocation

Using a drawing to allocate harvest tags was supported by a larger proportion of respondents than were other options (i.e., closing the season after a set quota of bear is reached, setting a very short season, or restricting methods) explored in this study. However, only half of the respondents approved of using this method to allocate harvest tags. The highest disapproval, overall, was for restricting methods used to hunt bear. Among hunt-method groups, the still-only group was the only segment that had some support for restricting methods, as would be expected. Focus group data did not reveal any alternatives to these options, therefore a possible reason for low approval could be that hunters do not feel that limiting hunter numbers is necessary at this point. Given most respondents felt that the bear population was increasing or about the same in areas that they hunt, it is likely they would believe limiting hunters is unnecessary.

Point Preference vs Random Lottery

Familiarity with the two most viable methods of issuing harvest tags was explored in the focus groups: point preference and random lottery. Most focus groups participants were not familiar with the point preference system even though it was being used in Wisconsin and Minnesota for issuing bear harvest tags. Those who were familiar had developed negative or positive opinions about the system based on little actual information about the systems. Random lottery was more familiar; however, little thought had been given to implications of using either system. Based on this, we provided a detailed description of the point preference and random lottery systems and implications of using each system for issuing bear harvest tags in the survey questionnaire.

Focus groups suggested that preference for one system over the other depended on the perceived waiting time for a harvest tag. When given a hypothetical waiting time of three

years or a one in three chance of being drawn, the majority of respondents preferred point preference. This shifted to preference for the random lottery when the waiting time increased to five years or a one in five chance of being drawn.

The dog groups were very polarized on this issue when given the shorter wait. For all other hunt-method groups, at least 50% of the respondents choose point preference when the wait was no more than three years. Those who had not yet hunted were the biggest supporters of the point preference system for both the shorter and longer wait. When the waiting time increased the dog groups had the largest percent who choose random lottery of the other hunt-method groups. With this longer wait the bait-only, still-only, and generalist groups became polarized.

It appears that all respondents like the guarantee of a harvest permit with the point preference system only as long as the wait is three years or less, but choose to take their chances with a random lottery if the wait gets longer. Currently, applicants will wait approximately three years for a harvest tag; if a lottery is used, chances will be about one in three. If applicant numbers continue to increase, the wait will grow longer. All indications are that applicants will continue to increase, extending the wait time for a harvest tag beyond the acceptable three years for a point preference system.

Attitudes and Beliefs Concerning the MDNR

Many respondents were dissatisfied with current bear management, but over half were either satisfied or neither satisfied nor dissatisfied. Of the hunt-method groups, the dog-only and generalist groups were most dissatisfied. The dog/bait group, who tended to respond similarly to the dog-only group on other issues, was one of the more satisfied hunt-method groups. The "after" cohort was more satisfied than the "before" cohort with current bear management.

The focus groups supplied additional information on why bear hunters were dissatisfied with bear management. Group participants were concerned about the MDNR's ability to make competent decisions about the bear population. Participants also did not trust the MDNR to make management decisions that were for the good of the bear population or the hunter. These focus group findings were consistent with survey results indicating that many respondents did not agree that the MDNR had enough information to correctly decide how many bear to harvest. However, about the same percent were not sure or agreed that MDNR did have enough information. Again, the dog-only group responded quite differently from the dog/bait group; the dog-only group was most likely to disagree. The still-only and not hunted groups were the most likely to agree. Members of bear hunting organizations were more likely than nonmembers to disagree that the MDNR had enough information. The "before" cohort was also more likely than the "after" cohort to disagree.

Another statement looked at the perceived trustworthiness of the MDNR. Many respondents agreed that they trusted the MDNR to consider the best interests of hunters when setting regulations, however, as with the previous statement, over half was either not sure or disagreed. The dog-only and the generalist groups were most likely to not trust them. Hunting organization members were less trusting than nonmembers and the "before" cohort was less trusting than the "after" cohort.

Based on these results, perceived credibility of the MDNR is less than positive. Respondents seem to be unsure about the quality and use of the biological data to set harvest restrictions. As mentioned earlier, respondents may not believe that the current status of the bear population warrants the type of restrictions that are being imposed. They may see these restrictions as evidence that the MDNR does not have adequate data on the population. Also, most focus group participants were not familiar with the methods that biologists used for measuring the population. This may lead to assumptions on their part that not enough is being

done to determine population needs. Focus group participants also thought the MDNR was "selling them out" to anti-hunting interest groups. This could account for survey respondents' lack of trust in the MDNR to consider their interests.

Communication for Bear and Bear Hunting Issues

Respondents appear to be getting most of their information about bear and bear hunting from their bear hunting friends and magazines. About half use the bear license guide, newspapers, hunting organization publications, and television either "frequently" or "sometimes" for information. Of these four sources, the license guide is used the most "frequently."

The dog groups used bear hunting friends for information more than the other hunt-method groups did. This makes sense considering the dog groups rated spending time with bear hunting friends as a very important reason for going bear hunting. As would be expected, the still-only group, who rated spending time with bear hunting friends as low in importance, used bear hunting friends less than other hunt-method groups. The dog groups also used hunting organization publications more often than did the other hunt-method groups. Hunting organization publications were used more frequently by members of hunting organizations than nonmembers.

Profile of Segments

Hunt-method Segment Profiles: Dog-only

Results indicated that hunters who use only dogs not started from bait to hunt bear (dog-only) were 6% of the bear hunting population. Respondents in the dog-only group have hunted an average of 13 years and the majority had harvested one or more bear during their bear hunting involvement. They bear hunted an average of 10 days in 1992. Almost all

intend to only use dogs not started from bait to hunt bear for at least the next five years. Very few indicated that they did not plan to hunt bear in the next five years. Most of the dog-only respondents participated in several other types of hunting, but to a lesser degree than other hunt-method groups. They do not tend to pay for assistance in hunting, but only about half own their own dogs, so many rely on others to supply the dogs for their hunting experience. Almost half indicated that they have hunted only in the eastern U.P. since 1980. Almost all use only a gun to hunt bear, but some do use both a gun and bow; none hunted exclusively with a bow. About half are members of a bear hunting organization, and over a third are members of other hunting organizations.

The large majority of dog-only respondents reported that bear hunting is their most important or one of their more important recreational activities that they participate in. Seeing and hearing bear dogs work is a most important reason for going bear hunting. Also high in importance was being in the woods, spending time with bear hunting friends, and seeing a bear in its natural habitat. Low in importance was harvesting and getting shots at a bear. Dog-only respondents indicated that their freedom to choose what area of Michigan to bear hunt in was highly important for the MDNR to consider when setting bear regulations.

The dog-only group was satisfied with a two to three year wait for a harvest tag and were willing to wait an average of five years for a harvest tag before quitting the application process. The majority needed 30 or more days in a bear hunting season to be satisfied. A satisfactory success rate was about two in ten hunters, but success rate was not important to over half of the respondents in this group.

The dog-only group tended to be critical of hunting bear over bait; a slim majority thought it should continue in Michigan. Only about half thought baiting was ethical and most believed that baiters took more than their share of bear, and had a greater chance of harvesting a bear. Only about 20% of the dog-only group thought their own method of hunting with

dogs interfered with other methods of hunting bear.

Of four methods to limit the bear harvest, dog-only respondents approved most highly of using a drawing, but none of the methods were approved by a majority. They were polarized on which method to use to allocate harvest tags with a short wait time, but were much in favor of the random lottery with a longer wait. The majority were dissatisfied with current bear management, and fewer than a third thought that the MDNR had enough information to decide how many bear to harvest or considered the interests of hunters when setting regulations for bear hunting. A large majority of dog-only respondents also thought politics played a bigger role in limiting harvests than the biology. About half think the bear population is stable and another third believe it is increasing.

Dog-only respondents receive their information about bear and bear hunting most frequently from their bear hunting friends, magazines, and hunting organization publications, and rarely from MDNR employees. The majority would be very or moderately interested in attending workshops or meetings on bear and bear hunting.

Hunt-method Segment Profiles: Dog/Bait

Hunters who used only dogs but sometimes start them from bait (dog/bait) represented 5% of the bear hunting population. The dog/bait group had been bear hunting an average of 15 years, and the vast majority had harvested at least one bear in their hunting involvement; a third had taken 3 or more. In 1992, they spent an average of 10 days afield during the bear season. Most plan to continue to use only dogs sometimes started over bait as a method of hunting bear, and few intend to drop out of bear hunting for at least the next five years. Only a small percent indicated they paid for some kind of assistance in bear hunting. However, only about two-thirds own bear dogs, so like the dog-only group, many must rely on others to supply dogs. A few dog/bait respondents use a gun and bow to hunt bear, but nearly all use

only a gun. Half reported that they have only hunted in the western U.P. since 1980. Many participate in other types of hunting, especially small game, whitetail deer, and upland game birds, but to a lesser degree than other hunt-method groups with the exception of dog-only respondents.

A slim majority of the dog/bait group were members of bear hunting organizations, whereas just over a third are members of other hunting organizations. Almost all felt that bear hunting was their most important or one of their more important recreational activities. Dog/bait respondents go bear hunting to see and hear bear dogs work, but also value being in the woods, spending time with their bear hunting friends, and having the opportunity to see a bear in its natural habitat. Low in importance is harvesting a bear, or getting a shot at a bear. The dog/bait group reported that the freedom to choose what area of Michigan to bear hunt in is very important criteria for the MDNR to consider when determining regulations.

Dog/bait respondents were satisfied with a two to three year wait for a harvest tag and would on the average, wait over five years for a tag before quitting the application process. The majority reported that 30 or more days was needed in a season to be satisfied with bear hunting. A satisfactory success rate was about three in ten hunters, but 60% reported that it was not important.

Over two-thirds of the dog/bait group thought baiting should continue in Michigan. Most thought it was ethical, and that it did not interfere with other aspects of hunting bear. However, most reported that bait sitters have a greater chance of harvesting a bear and half thought that they take more than their share of bear. Very few indicated that dog hunting interfered with other methods of hunting bear.

Of four methods to limit the harvest of bear, using a drawing was the most preferred, but only a slim majority approved of this method. As in the dog-only group, the dog/bait group was polarized on which method to use to allocate harvest tags given a short wait, but

most preferred random lottery with a longer wait. About a third were dissatisfied with current bear management. A similar percent indicated that the MDNR did not have enough information to correctly decide how many bear to harvest. About the same percent trusted as did not trust the MDNR to consider the interests of hunters when setting bear regulations. The majority felt that political pressure was more responsible for bear regulation changes than bear biology. Most thought that the bear population was either increasing or staying the same.

Bear hunting friends are used most frequently as a source of information on bear and bear hunting. Magazines and hunting organization publications are also used frequently. MDNR employees are used the least. The majority of respondents in the dog/bait group indicated that they were very or moderately interested in attending bear meetings or workshops.

Hunt-method Segment Profiles: Bait-only

Those who sit over bait as their only means of hunting bear (bait-only) comprised 44% of the bear hunting population. Respondents in the bait-only group have hunted for an average of seven years, and half have not yet harvested a bear. They hunted an average of eight days in the 1992 bear season. Most plan on sticking with their chosen method over the next five years and few intend to drop out over this time. About 13% paid for some assistance with bear hunting, more than other hunt-method groups. About the same percent use a gun, a bow, or both to hunt bear. Almost all reported hunting in only one area of the state for bear, mainly the western U.P. Respondents participated in other types of hunting to a high degree. Nearly all hunt whitetail deer and small game. Fewer, but still 20%, hunt other big game animals.

Few bait-only respondents were members of a bear hunting organization, but a third were members of some other hunting organization. Most of the bait-only group reported that

bear hunting was one of the more important recreational activities that they participate in, but few said it was the most important. For bait-only respondents, very important reasons for going bear hunting are to be in the woods, to have the opportunity to see a bear in its natural habitat, and to use their hunting skills. Getting shots at a bear was moderately high. Low in importance was spending time with family while hunting. Number of years wait for a harvest tag and freedom to choose what area to hunt in were considered very important criteria that the MDNR should consider when setting regulations.

The bait-only respondents reported they would wait an average of two years and still be satisfied with bear hunting. They would quit applying for a harvest tag if the wait went beyond four years. The majority would be satisfied with a sixteen day bear season and a success rate of about two in ten hunters harvesting a bear, but success rate was not important to 40% of the bait-only group.

Only about half thought dog hunting should continue in Michigan. A similar percent thought that there was nothing unethical about it. Two-thirds of the bait-only group reported that dog hunting interferes with other methods, and half thought there was a better chance of harvesting a bear in dog hunting. A third indicated that dog hunters take more than their share of the bear.

A slim majority of the bait-only group approved of limiting bear harvest through a drawing. Of four methods given, this was preferred the most. When allocating harvest tags given a short waiting time, the majority choose the point preference system. With a longer wait, more chose the random lottery. Similar percents were satisfied and dissatisfied with current bear management. About a third thought that the MDNR did not have enough information to correctly decide how many bear to harvest. A smaller percent did not trust the MDNR to consider the hunters interests when setting regulations. Over half thought that political pressure was more a factor in limiting the harvest of bear than biology. About a third

indicated that the bear population was stable and just under half of the bait-only respondents reported an increase in the bear population in the area they hunted.

Bear hunting friends and magazines were frequently used sources of bear hunting information for the bait-only group. MDNR employees were rarely used. The majority were very or moderately interested in attending workshops or meetings about bear and bear hunting.

Hunt-method Segment Profiles: Still-only

Hunters who used neither bait nor dogs to hunt bear (still-only) were 5% of the bear hunting population. The still-only respondents have hunted an average of 14 years, and two-thirds have not yet harvested a bear. They hunted an average of seven days during the 1992 bear season. Half reported that they intend to only hunt bear without bait or dogs over the next five years, but 19% planned to use bait as their only method and 12% would use more than one method. Over 15% planned not to hunt bear over the next five years. Over half of the still-only group use only a gun to hunt bear and a third use both a gun and bow. The majority hunt only in the western U.P.; very few hunt in more than one area. Still-only respondents did not tend to pay for assistance in hunting. They participate in many types of hunting in addition to bear.

Only 2% of still-only respondents were members of a bear hunting organization, but a third were members of other hunting organizations. The majority of the still-only group reported that bear hunting was no more important than other recreational activities that they participate in, and 20% said it was less important. Still-only respondents indicated that being in the woods, using hunting skills, and seeing a bear in its natural habitat were very important reasons for going bear hunting. Spending time with bear hunting friends and spending time with their family were low in importance. Harvesting a bear was moderately important. Still-only respondents reported that the freedom to choose what area to hunt bear in is very

important for the MDNR to consider when setting regulations.

Respondents in the still-only group would be satisfied waiting an average of two years for a harvest tag, but reported that they would quit applying after an average wait of four years. The majority would be satisfied with a bear season of nine days or less. A satisfactory success rate was two in ten hunters, and over half reported that success rate was not important.

Half of the still-only respondents thought hunting bear with bait should continue in Michigan. More than half felt it was ethical to bait. However, over a third indicated that baiters take more than their share of bear and that baiting interferes with other methods of hunting bear. Only a third thought hunting bear with dogs should continue. A slim majority reported that using dogs was not ethical and most believed that dogs interfere with other methods of hunting bear. Just under half indicated that dog hunters have a greater chance for harvesting a bear than baiters and they take more than their share of bear.

The still-only group preferred limiting the bear harvest by restricting methods used to hunt bear over the other three methods given, but only half approved. Most chose the point preference system when wait was short. More preferred the random lottery when the wait got longer, but a third continued to support the point preference. A third of the still-only group was dissatisfied with current bear management, but close to the same percent was satisfied. Half of the still-only group was confident that the MDNR had enough information to correctly decide how many bear to harvest. A similar percent trusted the MDNR to consider hunter interests when they set bear hunting regulations. More disagreed than agreed that the MDNR limited the bear harvest more because of politics than biology. The majority of still-only respondents thought that the bear population was increasing or stable in the area that they hunted.

Magazines were the most frequently used source of information about bear and bear

hunting. Bear hunting friends were also used sometimes for information. The MDNR and hunting organization publications were used the least. The majority of still-only respondents were only slightly interested or not at all interested in attending meetings or workshops on bear hunting.

Hunt-method Segment Profiles: Generalist

Those who used a combination of methods to hunt bear (generalist) comprised 25% of the bear hunting population. The generalist group had been hunting for an average of 11 years, and about half had not harvested a bear. They hunted for bear an average of eight days in 1992. About half intend to continue using a combination of methods over the next five years, and of the remaining, most intend to only use bait; whereas, a few will dog and still hunt. Only a small percent do not plan to hunt bear. Many generalists use a gun only or both a gun and bow, but only a small percent use only a bow to hunt bear. A large percent hunt only in the western U.P. A few paid for assistance in bear hunting. Nearly all hunt whitetail deer and small game. Many also hunt turkey and other upland game birds. Big game hunting, other than black bear, is done by 22% of the generalist group.

Only 12% of the generalist respondents were members of a bear hunting organization, but a third were members of other hunting organizations. Over half indicated that bear hunting was one of the more important recreational activities that they participate in, but an additional fourth said it was no more important. The more important reasons for going bear hunting were to be in the woods, to see a bear in its natural habitat, and to use hunting skills. Lowest in importance was spending time with family and having bear meat. Harvesting a bear was moderately important. Freedom to chose what area of Michigan to hunt in was rated a most important factor for the MDNR to consider when determining regulations.

Generalist respondents indicated that they would wait an average of two years for a

harvest tag and still be satisfied with bear hunting, and would quit after three to four years of waiting. The majority would be satisfied with a sixteen day bear hunting season. A satisfactory success rate was two in ten hunters, but 40% said harvest rate was not important.

The vast majority thought baiting should continue in Michigan. Few had negative beliefs about baiting. Fewer, but still the majority reported that hunting bear with dogs should continue. Most indicated that it was ethical, but half believed that dogs interfere with other methods of bear hunting. More agreed than disagreed that dogs had a greater chance of harvesting a bear than baiters.

More generalists approved of using a drawing for limiting the harvest of bears than the other three methods given, but nearly as many approved of setting a very short season. The generalist respondents chose point preference over the random lottery, given a short wait time for a harvest tag; however, random lottery was preferred with a longer wait. Over half were dissatisfied with current bear management. Over a third were not confident that the MDNR has enough information to decide how many bear to harvest. More did not trust the MDNR than trusted them to fairly consider the interests of hunters when setting bear regulations. The majority believed that the MDNR limited the bear harvest more because of political pressure than biological reasons. Most thought the bear population was either increasing or stable in the area they hunt most often.

The most frequently used sources for information on bear and bear hunting were bear hunting friends and magazines. MDNR employees were rarely used. The generalist group had similar percents who were very interested, moderately interested, slightly interested, and not at all interested in attending meetings or workshops on bear and bear hunting.

Hunt-method Segment Profiles: Not Yet Hunted Bear in Michigan

Those who had not yet gone hunting for bear in Michigan or had gone on a bear hunt but without a harvest tag (not hunted) account for about 16% of the bear hunting population. About half plan to use only bait to hunt bear over the next five years and just over a fourth intend to use more than one method. Few plan to only use dogs or not to bear hunt at all. The not hunted group participated in other types of hunting, especially whitetail deer, small game, and upland game birds. Few were members of bear hunting organizations and less than a third were members of other hunting organizations. A higher percent (16%) of this group were females compared to the other hunt-method groups.

Few not hunted respondents reported that bear hunting was the most important recreational activity that they participate in, but 44% considered it one of the more important. The not hunted group rated being in the woods, having the opportunity to see a bear in its natural habitat, and using hunting skills as most important reasons for going bear hunting. Harvesting and getting shots at a bear were moderately important. Having bear meat and spending time with family were low in importance.

Not hunted respondents thought that the number of years hunters wait for a harvest tag was a most important factor to consider when setting regulations. The not hunted group reported they would wait an average of three years for a harvest tag and still be satisfied with bear hunting, and an average of five years before quitting. About half would be satisfied with a bear hunting season that was nine days or less. A satisfactory success rate was two in ten hunters and 40% reported that it was not important.

The large majority of not hunted respondents reported that baiting should continue in Michigan, and few had negative beliefs about baiting. Almost two-thirds indicated that hunting with dogs should continue. Dog hunting was considered unethical by just under a third of the not hunted respondents. Over half thought that dog hunting interfered with other

methods of bear hunting, and many believed that dog hunters had a greater chance of harvesting a bear than baiters. A fourth believed that dog hunters take more than their share of the bear.

A drawing was the most approved method of limiting the bear harvest of the four methods given, but only half of the not hunted group approved. Most chose the point preference system when wait was short, and less, but still over half, preferred it when wait was long. There were as many satisfied as dissatisfied with current bear management. More were confident than were not confident that the MDNR had enough information to correctly decide the number of bear to harvest. Also, more trusted the MDNR to consider hunters when setting regulations than did not. Less than half believed the MDNR limited the bear harvest more because of political reason than biological.

The not hunted group gets their information about bear and bear hunting more frequently from bear hunting friends and magazines and rarely from the MDNR. The majority were very interested or moderately interested in attending workshops or meetings about bear hunting.

Membership Segment Profiles: Bear Hunting Organization Member

Respondents who were members of at least one of the four bear hunting organizations given (bear-members) represented 12% of the bear hunting population. Of those who were bear-members, the largest membership (86%) was with the MI Bear Hunters Association. A much smaller percent (21% and 17%, respectively) were members of the United Bear Hunters and U.P. Bear Houndsmen groups. Only 4% of the bear hunting organization members were members in the Northeastern Michigan Houndsmen Association.

Most bear-members (61%) were also members of at least one of the other hunting organizations given on the survey. Of those who were bear-members, many (43%) were

members of MI United Conservation Clubs. Fewer were members of Michigan Hunting Dog Federation, Michigan Coon Hunters, and Michigan Bow Hunters (11%, 9%, and 13%, respectively).

Many (45%) of the bear-members were in either the dog-only or dog/bait group, with a smaller percent (28%) in the bait-only group. Some (18%) were generalists, but very few were in the still-only or not hunted groups. Over a fourth of the bear-members intended to use dogs started from bait over the next five years, and over half reported they would use dogs not started from bait. Half also intended to sit over bait, but only a few planned to use neither dogs nor bait.

Bear-members, on the average, had been bear hunting for 12 years, harvested 2.6 bear, and spent 8.8 days bear hunting in 1992. Bear hunting is the most important recreational activity for nearly a third, and all but 13% of the remaining bear-members indicated that it was one of their more important recreational activities. A few (10%) had paid someone to assist them in some aspect of bear hunting at least once during the 1990-1992 bear seasons.

Bear-members reported that being in the woods and seeing bears were most important reasons for going bear hunting. Being with bear hunting friends and using hunting skills were also rated fairly high in importance. Reasons that were rated low in importance for bear-members were harvesting a bear, getting shots at a bear, and having bear meat.

Bear-members reported they would wait about five years before quitting the bear hunter application process and a satisfactory bear hunting season was 22 days long. The majority of bear-members chose the point preference system given a short waiting time, but more preferred the random lottery when the wait for a harvest tag went to five years.

Over half of the bear-members were dissatisfied with current bear management. Many were not confident that the MDNR has enough information on the bear population to correctly decide how many bear to harvest. Nearly half did not trust the MDNR to consider the

interests of hunters when setting regulations. Also, the majority believed that the MDNR limited the bear harvest more because of politics than biology. Almost all bear-members thought that the bear population was either increasing or stable.

The majority of bear-members frequently used bear hunting friends, hunting organization publications, and magazines for information about bear and bear hunting. Of the sources given, MDNR employees were used the least. Nearly half were very interested and another third moderately interested in attending workshops and meetings on bear and bear hunting.

Membership Segment Profiles: Bear Hunting Organization Nonmember

Respondents who were not members of a bear hunting organization (bear-nonmembers) made up 88% of the bear hunter population. Some (26%) were members of one of the other hunting organizations. The highest rate of membership (19%) was in the MI United Conservation Clubs. A few (9%) were members of Michigan Bow Hunters and less than 1% were members of Michigan Hunting Dog Federation or Michigan Coon Hunters.

Many (47%) of the bear-nonmembers were in the bait-only group and 25% were generalists. A considerable percent (17%) had not yet hunted bear and few were in the dog or still-only groups. The large majority of bear-nonmembers intended to hunt bear over the next five years by sitting over bait. A small percent planned on using dogs started from bait or dogs not started from bait. A fourth reported they would use neither dogs nor bait.

Bear-nonmembers had been bear hunting for seven years, spent 7.4 days afield during bear season, and harvested 1.3 bears, on the average. Bear hunting was the most important recreational activity that they participated in to only 9% of nonmembers, while a slim majority considered it one of the more important activities. Only 8% paid a guide to assist them in some aspect of bear hunting in the 1990-1992 bear seasons.

Being in the woods and seeing bear were most important reasons for bear-nonmembers to go bear hunting. Moderately high in importance was using hunting skills, and getting away from work or stress. Harvesting and getting shots at bears was moderately important.

Bear-nonmembers reported they would wait an average of four years before quitting the application process. A satisfactory bear hunting season would last 16 days, on the average. The majority of bear-nonmembers chose a point preference system over random lottery for allocating harvest tags if the wait was not longer than three years. They became polarized on this issue when the waiting time went to five years.

A plurality of bear-nonmembers were dissatisfied with current bear management. Bear-nonmembers were polarized on whether or not the MDNR has enough information on the bear population to correctly decide how many bears to harvest. Less than half trusted the MDNR to fairly consider the interests of hunters when setting hunting regulations; however, nearly a third was not sure. A slim majority of bear-nonmembers believed that the MDNR limited the bear harvest more because of political pressure than evidence of declining bear numbers; a third was not sure.

Of the sources of information for bear and bear hunting given on the survey, the most frequently used sources were bear hunting friends and magazines. Newspapers, television, hunting organization publications, and license guides were used frequently or sometimes by about half of the bear-nonmembers. The least used source was MDNR employees. The majority of bear-nonmembers were either very interested or moderately interested in attending meetings or workshops on bear and bear hunting.

Membership Segment Profiles: Other Hunting Organization Member

Those who are members of other hunting organizations (other-members) were 31% of the bear hunting population. Of those who were members of at least one of these other hunting organizations, the largest percent (76%) were MI United Conservation Clubs members. A third were members of MI Bow Hunters and only 6% and 5%, respectively, were members of Michigan Hunting Dog Federation and Michigan Coon Hunters. Of those who were members of other hunting organizations, 23% were also members of a bear hunting organization.

Many (40%) other-members were in the bait-only group. Over a fourth were generalists, and only 14% were in one of the dog groups. The large majority of other-members reported that they intended to use bait over the next five years to hunt bear. A small percent stated that they would use dogs started from bait. More planned to use dogs not started from bait.

On the average, other-members had been bear hunting for nine years, spent 6.9 days afield during the 1992 bear season, and harvested 1.6 bears. Eleven percent had paid for assistance with some aspect of bear hunting during the 1990-1992 bear seasons. Half reported that bear hunting was one of the more important recreational activities they participate in. A fourth indicated that it was no more important than other recreational activities.

Other-members reported that being in the woods, seeing a bear, and using hunting skills were very important reasons for going bear hunting. Being with bear hunting friends, getting away from stress, and trying to get a shot at a bear were moderately important. Harvesting a bear, having bear meat, and spending time with family were moderately low in importance.

Other-members indicated they would quit applying for a harvest tag after waiting an average of four years. A satisfactory bear hunting season would last 16 days. The majority of

other-members chose point preference over random lottery for allocating harvest tags when the waiting time for a tag was no more than three years. Respondents were split between these two systems when the wait was five years.

A slim majority of other-members were dissatisfied with current bear management. Respondents were polarized on whether the MDNR had enough information on the bear population to correctly decide how many bear to harvest. Other-members were also split on whether they trusted the MDNR to consider the interests of hunters when setting bear hunting regulations. Over half agreed that the MDNR limited the bear harvest more for political reasons than evidence of a decreasing bear population. Nearly three-fourths of the other-members reported that the bear population was either increasing or stable.

Other-members obtain information on bear and bear hunting most frequently from bear hunting friends and magazines. Hunting organization publications were used less often, but were still used frequently or sometimes by the majority of respondents. MDNR employees were used the least. Most were either very interested or moderately interested in attending meetings on bear and bear hunting.

Membership Segment Profiles: Other Hunting Organization Nonmember

Nonmembers of other hunting organizations (other-nonmembers) were 70% of bear hunters. Only a small percent (6%) of other-nonmembers were members of a bear hunting organization. Almost half (47%) of the other-nonmembers were in the bait-only group, while 9% were in one of the dog groups. A considerable number (17%) had not yet gone bear hunting. The large majority reported they would sit over bait to hunt bear over the next five years. Some other-nonmembers (10%) indicated they would use dogs started from bait, but more (16%) intended to use dogs not started from bait. Very few planned not to hunt bear over the next five years.

Other-nonmembers, on the average, had been bear hunting for eight years. They spent an average of 7.7 days afield during the 1992 bear season. The average number of bears that other-nonmembers had harvested in their lifetime was 1.4. A small percent (8%) had paid for bear hunting assistance at some time during the 1990-1992 bear seasons. Only 11% reported that bear hunting was the most important activity that they participate in, but 54% indicated that it was one of their more important activities.

Being in the woods and seeing bears were most important reasons for going bear hunting for other-nonmembers. Moderately high in importance was using hunting skills, getting away from work or stress, and getting shots at bears. Harvesting a bear and spending time with friends was only moderately important, and spending time with family was even less important.

Other-nonmembers reported they would wait four years for a harvest tag, on the average, before quitting the application process. A satisfactory bear hunting season averaged 17 days. The majority of other-nonmembers chose a point preference system over random lottery for allocating harvest tags when the waiting time was not longer than three years, but were polarized over these two methods when the wait went to five years.

Less than half of the other-nonmembers were dissatisfied with current bear management. Nearly the same percent agreed as disagreed that the MDNR had enough information about the bear population to correctly decide how many bear to harvest. More (43%) trusted than did not trust (32%) the MDNR to fairly consider the interests of hunters when setting bear regulations. Half agreed that the MDNR limited the bear harvest more because of political pressure than biological reasons, while a third was not sure.

Other-nonmembers used friends and magazines as a source of information about bear and bear hunting more frequently than other sources given. MDNR employees were used the least of the seven sources. Just over half were very interested or moderately interested in

attending workshops or meetings about bear and bear hunting, while 20% were not at all interested.

Cohort Segment Profiles: Before Cohort

Those who started bear hunting before 1990 ("before" cohort) were 64% of the bear hunting population. A third had not yet harvested a bear. The "before" cohort spent an average of nine days bear hunting in 1992. Over a third hunted only in the western U.P. Only 5% paid for hunting assistance. Almost all hunted whitetail deer, and small game. Many were turkey and upland game bird hunters.

A fourth of the "before" cohort were members of bear hunting organizations and over a third were members of other hunting organizations. The vast majority thought that bear hunting was the most important or one of the more important recreational activities they participate in. The "before" cohort rated being in the woods, seeing bear in its natural habitat, and using hunting skills as a most important reason for going bear hunting. Spending time with family and harvesting a bear were rated moderately low in importance.

The "before" cohort reported that they would wait an average of two years to get a harvest tag and still be satisfied, and would quit applying after an average of four years. Just over half would be satisfied with a bear season that was 16 days or shorter. A satisfactory success rate was two in ten hunters, but half reported that it was not important.

The majority of "before" cohort respondents were dissatisfied with current bear management. As many were confident as were not confident that the MDNR has enough information to correctly decide how many bear to harvest. About a third trusted the MDNR to consider hunters interests when setting bear regulations. Nearly two-thirds believed the MDNR limited the bear harvest more for political reasons than biological. Almost half reported that the bear population was increasing in the area they hunt most often.

Cohort Segment Profiles: After Cohort

Those who began bear hunting in or after 1990 ("after" cohort) were 37% of the bear hunting population. Two-thirds of this group began hunting in 1992. Most are bait-only and generalist hunters with few who are dog or still-only hunters. About two-thirds of the "after" cohort have not yet harvested a bear. Almost half use only a gun to harvest bear, but over a third use both a gun and bow. The largest percent hunt only in the western U.P. for bear. In 1992, they spent an average of eight days bear hunting. Eleven percent paid for some kind of assistance for bear hunting since 1990. Almost all participate in other types of hunting, especially whitetail deer, small game, and upland game birds. Over a third were waterfowl hunters.

Only 9% of the "after" cohort were members of a bear hunting organizations, and 28% were members of other hunting organizations. Few reported that bear hunting was their most important recreational activity, but half said it was one of the more important. The "after" cohort rated being in the woods, seeing a bear in its natural habitat, and using hunting skills as very important reasons to go hunting. Harvesting a bear and having opportunities to get shots at bears were moderately important. Spending time with family and having bear meat were moderately low in importance.

Respondents in the "after" cohort reported that they would wait an average of two years for a harvest tag and still be satisfied with bear hunting and would quit applying after an average of three to four years. The vast majority would be satisfied with a bear hunting season of 16 days or less. A satisfactory success rate was two hunters in ten. Over a third reported that success rate was not important.

A third was dissatisfied with current bear management. Just over a third was confident that the MDNR had enough information to decide how many bear to harvest. Almost half trusted the MDNR to consider the interests of hunters when setting regulations on bear

hunting. A similar percent believed that the MDNR limited the bear harvest more for political reasons than biological ones. About a third thought the bear population was increasing and another third reported that it was stable.

Trends in Bear Hunter Characteristics and Attitudes

Changes in Hunter Characteristics Over Time

Differences were thought to exist among those respondents using various hunt methods based on results from Peyton's (1989*b*) profile of 1984 Michigan bear hunters. In that study, hunter types were analyzed for differences in hunting characteristics (i,e. hunting experience, equipment, days hunted), attitudes toward the bear population, and attitudes toward each other's methods of hunting bear. Results from that study showed many similarities with this study, but also suggested that changes may have occurred in the bear hunting community over the eight years between studies.

In 1993, bear hunters tended to be specialists, as they did in 1984, but some changes have occurred. The generalist group increased from 18% to 25% resulting in a decrease in the dog and still-only groups, but not the bait-only group. This trend may continue as intentions to use only bait by those respondents who had not yet hunted bear in Michigan were much higher than current use, while intentions to hunt only with dogs or neither dogs nor bait were lower than current practices.

Results from the 1993 survey showed that the number of years of bear hunting experience were highest in the dog groups and lowest in the bait group, as did the 1984 results. The still-only group was less experienced in 1984 than they were in 1993 suggesting that the veteran hunters may have remained while the less experienced hunters dropped out. The average number of days spent afield for each hunt-method group was higher in 1984, with the exception of the generalist group. However, the dog groups continued to spend the most

days bear hunting and the still-only group the least.

The type of equipment used by bear hunters was also different between surveys. In 1984, most hunters (77%) used only guns, 11% used bow and arrow, and only 8% used both. Gun only use decreased to 45% in the 1993 study; whereas, use of a bow and both gun and bow increased to 18% and 37%, respectively. This increase in bow hunting was also apparent in whitetail deer hunting in Michigan where there was a 50% increase in archery deer hunters from 1986 to 1993 (Langenau et al. 1994). Currently, hunter education is not required for bow hunting, but as bowhunting trends increase this becomes a more apparent weakness in the training of young hunters, especially with bowhunting being targeted by animal rights and welfare groups for high wounding rates.

Members of hunting organizations, especially bear hunting organizations, were a small percent of respondents in 1984 as they were in 1993, but they appear to be increasing. Membership in the Michigan Bear Hunters Association and Michigan Bow Hunters Association increased slightly, both showing about a 3% increase in respondents. Overall, membership to organizations related to bear hunting was at 21% in 1985 and 38% in 1993. As in 1984, the dog groups were the most organized.

Paying for assistance with some aspect of bear hunting or guiding has shown a slight increase from 1984. Only 5% of respondents reported "hiring a guide" 10 years ago, whereas 9% "paid for assistance" in 1993. This apparent increase may be due in part to changes in the wording of the question. Respondents may not have equated paying someone to place baits for them to "hiring a guide" in the 1984 survey.

Changes in Attitudes Toward the Status of the Bear Population Over Time

In 1984, a third of the bear hunter survey respondents believed that the bear population was in decline, 55% thought it was not changing and 12% reported an increase. Nine years

later, only 7% of respondents thought that it was decreasing, 32% believed it to be stable, and 41% indicated an increasing bear population. This perception that the bear population is improving could be a result of the limited entry system which was started in 1990. Fewer hunters in the woods have caused success rates to increase for those that do get a tag and may be giving hunters a false indication of more bears. Also, given these changes in perceptions about bear in Michigan, it would be expected that bear hunters may be less supportive of future proposals to restrict bear hunting or bear harvest, in spite of the importance placed on protecting the bear resource.

Changes in Attitudes Toward Use of Bait and Dogs Over Time

All specialist groups (dog-only, bait-only, and still-only) were critical of bear hunting methods other than their own. These negative attitudes appear to have moderated from 1984 to 1993, but continued to exist for a substantial percent of respondents. In 1984, 46% of the dog-only group did not want baiting to continue in Michigan. A smaller, but substantial percent (32%), felt this way in 1993. Also, a smaller proportion of still-only hunters did not want baiting to continue in 1993 compared to the 1984 results. Negative beliefs held by dog-only and still-only hunters about baiting (i.e., bait hunters take more than their share, baiting interferes with other methods, baiting is unethical) have also moderated from the 1984 study, but are still held by a considerable percent of respondents.

The bait-only group was also less critical of dog hunting in 1993 than in the earlier survey as was the still-only group. Agreement to negative statements about dog hunting (i.e., dogs take more than their share, dog hunting interferes with other methods, baiting is unethical) was less likely in the bait-only group from the more recent survey. The still-only group's negative beliefs about dog hunting also moderated from 1984 to 1993.

It is a positive sign that bear hunters are taking a less critical approach to other

methods of hunting bear. Many factors could be responsible for this change. Bear hunting organizations, which are primarily dog hunters, have taken a less judgmental approach to baiting activities since the mid 1980's. Magazine and newspaper articles over the past few years have also pointed out the need for bear hunters to stick together to combat those who would like to see bear hunting banned altogether. In 1985 bear hunting in general was not being threatened by the animal rights movement to the extent that it was in 1993. This fear of losing bear hunting may motivate bear hunters to be less judgmental and more supportive for the good of the sport. An informational strategy aimed at getting correct information about use of bait and dogs to hunters could go a long way in correcting this image problem.

Comparison of Leaders and Nonleaders

Differences in Hunting Characteristics, Behaviors, and Attitudes

The makeup of the leader group with respect to hunt method was quite different from bear hunters in general. Dog hunters made up half of the leader group compared to only 11% of the actual population. Considering the differences in behavior and attitudes of the dog groups compared to the other hunt-method groups (i.e., bait, still, generalist) it would seem that the leader group would also differ in behavior and attitudes from the nonleader group. The leader group was shown to differ from the nonleader group in responses relating to bear hunting characteristics, importance assigned to bear hunting, importance of harvesting a bear, opinions toward the MDNR, perceived status of the bear population, and opinions about using bait and dogs.

Leaders had hunted for more years, harvested more bear, and rated bear hunting as being more important to them than nonleaders did. Intention to use dogs over the next five years to hunt bear was considerably higher, whereas bait sitting intentions were lower in the leader group compared to the nonleader group.

Harvesting a bear was considered a more important reason for going bear hunting and chance for harvesting a bear was rated higher in importance as a MDNR consideration for setting bear hunting regulations by the nonleader group compared to the leader group. Leaders were more likely than nonleaders to report that the MDNR limited the bear harvest more for political reasons than biological evidence and nonleaders indicated a higher trust in the MDNR to consider the interests of hunters when setting bear regulations.

Nonleaders reported a higher level of tolerance for bait sitting with more nonleaders than leaders agreeing that baiting is ethical and should continue in Michigan and fewer indicating that bait sitting interferes with other methods of hunting bear. In contrast, leaders compared to nonleaders showed more tolerance of dog hunting, as would be expected due to the larger percent of dog hunters in the leader group. Leaders were more likely than nonleaders to agree that dog hunting was ethical and should be continued in Michigan.

These differences between leaders and nonleaders should be considered by resource managers when seeking input from hunters on bear management issues. In order to ensure that input from bear hunters to agency personnel adequately represents bear hunters in general, resource managers must strive to include a larger diversity of opinions.

Differences Between Dog-leaders and Dog-nonleaders

Differences were found to exit between the leader and nonleader group for various characteristics, behaviors, and attitudes related to bear and bear hunting to suggest that current leaders are not adequately representing bear hunters in general. But do leaders of each hunt method (i.e., dog, bait, still) represent their constituents? The responses of leaders who reported hunting with dogs only and/or dogs started from bait were compared to those of nonleaders who used dogs. Few significant differences were found between the responses of dog-leaders and dog-nonleaders; therefore, in the case of dog hunting specialists, leaders

appear to be representative of their constituents. One divergence was in respondents' opinions about the MDNR, with dog-leaders being more likely than dog-nonleaders to believe that the MDNR limited the harvest of bear more for political reasons than biological evidence of decreasing bear populations. Also, dog-leaders were less tolerant of baiting than dog-nonleaders; a smaller percent reported that hunting bear over bait should continue in Michigan.

Another aspect of opinion leader representation is: do opinion leaders moderate their attitudes toward issues due to continued exposure to the varying beliefs and attitudes of other opinion leaders? There is concern that individuals who are chosen to represent the views of a certain constituency are influenced over time and eventually come to only represent the views of the opinion leaders instead of their constituents. This does not appear to be the case with the dog hunter group.

Unfortunately, sample size allowed analysis of only the dog-leader group; half of the leader group were in either the dog-only or dog/bait group with the other half being distributed among the generalist, bait, and still-only groups. We can only speculate on the representativeness of these other hunt-method leaders until further research is done. Given the higher rate of membership of dog hunters in bear hunting organizations and their higher rate of involvement in bear hunting compared to other hunt-method groups, it is likely that the level of representation of dog-nonleaders through dog-leaders is not reflected in the other hunt-method groups.

Implications for Management

Recreation Specialization

Bear hunters not only tend to specialize in this species, but many specialize in one particular hunting method. Recreational specialization creates several challenges for resource management. Specialists place considerable importance on their recreational activity and seek to become more involved in the processes of setting rules and regulations and placing demands for biological research. Specialists also tend to be critical reviewers of resource management, as reflected by the findings that most bear hunters, especially the highly specialized dog hunter groups, were highly critical of the job that the MDNR was doing to manage bear.

Another management problem that exists when dealing with specialist groups is their critical attitude toward other subworlds. Dog hunters showed limited tolerance of baiting activities and baiters the same of dog hunting, whereas still hunters did not tolerate either to a very high degree. When specialists interfere with each other and seasons and hunting opportunity must be divided among different groups, allocation issues are intensified. A lack of support in the bear hunting community also creates opportunities for anti-hunting interest groups who use associated controversies to persuade nonhunters that bear hunting in general can not be supported.

The negative opinions held by bear hunters toward baiting and dog hunting methods are strongly value-based. Almost all who feel that these bear hunting methods should be banned consider them unethical practices. Unfortunately, value-based attitudes tend to be the most difficult types to change. Belief conflicts, however, are also involved in negative evaluations of dog and bait methods. Such belief conflicts are less difficult to deal with and sometimes can be changed through providing the correct information properly backed by facts from a credible source. Tolerance for different hunting methods appears to be increasing

based on the comparison of 1984 and 1993 surveys, however, the associated conflicts will continue to require considerable management effort into the future.

Trends suggest that new recruits into bear hunting will continue to specialize, but more appear to be specializing in baiting than dog hunting. This could cause considerable changes in the bear hunting community as older houndsmen are not replaced by new recruits. The more specialized dog hunters who are more organized than baiters, at least for bear hunting issues, are responsible for not only much of the bear hunter issue activity, but also most of the defense against anti-hunting activities. If anti-bear hunting activities are stimulated primarily by use of dogs and bait, decreased numbers of dog hunters might reduce anti-hunting pressures. However, if anti-hunting activities shift to bear hunting in general, the absence of organized dog hunting specialists would make bear hunting more vulnerable to anti-hunting efforts. With the dog group no longer lobbying the legislators for protection of bear hunting, the essentially nonhunting legislators may soon vote to strictly limit or eliminate bear hunting.

Representativeness of Bear Opinion Leaders

The involvement of dog groups in bear management also has another side. Bear hunters using methods other than dogs tend not to belong to the organizations that are most involved in communicating bear hunting issues to those who make rules and regulations. Therefore, the MDNR, NRC, state legislators, and other influential parties may not be receiving a representative picture of what bear hunters consider important. This study has shown that differences do exist among the various bear hunt-methods and between leaders and nonleaders including: hunting characteristics; opinions toward other methods of hunting bear; opinions toward bear hunting regulations and harvest tag allocation; and opinions toward the MDNR. The prevalence of dog-opinion leaders in MDNR/bear hunter relations must be

considered in striving to manage for bear hunters in general.

A more balanced representation of views was reflected by members of the "other" hunting organizations considered in this study (i.e., MUCC, MI Hunting Dog Fed., MI Bow Hunters, and MI Coon Hunters). There was no significant difference in the percent of each hunt-method group who were members of these other organizations, and a greater percent of respondents belonged to these organizations than to the four bear hunting organizations. Also, few significant differences in responses were found between members and nonmembers of these other hunting organizations. Therefore, future bear management may benefit by aggressively recruiting representatives of these other organizations in the decision-making process.

Given current trends in specialist groups, limited representation of all bear hunting groups, and the range of MDNR credibility that seems to exist among the specialized groups, bear management would also benefit from increasing communication processes to include a more diverse array of opinion leaders outside of the hunting organizations. Almost all bear hunter segments showed at least a moderate interest in attending workshops or meetings about bear and bear hunting. This avenue should be explored further with the intentions of increasing hunters' knowledge and awareness of both hunter and resource issues.

Also, most sources of information, with the exception of bear hunting friends, were not used frequently by most respondents. Improved communication through hunting organization publications, newspapers, magazines, and television could decrease the erroneous beliefs about bear hunting issues that were quite prevalent in survey results.

Bear Management Strategies

An effective bear management plan for Michigan would start with a complete review of the social surroundings of the bear issue. This would include gathering information on all bear stakeholders and on current and potential issues involving management of black bear in Michigan. This study gathered information about bear hunters and issues surrounding bear hunting, but other stakeholders including the nonhunting public, legislators, animal activist groups, and landowners create an array of issues involving bear nuisance, viewing opportunities, hunter ethics, habitat protection, landowner rights, and a host of other topics. A comprehensive plan would consider the views of all these stakeholders before making bear management decisions.

Surveys and focus groups are useful tools for monitoring trends in bear hunters and stakeholders in general. Focus groups are invaluable for understanding the depth of an issue, and when used in combination with adequately developed questionnaires that analyze issues, managers will be better able to identify issues at early stages of development. Early identification of issues is critical. Issues that are not dealt with in a timely manner can quickly develop into unmanageable situations which demand an inordinate amount of time and effort on the part of resource managers and have the potential of damaging future communication and credibility.

Once stakeholders and issues have been identified, bear managers must set goals and objectives that are agreed on by all agency personnel who will be involved in carrying out the bear management plan. Goals should be broad and encompass all aspects of the resource and resource users, but must not conflict with the capabilities of the agency personnel. This is especially important in a state agency where opportunities for comprehensive information and communication strategies are limited by available expertise and money.

Objectives should be prioritized with a reasonable time frame for completion. A useful technique for this process would be to develop a committee of agency personnel and a citizen's advisory committee that work together to create a plan that encompasses the needs of both personnel and stakeholders. The committees would work independently to identify goals and objectives and then combine their efforts to create the final plan. The key to successful use of this process may be in developing comprehensive guidelines for committee members and setting realistic short and long-term goals. This method has been used successfully in Idaho for developing a bear management plan.

To carry out the set goals and objectives, strategies should include two-way communication processes between bear managers and stakeholders. A continuing effort of data collection, analysis, and information dispersal is an important task of the agency, but involvement of the stakeholders must also be part of the process. Unless the agency is obtaining feedback from the resource users and conducting evaluations on a continuous basis the effectiveness of the management plan is unknown. Again, the citizens advisory committee is a useful tool for this process; however, it is critical that committee members are selected for their representativeness and are replaced by new members on a regular basis to ensure fresh ideas and to avoid creating a committee that becomes self-serving and no longer reflects the needs of their constituents. Use of focus groups would also be important in combination with the citizen's advisory group to ensure that the views of bear users in general are represented. This type of process could analyze attitudes and behavior of those individuals who are unable or unwilling to initiate contact with the agency, but nevertheless care about management of the bear resource. These individuals undoubtedly make up the majority of bear stakeholders so are an integral part of the management process.

Problems with the Current Bear Management Process

A well designed communication plan to and among all stakeholders involved provides managers the capability of dealing with constantly changing demands and needs of diverse bear management issues. Current communication processes have utilized a two-way process; however, the process has included only a limited group of bear stakeholders who's primary interest has been to ensure the continuation of bear hunting within the parameters of a minority of hunting specialists.

The effectiveness of this process has also been limited by the lack of consistency in documenting and evaluating the information gathered. Meetings and other forms of communication among bear managers and stakeholders should be documented through voice recording or accurate note-taking and transcribed into reports that can be referenced by bear managers and stakeholders. This part of the process provides the agency with the capability of effectively recalling statements and agreements that were made by either the agency or the stakeholders.

Michigan's bear management, to be successful, must reflect the needs of all bear resource users. Unfortunately, many times these needs conflict with one another. How can bear managers provide adequate hunting opportunities, viewing opportunities, and nuisance control while considering the pressures from anti-hunting groups, bear preservation groups and legislators? Bear managers can not be "all things to all people" but they can become better skilled at identifying these interests to create the best possible balance between the biological needs of the bear population and the demanding human dimensions of bear management.

LITERATURE CITED

LITERATURE CITED

Arndt, J. 1974. Market segmentation. Universitetsforlaget, Bergen, Oslo. 71pp.

Backstrom, C. H. and G. Hursh-Cesar. 1981. Survey research. Second ed. John Wiley & Sons, Inc., New York, Chichester, Brisbane, Toronto and Singapore. 436pp.

Baker, R. H. 1983. Michigan mammals. Michigan State Univ. Press, East Lansing, Mi. 642pp.

Beech, R. 1992. A review and evaluation of license plate programs designed to protect the environment. Unpublished data. Michigan Department of Natural Resources.

Bickford, W. E. 1985. Developing prestige and addressing conflicts through information, education and consensus. Trans. N. E. Fish & Wildl. Conf. 42:61-69.

Bless, C. and P. Achola. 1988. Fundamentals of social research methods. Govt. Printing Dept., University of Zambia, Zambia.

Bloom, P. N. and W. D. Novelli. 1981. Problems and challenges in social marketing. 45(2):79-88.

Boushelle, G., L. Visser, and J. Hammill. 1990. Michigan status report. Pages 40-43 in Proceedings / tenth eastern workshop on black bear research and management. University of Arkansas Press, Fayetteville, N.C.

Brown, T. L., D. J. Decker, and N. A. Connelly. 1989. Response to mail surveys on resource-based recreation topics: a behavioral model and an empirical analysis. Leisure Sci. 11:99-110.

Cohen, B. G. 1988. A new approach to strategic forecasting. J. of Bus. Strateg. 9(3):38-42.

Crompton, J. L. and C. W. Lamb, Jr. 1986. Marketing Government and social services. John Wiley & Sons, Inc. New York, Chichester, Brisbane, Toronto and Singapore. 485pp.

Decker, D. J. 1985. Agency image: a key to successful natural resource management. Trans. N. E. Fish & Wildl. Conf. 42:43-56.

_____, T. L. Brown, N. A. Connelly, J. W. Enck, G. A. Pomerantz, K. G. Purdy, and W. F. Siemer. 1992. Toward a comprehensive paradigm of wildlife management: integrating the human and biological dimensions. p 33-54 in American Fish and Wildlife Policy: the human dimension. ed. W.R. Mangun. So. Ill. University Press, Carbondale, Ill. 272 pp.

_____, _____, and G. F. Mattfield. 1985. Deer population management in New York: using public input to meet public needs. Pgs. 185-196 in S. L. Beasom, and S. F. Robertson, eds. Game harvest management. Caesar Kleberg Wildl. Res. Inst., Kingsville, T.X.

_____, _____, and R. J. Gutierrez. 1980. Further insights into the multiple-satisfaction approach for hunter management. Wildl. Soc. Bull. 8:323-331.

_____, and N. A. Connelly. 1989. Motivations for deer hunting: implications for antlerless deer harvest as a management tool. Wildl. Soc. Bull. 17:455-563.

Department of Resource Recreation and Tourism. 1992. Recommended management actions for the Idaho department of fish and game to consider when developing the black bear species plan. College of Forestry, Wildlife and Range Sciences, University of Idaho, Moscow, Id. 25pp.

Dillman, D. A. 1978. Mail and telephone surveys. John Wiley & Sons Inc., New York, Chichester, Brisbane, Toronto and Singapore. 325pp.

Ditton, R. B., D. K. Loomis, and S. Choi. 1992. Recreation specialization: re-conceptualization from a social worlds perspective. J. Leisure Res. 24(1):33-51.

Dolsen, D. E., and G. E. Machlis. 1991. Response rates and mail recreation survey results: how much is enough? Jrnl of Leisure Res. 23:272-277.

Duda, M. D. 1986. Wildlife management the human element. Fla. Wildl. :4pp.

_____. 1990. Marketing in a fisheries and wildlife agency. Proc. Organ. Wildl. Planners Conf. 12. 5pp.

_____. 1991. A bridge to the future: the wildlife diversity funding initiative. Responsive Management Project of Western Association of Fish and Wildlife Agencies Publication, Tallahassee, Fl. 32pp.

_____. 1992. Responsive managment: finding the right tool for the job. Tans. N. A. Wildl. & Nat. Res. Conf. 57:141-147.

_____, S. I. Cerulean, and J. A. Gillan. 1989. Comprehensive wildlife education planning in Florida: the value of human dimensions research. Trans. N.A. Wildl. & Nat. Resour. Conf. 54:455-467.

Eberhardt, R., R. Paterson, and W. Eilers. 1990. Marketing in a fisheries and wildlife agency. Responsive Management Project of Western Assoc. Fish. Wildl. Agencies Publ., Tallahassee, Fl. 89pp.

Edris, T. A. and A. Meidan. 1990. On the reliability of psychographic research: encouraging signs for measurement accuracy and methodology in consumer research. Europ. J. of Market. 24(3):23-41.

Geller, S. E. 1989. Applied behavior analysis and social marketing: an integration for environmental preservation. J. Soc. Issues. 45(1):17-36.

Goldman, A. E. and S. S. McDonald. 1987. The group depth interview. Prentice-Hall, Inc., Englewood Cliffs, NJ. 197pp.

Greiwe, R. J. 1980. An introduction to socia resource management. Found. for Urban and Neighborhood Dev.

Haley, R. I. 1985. Developing effective communications strategy. John Wiley & Sons Inc., New York, Chichester, Brisbane, Toronto and Singapore. 510pp.

Harger, E. M. 1979. Report from Michigan. Pages 46-61 in D. Burk, ed. The black bear in modern North America. The Amwell Press, Clinton, N. J.

Jackson, R. M., and R. Norton. 1980. "Phases" the personal evolution of the sport hunter. Wisconsin Sportsman. 9(6):17-59.

Jackson, R. M., R. Norton, and R. K. Anderson. 1981. The resource manager and the public: an evaluation of historical and current concepts and practices. Trans. N. Amer. Wildl. and Nat. Resour. Conf. 46:208-220.

Kellert, S. R. 1985. Conflict and communications in natural resource management. Trans. N.E. Fish and Wildl. Conf. 42:4-15.

Kellert, S. R., and P. J. Brown. 1985. Human dimensions information in wildlife management, policy, and planning. Leisure Sci. 7:269-279.

Knuth, B. A., R. J. Stout, W. F. Siemer, D. J. Decker, and R. C. Stedman. 1992. Risk management concepts for improving wildlife population decisions and public communication strategies. Trans. N. A. Wildl. & Nat. Res. Conf. 57:63-75.

Kolenosky, G. B. and S. M. Strathearn. 1987. Black bear. Pages 442-455 in M. Novak, J. A. Baker, M. E. Obbard, and B. Malloch, eds. Wild furbearer management and conservation in North America. Ontario Ministry of Nat. Res.

Kotler, P. 1982. Marketing for nonprofit organizations. Prentice-Hall, Inc., Englewood Cliffs, N.J. 528pp.

Langenau, E., S. R. Winterstein, and W. E. Moritz. 1994. Allocating deer hunting opportunities to Michigan hunters. Mi. Dept. Nat. Res. Wildl. Div. Report No. 3028. 13pp.

Langer, J. 1991. Focus groups. Am. Demograph. 13(2):38-42.

Lautenschlager, R. A., and R. T. Bowyer. 1985. Wildlife management by referendum: when professionals fail to communicate. Wildl. Soc. Bull. 13:564-570.

Leopold, A. 1986. Game management. Univ. of Wisconsin Press, Madison, Wi. 481pp.

Lovelock, C. H. and C. B. Weinberg. 1978. Readings in public and nonprofit marketing. Scientific Press. 304pp.

Mandese, J. 1989. Who are the targets. Market. and Media Decis. 24(7):29-35.

Oskamp, S. 1991. Attitudes and opinions. Second ed. Prentice Hall, Englewood Cliffs, N.J. 499pp.

Peyton, R. B. 1984. A typology of natural resource issues with implications for resource management and education. Michigan Academician. 17(1):49-58.

_____. 1989*a*. Institutional and public constraints on dynamic management of fish and wildlife resources. Pages 146-160 in J. M. Sweeney, ed. Management of dynamic ecosystems. North Cent. Sect., The Wildl. Soc., West Lafayette, Ind.

_____. 1989*b*. A profile of Michigan bear hunters and bear hunting issues. Wildl. Soc. Bull. 17:463-470.

_____, J. W. Robinson, and W. A. Donohue. 1990. Communication and dispute resolution for fisheries and wildlife managers. Responsive Management Project of Western Assoc. Fish. Wildl. Agencies Publ., Tallahassee, Fl. 147pp.

Pierce, R. and A. I. Sorkin. 1972. How to conduct a psychographics study. Bank Marketing Association, Chicago, Ill. 31pp.

Pomerantz, G. A., and K. A. Blanchard. 1992. Successful communication and education strategies for wildlife conservation. Trans. N. A. Wildl. & Nat. Res. Conf. 57:156-163.

Purdy, K. G. and D. J. Decker. 1989. Applying wildlife values information in management: the wildlife attitudes and vales scale. Wildl. Soc. Bull. 17:494-500.

Riche, M. F. 1989. Psychographics for the 1990's. Am. Demograph. 11(7):24-31, 53-54.

Rueff, R. 1991. Demographics won't find the bull's-eye. Advert. age. 62(6):20.

Schlegelmilch, B. B. and A. C. Tynan. 1989. The scope for market segmentation within the charity market: an empirical analysis. Managerial and Decision Economics. 10(2):127-134.

Smith, R. P. 1985. Are we taking too many bears? Mich. Out-of-Doors 39(4):64+.

Smolka, R. A., and D. J. Decker. 1985. Identifying interest groups' issue positions and designing communication strategies for deer management in northern New York. Trans. N. E. Fish & Wildl. Conf. 42:112-124.

Snavely, K. 1991. Marketing in the government sector: a public policy model. American Review of Public Administration. 21(4):311-326.

Stout, R. J., D. J. Decker, and B. A. Knuth. 1992. Evaluating citizen participation: creating communication partnerships that work. Trans. N. A. Wildl. & Nat. Res. Conf. 57:135-141.

Sudman, S. 1983. Applied sampling. Pages 145-194 *in* P. H. Rossi, J. D. Wright, and A. B. Anderson, eds. Handbook of survey research. Academic Press, Inc., Sam Diego. 755 pp.

Thorne, D. H., E. K. Brown, and D. J. Witter. 1992. Market information: matching management with constituent demands. Trans. N. A. Wildl. & Nat. Res. Conf. 57:164-173.

Tull, D. S., and D. I. Hawkins. 1993. Marketing research. Sixth ed. Macmillan Publ., New York, N.Y. 863pp.

Twedt, D. W. 1964. How important to marketing strategy is the heavy user? J. Market. 28:71-72.

Unruh, D. R. 1979. Characteristics and types of participation in social worlds. Symbolic Interaction. 2:115-130.

Walker, B. 1985. Study of black bears can be tricky because of their traits, expert says. The Flint J. Nov. 10.

Way, R. 1983. Publicizing conservation needs. Trans. N. A. Wildl. & Nat. Res. Conf. 48:58-62.

Wildlife Division. 1988. Black bear management. Michigan Department of Natural Resources, Wildlife Division Report No. 4532. 21pp.

APPENDICES

APPENDIX I

Approval letter from UCHRIHS

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

April 5, 1993

TO: Ms. Lisa Grise
4A Natural Resources Building

RE:

IRB #:	93-150
TITLE:	ASSESSING STAKEHOLDER PREFERENCES REGARDING CURRENT AND FUTURE BLACK BEAR MANAGEMENT OPTIONS
REVISION REQUESTED:	N/A
CATEGORY:	1-C
APPROVAL DATE:	04/05/1993

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project including any revision listed above.

UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must seek updated certification. Request for renewed approval must be accompanied by all four of the following mandatory assurances.

1. The human subjects protocol is the same as in previous studies.
2. There have been no ill effects suffered by the subjects due to their participation in the study.
3. There have been no complaints by the subjects or their representatives related to their participation in the study.
4. There has not been a change in the research environment nor new information which would indicate greater risk to human subjects than that assumed when the protocol was initially reviewed and approved.

There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. Investigators must notify UCRIHS promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

If we can be of any future help, please do not hesitate to contact us at (517) 355-2180 or FAX (517) 336-1171.

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW:pjm

cc: Dr. R. B. Peyton

APPENDIX II

Glossary of terms

GLOSSARY OF TERMS

After cohort-	Those respondents who began bear hunting in or after 1990, when Michigan began issuing a limited number of bear harvest tags.
Bait-	Food items such as bakery goods, vegetables, fruits, meats, and honey which are used by hunters to attract animals.
Bait only-	The hunt-method segment which describes those respondents who hunt bear by sitting over bait piles as their only means of hunting bear.
Bait sitting-	A method of hunting where the hunter stations him/herself near a pile of bait to attract the hunted animal in close to the hunter.
Bear hunting organization-	Known organizations in Michigan that at the time of the survey dealt primarily with bear hunting-related issues. This includes: Michigan Bear Hunters Assoc., U.P. Bear Houndsmen Assoc., United Bear Hunters Assoc., and N.E. Michigan Houndsmen Assoc.
Bear hunting organization member-	Those respondents who, at the time of the survey, were members of one or more of the bear hunting organizations given on the survey.
Before Cohort-	Those respondents who began bear hunting before 1990, when Michigan began issuing a limited number of bear harvest tags.
Dog/bait-	The hunt-method segment which describes those respondents who hunt bear by following a pack of bear dogs which pursue and attempt to tree the hunted bear. Dogs were their only means of hunting bear at the time of the survey, but all respondents in this segment have, at times, started the bear dogs from bait piles.
Dog only-	The hunt-method segment which describes those respondents who hunt bear by following a pack of bear dogs which pursue and attempt to tree the hunted bear. This was their only means of hunting bear, at the time of the survey.

Generalist- The hunt-method segment which describes those respondents who, at the time of the survey, had hunted bear using more than one method which may include: dogs, dogs started from bait, bait sitting, or neither dogs nor bait.

Hunt-method segment- Segmentation based on the respondent's method of hunting bear. The four hunt-method segments in this survey include: dog only, dog/bait, bait only, still only, generalist, and not yet hunted.

Leader- Those respondents from the pilot survey who were known to be involved in meetings with the MDNR on bear hunting issues and who had been officers in hunting organizations. Also, those respondents from the state-wide survey who reported having been an officer of one or more of the hunting organizations given on the survey.

MDNR- Michigan Department of Natural Resources

Other hunting organization- Known hunting organizations in Michigan that at the time of the survey did not deal primarily with bear hunting-related issues, but had been highly involved with bear issues. This includes: Michigan United Conservation Clubs, Michigan Hunting Dog Federation, Michigan Coon Hunters, and Michigan Bow Hunters Association.

Other hunting organization member- Those respondents who, at the time of the survey, were members of one or more of the other hunting organizations given on the survey.

Nonleader- Those respondents from the state-wide survey who did not report having been officers of any of the hunting organizations given on the survey.

Still only- The hunt-method segment which describes those respondents who, at the time of the survey, hunt bear using neither dogs nor bait as their only means of hunting bear.

Not yet hunted- The hunt-method segment which describes those respondents who, at the time of the survey, had not yet gone on a bear hunt in Michigan or they had accompanied someone on a hunt, but they did not have a harvest tag.

APPENDIX III

Focus group screening survey

TELEPHONE SCREENING QUESTIONNAIRE
MICHIGAN BEAR HUNTER STUDY - FOCUS GROUP SELECTION

NAME_____ SEX_____

ADDRESS_____ CONTACT TRIES

_____ ____ ____ ____ ____

CALL BACK TIME

PHONE_____ _____

HELLO. My name is _____. I am with Michigan State University. May I speak to _____?

HELLO. I am with Michigan State University, Department of Fisheries & Wildlife. We selected your name from a list of people who applied for bear hunting permits in 1992 and we're calling to see if you would be interested in taking part in a discussion group about bear hunting. Are our records correct in identifying you as a bear hunter applicant?

_____YES **continue**
_____NO I'm sorry for the inconvenience. **Terminate the call.**

Are you interested in hearing more about the discussion group?

_____YES **continue**
_____NO I'm sorry for the inconvenience. **Terminate the call.**

A group of 8-10 people who have an interest in bear hunting will meet for about 2 hours in Escanaba -- Mackinaw City -- Flint within the next two months. The group will be asked to discuss various aspects of bear hunting, but primarily how the DNR should allocate bear hunting permits. Each of the participants in the discussion group will be paid $40. Participation in the discussion group will be entirely voluntary. Names will be kept confidential and would not appear in any report of the study.

We're contacting people right now to find out who would be interested in participating. Then we will select 8-10 people from your area. If you were selected, would you be willing to participate in this discussion group?

_____NO (**reason:**_____)
If NO - Thank You and terminate call
_____YES

If YES...
We will be voice recording all of the groups so that the information provided during the discussion can later be analysed for a report. Would you object to your voice being recorded during the discussion group?

_____NO
_____YES (reason:_____)
If YES - Thank You and terminate call

We will also be video-taping some of the groups for review by DNR wildlife biologists. Would you object to being video-taped during the discussion group?

_____NO
_____YES (reason:_____)

Thank you very much. We would like the discussion groups to represent all of the bear hunting interests in the state, so we need some basic information to use in selecting those who will be invited to participate. Could you take 3 or 4 minutes now to answer some questions about your bear hunting interests?

If YES...Continue to question 1
If NO... Is there a better time when I can call back to get this information? _____

1. First, I would like to ask you about the type of hunting methods you use when you bear hunt.

A. Do you use dogs? _____NO _____YES

If NO...
Do you hunt over bait? _____NO
_____YES

If YES...
Do you use your own dogs? ____NO ____YES
Do you ever start the dogs over bait? ____NO ____YES
Do you ever hunt over bait without dogs? ____NO ____YES

B. Do you use a gun_____ or bow_____? both_____

2. Have you ever provided services as a hunting guide to other bear hunters for money? ____NO ____YES

3. What year did you first participate in a bear hunt? _____

4. Since then, about how many years have you actually been bear hunting? _____

5. How many bears have you harvested since you started bear hunting? _____

6. There has been a lottery system to allocate bear kill tags since 1990. That would be 3 years not counting this years bear season. How many times have you applied for a kill tag in this 3 year period?

___1 ___2 ___3

7. Did you receive a kill tag? _____NO _____YES

8. Do you belong to a bear hunting club or organization?

_____NO _____YES Which one(s) do you belong to? _____

IF YES...
A. Have you been a club officer within the last 5 years?

_____NO _____YES

9. If you were invited to participate in the discussion group, which times would you <u>not</u> be willing to meet?

Weekday mornings_____ Saturday mornings_____ Sunday mornings_____ OTHER_____
Weekday afternoons_____ Saturday afternoons_____ Sunday afternoons_____
Weekday evenings_____ Saturday evenings_____ Sunday evenings_____ _____

Thank you very much for your cooperation. If you are chosen to participate in the discussion group, we will notify you at least 2 weeks in advance and give you all the information you will need to attend. Is your correct mailing address _____ **(refer to address on first page)?** Thank you... **terminate call**

APPENDIX IV

Focus group discussion guide

Discussion Guide for Bear Hunting Focus Groups

I. **Introduction**

A. Moderator introduction
1. name
2. with MSU, Fisheries and Wildlife
3. moderator role

B. Instructions to participants
1. We invited you to take part in this discussion group to find out how you as bear hunters feel about various bear hunting issues. We are especially interested in how you think the DNR should allocate bear harvest tags.

The information from this study will help the DNR determine which management options are preferred by bear hunters.

2. There are only a few things I would like you to remember as we proceed with this discussion.

a. We're **taping** our discussion tonight, mainly so that I don't have to take notes. I want to remind you that your names will remain **confidential** and will not appear in any report of this study.

b. I expect we will have some differences in opinion here tonight, but please don't let that keep you from **sharing your thoughts**. Because this is a small group, each of your comments are very important.

c. We have many things to discuss in **two hours**, so I may have to ask you to be **brief** in some of your answers to keep the discussion moving along.

d. Please try to speak **one at a time**, so that all your comments can be clearly understood when I go back over the tape.

3. **We appreciate** you taking the time to come here tonight and be part of our discussion group.

4. **Let's begin** by introducing ourselves, if each of you would share your first name and where your from. Could we start with....

II. **Importance of Bear hunting.**

A. First, I would like to find out about your involvement in bear hunting. Let's go around the table and if each of you would share how long you have been involved in bear hunting and, briefly, how you got started.

B. How much time do each of you spend on bear hunting and all the related activities?

1.Probe: preparing and practicing with equipment, putting out bait or dog training, scouting out an area, actually hunting a bear.

C. How important is bear hunting to you compared to other types of hunting and other recreational activities that you participate in?

1.Probe: If you had to give up all your recreational activities except one, would you choose to keep bear hunting?

15 MIN.

III. Hunting Methods

Now I'd like to discuss the various hunting methods involved in hunting bears.

A. What hunting methods do you use to hunt bears?

1.Probe: dog, bait, dogs started over bait, still, bow, rifle, pistol

B. Do you use the same method, or methods now that you used when you first started bear hunting?

1.Probe: Have you experimented with different methods?

2.Probe: Would you consider trying a different method in the future?

3.Probe: Which methods would you not consider using?

C. If you could no longer use your favorite method to hunt bear would you continue to hunt?

20 MIN.

IV. Hunter Satisfaction

Now that we've talked about your involvement in bear hunting, I would like to find out about the kinds of things that make your bear hunting experience enjoyable.

PEN AND PAPER
Use a flip chart and list all the things that hunters feel are involved with satisfaction

A. Let's take a couple of minutes now, and if you would, jot down anything that you feel is an important element to having an enjoyable bear hunting season, then we'll put them up on the flip chart.

B. Probe:
1. possessing a harvest tag
   a. How important is possessing a harvest tag compared to participating in a hunt?
2. getting a shot at a bear
3. seeing bears
4. getting a trophy bear
5. social aspects - being with friends
6. number of days spent afield
7. being in nature
8. preparing for the hunt
   a. training dogs
   b. putting out bait
   c. practicing with equipment
9. the hunt
   a. using equipment
   b. being successful at harvesting a bear
   c. challenge of the hunt

C. After looking at all of these items, which do each of you feel are most important? Let's try to identify the top three.

35 MIN.

V. Permit Allocation

Now I'd like to discuss how you feel about the allocation of bear harvest tags. As you may know, there has been an allocation system in place in Michigan to allocate harvest tags since 1990.

Biologists have established that the bear harvest must be limited to about 1000 bears annually and there are at least 12,000 people interested in hunting bears. Whether or not you agree with that, let's assume for right now that it is necessary to continue a limited harvest, somehow.

Considering that, can you think of any ways that limiting your harvesting opportunities in bear hunting could be beneficial to you? Let's take a moment to think about that and make a list of anything that comes to mind.

Can you think of any problems with having your harvesting opportunities limited?
(PEN AND PAPER)
(Use a flip chart to list what participants know)

1.Probe: the number of bear harvested
the number of hunters that can hunt
the areas that you can hunt in
bear population stability
hunter crowding
success rates
guiding

45 MIN.

A. What do you think of when you hear the term Point Preference System?
1.Probe: Are you familiar with this term?

B. What do you think of when you hear the term Random Lottery System?
1.Probe: Are you familiar with this term? **50 MIN.**

I would like you to take a few minutes now and give us your opinion on a few bear hunting management options. (Hand out questions on management strategies)
Remember, for right now we are assuming that a need exists to restrict harvest of black bear in MI. So, we want to know how this can be accomplished to best meet your needs and preferences.

We have selected a few choices which ask you to make some tradeoffs. Your response here does not represent a vote–it helps us understand the relative importance of things like how often you can go bear hunting compared to being assured of a permit.

We will also be developing something like this for the mail survey and your reaction to how we have worded these questions will help us design that part.

A lot more choices exist and the results of these meetings and the mail survey we do in August will help determine what is finally used in MI.

C. How do you feel about the questions on this sheet?

1.Probe: Were the questions and choices clearly stated?

2.Probe: Did you think the questions were easy/difficult to answer? Why?

3.Probe: What do you think about the choices that were offered in this exercise?

4.Probe: How would you feel if the years between hunting were increased or decreased?

D. Overall, what are your opinions on system 1 vs system 2 on the questionnaire?

1.Probe: What do you feel are benefits and problems of each system?

1 HR. 10 MIN.

Now I'd like to discuss bear hunting seasons. In the U.P., Bear hunters must now choose between 2 different hunt periods that each last 36 days: the first period begins Sept. 10 and ends Oct. 16; the second period begins Sept. 15 and ends Oct. 21. Dogs are not allowed in the first 5 days of the first period, so dog hunters that want a full hunt period must apply for the second period.

The success rate for harvesting a bear is highest in this first five days with chances for harvesting a bear declining after that time. Because success rate is so high in this first five days, there are fewer harvest permits available for the first hunt period. This gives hunters that apply in the second period more harvest permits and a better chance of being selected.

(Have this system up on a flip chart for discussion)

E. How do you feel about this system?

1.Probe: Is it acceptable or unacceptable? Why?
2.Probe: What could be done to have more equitable seasons?

F. How would you feel about a system that has only one hunt period for everyone?
1.Probe: Is it possible to have dog hunters starting at the same time as bait and still hunters?

If response is positive...

In a system having only one season, it is likely that more hunters would be in the woods during the first five days when success rate is highest, this would result in more bears being taken. In response, less harvest permits could be allocated or fewer days given in the season to ensure that bears are not over harvested.

2.Probe: Would that acceptable? Why or why not?

G. How would you feel about a system that restricted the areas that dog hunters could hunt in, but gave them the opportunity to begin hunting at the same time as the bait hunters?
1.Probe: How would you decide which areas to restrict dog hunters from using?
2.Probe: Could you effectively keep dog hunters out of "bait only" areas

H. What do you think about separate seasons?

1.Probe: If you had to choose, which would you rather have: a longer season that was combined or overlapping or a shorter season that separated bait and dog hunters?
2.Probe: How short a season would be acceptable?

1 HR. 25 MIN.

VI. Hunting Application and licenses (COPIES OF APPLICATION)

A. Are there any problems with the application process involved in allocating permits?
1.Probe: Is the form simple/confusing?
2.Probe: Are applications easy/difficult to obtain?
3.Probe: Are deadlines for application clear/unclear?
4.Probe: What could be done to improve the application process?

Currently the DNR refunds application fees to unsuccessful applicants.

B. Would you support a nonrefundable application fee of $3.00?
1.Probe: Why or why not?
2.Probe: If the money was ear marked for bear research, would you support this?

Now I'd like to hear what you think about bear hunting licenses. Currently, bear hunters that use dogs must buy a participation license to run the dogs during bear season, but bait hunters do not have to buy a license to put out bait.

C. Is that acceptable?
1.Probe: Why or why not?
2.Probe: Do you see any reasons for having this regulation?

Also, bear hunters that use dogs to hunt must obtain a dog pack license, but other hunters that use dogs do not.

D. Is that acceptable?
1.Probe: Why or why not?
2.Probe: Do you see any reasons for having this regulation?

E. How about the cost of hunting licenses? What do you think about the current fee of $14.35 for a MI bear license?
1.Probe: Should the license fee be increased?
2.Probe: How much?
3.Probe: Resident/nonresident?

F. Do you think increasing application or license fees would deter hunters that have a low interest in bear hunting from applying?
1.Probe: Is detering low interest hunters important?
2.Probe: How much of an increase would it take?

1 HR. 40 MIN.

VII. Attitudes toward the MDNR

We've been talking about some of the factors involved in managing the MI bear population. Now, I'd like to hear what you think about how the DNR has managed bear and bear hunting in MI.

A. What types of management activities does the MDNR perform for bears and bear hunting?

1.Probe: Are there any management activities that you feel are beneficial to bears or bear hunting?
2.Probe: Are there any management activities that you feel have caused problems for bears or bear hunting?

3.Probe: How well do you think the law enforcement division deals with bear or bear hunter issues?
4.Probe: Are you familiar with any research that the DNR is conducting on the bear population?

B. Do you think the bear population is declining, increasing or staying the same?

1.Probe: Why do you think this is?
2.Probe: Do you feel the DNR is responsible for any changes in the bear population?

C. Are you familiar with any MDNR sponsored programs that benefit hunters?

1.Probe: Hunter ed, hunting workshops?
2.Probe: Do you participate in any?

1 HR. 50 MIN.

VIII. Future Bear Management Needs

A. What do you see as the future of bear hunting in MI?

1.Probe: Do you worry about losing bear hunting for the future?
2.Probe: Do animal rightest's attacks on bear hunting concern you?

B. Have you taken any actions to support bear hunting rights?

C. Are any of you familiar with organizations that are concerned with bear hunting?

1.Probe: Have you looked into joining any of these organizations?
2.Probe: What are the reasons for deciding to join or not join an organization?

D. Do you think that these organizations represent your views regarding bear hunting?

1.Probe: Would you say you have primarily positive or negative opinions of hunting organizations?

E. How much say do you feel non-hunting stakeholders (landowners, nonconsumptive users, public) should have in determining how bears are managed in MI?

F. What do you think needs to be done to assure the future of bear hunting in MI?

1.Probe: How do you feel about the actions of other bear hunters?
2.Probe: Is hunter compliance a problem in bear hunting?

G. How you feel about regulations that limit or eliminate certain hunting methods?

1.Probe: Such as when and where certain methods can be used (limiting baiting time, limiting dog use, electronic collars on dogs)
2.Probe: Are they fair/unfair?

H. How do you keep informed on bear and bear hunting issues?

1.Probe: Newspaper, magazine, newsletters, friends

I. What methods would you be interested in seeing used by the DNR to keep you more informed?

1.Probe: surveys, meetings, focus groups

IX. Conclusion

A. Thank you for you cooperation
B. (If time allows) Are there any bear hunting issues that you feel were important, but were not discussed here tonight.

APPENDIX V

Focus group summaries (six focus groups)

Flint Bait Group

Participants

#	city	sex	1st yr. bear hunted	# yrs. bear hunted	# bear taken	hunt w/dogs	hunt over bait	memb. of bear organ.
1	Webberv.	m	1990	2	0	no	yes	no
2	Saginaw	m	1955	21	3	no	yes	no
3	Burt	m	1960	15	2	no	yes	no
4	Flint	m	1959	4	0	no	no	no
5	Ovid	m	1990	3	0	no	yes	no
6	Vassar	m	1976	15	7	no	yes	no
7	Imlay City	m	1992	1	1	no	yes	no
8	Roches. H.	m	1947	25	0	no	yes	no
9	Walled L	m	1992	1	0	no	yes	no

INVOLVEMENT IN BEAR HUNTING

Participants bear hunted mainly on the weekends, but one retired individual spent the entire season at his hunting site.

Most individuals baited prior to the hunting season; mainly on the weekends.

Many scouted for bear throughout the year while participating in fishing and other types of hunting.

The importance of bear hunting compared to other recreational activities ranged from being the most important activity to some participants to not any more important for others.

Many felt bear hunting was more challenging than other types of hunting, but the limited season and area to hunt in was a draw back.

Participants hunted bear over bait and stalked them with bow, muzzleloader, and pistol.

One individual had hunted with hounds, but all others showed no interest in this method. Some had bad experiences with hound hunters; however, most agreed not all hound hunters caused problems.

HUNTER SATISFACTION

The factors that make bear hunting enjoyable were: the freedom of being hunting, scouting, using equipment, seeing wildlife, being in nature, teaching relatives about hunting, practicing with equipment year-round, anticipation of the unknown, feeling of accomplishment, and seeing a bear.

The most important factors were seeing wildlife, seeing bears, and being in nature.

ALLOCATION OF HARVEST TAGS

Participants could not think of any benefits from having a limited entry system for bear hunting.

All felt the population was not threatened before a limited entry system was used, and there was not enough evidence to put this kind of restriction on bear hunters.

Most were concerned that hunters would take smaller bears because they did not know when they would have another opportunity to hunt.

Only one individual had heard of the point preference system as a means of allocating harvest tags.

Many were familiar with the random lottery as it related to allocation of other types of hunting licenses.

Participants were generally confused about how the buddy system worked and if your odds of being drawn increased or decreased. They felt the MDNR did not provide enough details on the specifics of the current allocation system.

Most would rather have the point preference system if the wait for a tag was 3 years or less, but after that, many felt they would rather take their chance with random lottery.

A wait of more than 3 years was not acceptable to any of the participants.

None felt confident that the biological information the MDNR uses to set harvest goals is accurate.

SEASONS

Most thought bait and still hunting should be separated from hound hunting even if the seasons were shortened.

If seasons were separate, participants would like at least 15 days per hunt period with a rotation each year of who hunted first.

Participants listed some potential problems involved in using separate seasons including: not being able to hunt both as a houndsman and baiter, and having more baiters than houndsmen.

After discussing pros and cons of separate periods for dog and bait hunters, most indicated they would accept the seasons as they are now.

In discussing the current system of overlapping hunt periods, they preferred to have no dog training for at least 5 days before the start of the first period.

A combined hunt period for all bear hunters was not acceptable to anyone.

One individual who hunted and owned property on Drummond Island was very upset about the combined hunt periods and expressed a strong dislike of the Island houndsmen.

APPLICATION PROCESS

Most thought the application form was fairly simple to fill out.

The biggest problem appeared to be finding out when forms would be available. Participants felt that dates for applying for a tag were too late in the year, and they needed more time to plan their hunting trip if they received a tag.

Some were confused about why the MDNR set separate seasons for bow hunters in the Red Oak Area and would appreciate getting information on why these decisions are made.

None would support a nonrefundable application fee unless the money was ear-marked for bear research.

All participants were very distrustful of the MDNR's use of hunting license dollars.

Some thought houndsmen should not have to purchase a participation permit to follow dogs, but many were unfamiliar with the participation permit and felt it was unfair for houndsmen to take part in a bear hunt if they had not drawn a kill tag.

All agreed houndsmen should have to obtain a pack license for their bear dogs.

The license fee was considered fair by participants, and they were not interested in seeing the fee increased as a method of discouraging low involvement hunters from applying.

ATTITUDES TOWARD THE MDNR

All were unaware of any specific management plans for bear or bear hunting by the MDNR.

Participants thought the MDNR was not effectively managing wildlife and could do a better job if it was split into different agencies that handled environmental and wildlife issues separately.

Most were satisfied with the job law enforcement was doing in relation to bear.

They were familiar with bear research on Drummond Island, but many were critical of the use of that information by the MDNR. They did not feel Drummond Island research was applicable to the rest of the state.

Some were aware of a study involving "phosphorus" to mark bear teeth, but felt the study was not successful.

Attitudes concerning the bear population were mixed, with most feeling the population may be going down somewhat, but many biological reasons for population fluctuation were brought up including: the closing of dumps made bears more visible in other areas, clear-cutting limited bear habitat in some areas, bears are nocturnal so it's hard to determine numbers, bears are more visible when it's a bad year for natural foods.

INFORMATION AND EDUCATION

Most keep informed on bear and bear hunting issues through magazines, newsletters, and other hunters.

All agreed more information from the MDNR is needed, such as a newsletter summarizing season statistics.

Participants felt annual surveys of hunters were a good idea and had no problems with answering them.

Only one individual was familiar with a bear hunting organization (Michigan Bear Hunters Assoc.) and he had been a prior member.

FUTURE OF BEAR AND BEAR HUNTING

Participants generally felt the future of bear and bear hunting in Michigan was unstable.

Most were concerned about animal-rightist's attacks on hunting and felt more education had to be done at the school level to prevent the problem.

All felt there was a need for an organization that represented hunters in general to counter anti-hunting from other groups.

Non-compliance with hunting regulations was thought to be a problem by most participants. They felt this was mainly due to a lack of law enforcement officers to police the areas.

Flint Houndsmen Group

Participants

#	city	sex	1st yr. bear hunted	# yrs. bear hunted	# bear taken	hunt w/dogs	hunt over bait	memb. of bear organ.
1	Leonard	m	1971	20	1	yes	no	no
2	Bridgeport	m	1975	9	0	yes	yes	no
3	Capac	m	1992	1	0	yes	yes	no
4	Perry	m	1975	20	1	yes	yes	no
5	Flint	m	1975	16	1	yes	no	no
6	Capac	m	1988	2	0	yes	no	no
7	Allenton	m	1983	6	2	yes	yes	yes
8	Otisville	m	1962	7	0	yes	no	no
9	Milford	m	1967	15	2	yes	yes	no
10	Romeo	m	1984	9	3	yes	no	yes

INVOLVEMENT IN BEAR HUNTING

Participants reported they spend as much time as possible training dogs and bear hunting. The amount of time was limited to weekends for most because of work. One individual began training dogs in July and continued to train nearly every weekend and some weekdays through hunting season.

Most participants felt bear hunting was one of their most important recreational activities they participated in; only two considered it the most important activity.

Some used exclusively dogs, but many also hunted over bait without dogs or baited to keep bears in the area, but hunted using dogs.

All had used dogs and baited at some point in their bear hunting experience with the exception of one individual who had not tried baiting.

Half had changed how they hunted bear from when they first started. Those participants who were currently hunting over bait had started as dog hunters and changed to baiting due to problems associated with hunting with dogs (low success rate in seeing bear, dislike of certain hound hunters, trespass on private property).

Most would be disappointed if they could no longer hunt bear with dogs. Some would no longer hunt bear if they could not use dogs, but others would change to baiting or still hunting.

HUNTER SATISFACTION

Most respondents considered dogs the most important part of bear hunting.

Other aspects that made bear hunting enjoyable included: being in the woods, seeing bear, seeing other types of wildlife, the challenge of outsmarting bear, being with friends, taking others on a bear hunt and teaching them about bear, the danger of being close to a bear, and exercise.

Most felt harvesting a bear was important until you kill a bear, and then it becomes low in

importance compared to the other aspects of bear hunting.

Helping others harvest their first bear was considered a thrilling experience by some participants.

ALLOCATION OF HARVEST TAGS

Participants found more problems associated with having a system that limits the number of harvest tags than benefits.

Problems brought up by participants included: not being able to carry a gun to protect your dogs, the lifetime license is not valid, fewer hunters hurts the economy, uncommitted hunters and anti-hunters are attracted, bugs in the system allow people to cheat, commercial exploitation increases.

Most thought the limited entry system was good for the bear population and less hunters in the woods made for a better quality hunt.

Participants felt the MDNR did not have enough data on the bear population to know how the population was doing.

Most were not familiar with the point preference system and how it worked. Participants were cognizant of the random lottery, but were not confident that it was an effective system for allocating harvest tags.

Preference for one system over the other depended on the perceived waiting time for a harvest tag: point preference for a shorter wait, random lottery for a longer wait.

The main concern was for the reasons behind going to a limited entry system rather than the type of allocation system used.

Most thought the bear harvest was limited more for political reasons than concern for the bear population, and there was no need for a limited entry system for hunting black bear.

SEASONS

Most participants were in favor of a season that completely separated dog and bait hunters. Baiters would hunt for the first 10 days or so and then dog hunters would have the remainder of the season. One individual pointed out that he would not like being kept from training his dogs during this 10 days before the start of the dog hunt period.

One season for all bear hunters was less desirable than a split season for all participants.

All indicated that a system allowing all bear hunters to share the season, but restricted the area that dog hunters could use would not work. They did not have enough control over where their dogs went once they were running a bear.

One participant suggested that the number of hunters should not be limited; instead, the bear season should be shortened to limit the number of bear harvested.

APPLICATION PROCESS

Most had problems obtaining a bear hunting application; some had to drive long distances.

None stated that the form was confusing or hard to read.

All participants were against having a nonrefundable application fee. They felt the MDNR was not entitled to additional revenue. One participant commented that they do not know how to spend the money that they already receive.

Most did not think dog hunters should have to buy a participation permit to run their dogs. Some thought that either baiters should have to pay to help carry bait or the participation permit should be eliminated.

Some participants indicated that hunters should not be required to get pack licenses for bear dogs because other hound hunting sports did not require them.

License fees were considered too low to some participants. One individual suggested raising the cost of a license to $50 - $75 and then allowing anyone who wanted to hunt buy a license. Others argued that setting a high license rate would unfairly keep some people from hunting.

All thought that nonresidents should either not be allowed to apply for a harvest tag or should have to pay a very high fee.

ATTITUDES TOWARD THE MDNR

Little was known about research being done by the MDNR on bear. Some knew there was a study done on Drummond Island, but positive comments were not made about this study.

Some were concerned the MDNR was estimating the number of bear improperly.

They were concerned the nonhunters and anti-hunters had more influence with the MDNR than hunters did.

Most were supportive of law enforcement's job of dealing with bear hunting issues, but they felt their were not enough officers to do an adequate job.

INFORMATION AND EDUCATION

Only one participant was a current member of a bear hunting organization. Most were familiar with at least one of these organizations.

All agreed these organizations represented bear hunters to some degree, but some were concerned that they only represented dog hunters. Overall, participants had positive feelings toward these organizations.

Michigan United Conservation Clubs was a common source of information about bear and bear hunting. Other bear hunters were also a popular source of information.

Workshops were considered a good method of getting information to hunters.

Mail surveys were thought to be efficient for getting information from hunters, but the lack of feedback from the MDNR was not acceptable.

Some participants thought the media was one of the main problems for bad hunter image.

A few said that they had written their congressmen about bear hunting issues.

FUTURE OF BEAR AND BEAR HUNTING

Most thought that the bear population went in cycles, which depended on food sources. Others thought that the population was increasing in the areas they hunted.

One individual who hunted in the Lower Peninsula thought that decreasing habitat was responsible for a decline in the bear population in that part of the state.

All were concerned about the impact of animal rights groups on bear hunting, and losing bear hunting in the future.

Most did not feel that nonhunters should have a say in bear hunting issues, mainly because nonhunters were thought to be ignorant of bear hunting facts.

Mackinaw City Bait Group

Participants

#	city	sex	1st yr. bear hunted	# yrs. bear hunted	# bear taken	hunt w/dogs	hunt over bait	memb. of bear organ.
1	St Ignace	m	1972	13	9	no	yes	no
2	Petoskey	m	1977	16	1	no	yes	no
3	Kincheloe	m	1992	1	0	no	yes	no
4	Harbor Spr	m	1990	2	1	no	yes	no
5	Boyne Cty	m	1984	8	1	no	yes	no
6	Stalwart	f	1990	3	0	no	yes	no
7	Indian R	m	1976	12	0	no	yes	no
8	Cedarville	m	1989	2	0	no	yes	no
9	Rudyard	m	1978	10	0	no	yes	no

INVOLVEMENT IN BEAR HUNTING

Some began hunting bear because of nuisance problems in the area that they lived or vacationed. Others became interested through friends who were bear hunters or just as an additional challenge to other types of hunting.

Participants spent a varied amount of time bear hunting with the bulk of time spent on preseason baiting activities.

Most considered bear hunting less important than some other recreational activities they participate in, but only one or two rated it low in importance. None reported that bear hunting was their most important activity.

Methods used to hunt bear included baiting and still hunting. Some used bow and arrow only, or gun only, others used both.

Most were using different equipment or techniques than what they first used to hunt bear.

Only one participant had tried hunting bear with dogs; others were not interested in trying dogs in the future.

HUNTER SATISFACTION

Aspects of bear hunting that made for an enjoyable hunt included: being with family in camp; seeing the first signs of bear around the bait; prehunt activities; anticipation of the hunt; watching bear behavior; the thrill of hunting a dangerous animal; being in the woods just before dark; sharing bear hunting stories; and being in nature.

Participants were reluctant to identify only two or three aspects that were most important for a satisfying bear hunt.

ALLOCATION OF HARVEST TAGS

Problems associated with having a limited entry system for bear hunting were too long of a wait for a harvest tag and fairness in allocating tags (those living in bear areas should get preference).

There were perceptions that the elk lottery system gave unfair advantage to those who lived in the southeastern Lower Peninsula and that this was also happening with the bear permits. All participants strongly believed that applicants living in bear areas should have more permits allocated to them.

Benefits mentioned for a system that limits the harvest of bear were: preventing the overharvest of bear, and getting bigger bear.

Some reported statistics showing that no more bears had been taken in the years before the limited entry system.

Only one participant was familiar with the term point preference system, but more were familiar with random lottery.

Most preferred random lottery over a point preference system for allocating harvest tags; however, none were very satisfied with either system.

SEASONS

Participants disagreed on the need to limit dog training for up to two weeks before the start of the first season in the U.P. Most believed that bears would not return to bait for at least a week or more once they have been run by dogs; some disagreed.

All considered one hunt period for all bear hunters unacceptable.

The current overlapping hunt periods were more acceptable than hunt periods that were shorter, but completely separated dog from bait hunters.

APPLICATION PROCESS

Application forms were viewed as being fairly clear.

One problem that was mentioned involved a misunderstanding when checking the box for acceptance of leftover permits; it was reportedly not clear that applicants may receive a leftover permit for an area other than the one they applied for.

Participants were interested in knowing how their odds of getting a permit changed if they applied with another hunter; none of the participants knew.

All reported that they would support a nonrefundable application fee of three dollars.

Participation licenses for dog hunters were considered fair because of the potential damage that dogs can do while bear hunting.

Increased license fees were acceptable and considered a good way of weeding out the less involved bear hunters, but spending the money on bear management was important to some. This group appeared to be much less distrustful of the MDNR's spending of license dollars than the

other focus groups.

ATTITUDES TOWARD THE MDNR
Some believed that the DNR was more concerned about the opinions and needs of those who live in the Detroit area than those in the northern part of the state.

Participants were unsure of any management activities that the MDNR performed for bear or bear hunting.

Few were informed about any bear research being done in Michigan and some expressed concern that the MDNR intentionally did not provide information to the public on any research that was being done.

Some had negative comments about conservation officers not doing their jobs, but most believed that there were too few officers and that kept them from doing an adequate job of enforcing regulations.

There was an overall opinion, based on reported discussions with field biologists, that the biologists were trying to do their job, but due to bureaucratic problems in "MDNR management" biologists were unable to make the changes that were recommended by hunters.

INFORMATION AND EDUCATIONS
Participants were concerned that the MDNR did not obtain any information about hunting and wildlife populations from the hunters, who were thought to be more informed than the wildlife biologists.

Few had any comments on hunting workshops.

None were members of a bear hunting organization, but most were members of some other hunting organizations.

Those who were familiar with bear hunting organizations in Michigan did not join because the members were thought to be primarily dog hunters. Many reported that they would join a bear hunting organization that was for baiters.

Participants mentioned using magazines (especially the MUCC magazine) and other bear hunters for information on bear and bear hunting.

All would like to receive information from the MDNR on bear and bear hunting.

Some were concerned that the MDNR intentionally did not supply enough or accurate information to the media.

FUTURE OF BEAR AND BEAR HUNTING
All believed that the bear population was either increasing or stable.

Most were concerned about the impact of animal rights or anti-hunting groups on hunting.

Some were sure that bear hunting would continue in the future because of the problems that the

public would face with nuisance bear if hunting were stopped.

Participants believed that most nonhunters had very little knowledge of bear and do not contribute money to management, and so, should not have as much say in how they are managed as hunters.

Although participants reported instances of bear hunters not complying with regulations, overall, they believed that bear hunters were no worse than other types of hunters.

Mackinaw City Houndsmen Group

Participants

#	city	sex	1st yr. bear hunted	# yrs. bear hunted	# bear taken	hunt w/dogs	hunt over bait	memb. of bear organ.
1	Cheboygan	m	1978	15	1	yes	no	no
2	Petoskey	m	1983	7	1	yes	no	no
3	Rudyard	m	1966	12	2	yes	no	yes
4	Harbor Spr	m	1976	18	0	yes	no	no
5	Alanson	m	1986	7	0	yes	no	no
6	Charlevoix	m	1965	28	8	yes	no	yes
7	Brutus	m	1976	17	8	yes	no	no
8	Clio	m	1962	30	4	yes	no	yes
9	Brutus	m	1982	10	2	yes	no	no

INVOLVEMENT IN BEAR HUNTING

Participants typically bear hunted with friends and family.

All used dogs to hunt bear and started them from tracks. Starting dogs from bait was not considered a good practice.

Overall, they expressed little interest in using methods other than dogs. None would continue to bear hunt if they could no longer use dogs.

Many had hunted with dogs as youngsters for small game.

Most thought that bear hunting was their most important recreational activity.

HUNTER SATISFACTION

Factors that made bear hunting enjoyable included: good weather for following dogs and tracking; seeing signs of bear that can be tracked; successfully treeing a bear; hunting with people who practice good sportsmanship; getting exercise; being outdoors; watching dogs perform (especially those you have trained yourself); being with friends; introducing kids and adults to bear hunting.

Watching dogs perform was the most important aspect of bear hunting.

Carrying a gun was not necessary for having a satisfying bear hunting experience. One participant reported that he was more relaxed and could better enjoy the hunt if he was not carrying a gun. Another expressed concern for protecting his dogs from being injured by a bear if he did not have a gun.

ALLOCATION OF HARVEST TAGS

Participants had many negative comments about using a system that limits the number of bear harvested including: inadequate data used by biologists to determine the number of bears harvested; fairness in selection of applicants; cheating in the system (nonhunting family members and anti-hunters applying); and too long of a wait for a harvest tag.

The only beneficial attribute of this type of system was assurance that the bear population would not decline.

Most were familiar with the point preference system for allocating harvest tags. Some had negative comments about its use and others supported this type of system.

All but one participant would rather have a random lottery system than point preference.

One participant suggested an alternative system that did not limit the number of harvest tags, but closed the season after a set quota of bears was taken, as in some other states. Problems associated with this system were brought up by others, such as the taking of more small bears or sows with cubs because of the unknown time factor and fairness in allocating harvest time.

All agreed that they would not drop out of bear hunting even if the waiting time for a harvest tag was considerably longer than the current wait, as long as they were able to participate in a hunt.

SEASONS

Some were bothered that they could not be in the woods with their dogs during the first five days of the season in the U.P., others thought it was a good way to limit conflict.

Participants disagreed about what type of season would work best. Some preferred a combined season for all hunt types; others would rather have overlapping or separate hunt periods for bait and dog hunters.

Having a long season was very important, and none were willing to settle for fewer days so that seasons could be separate.

APPLICATION PROCESS

Most had problems obtaining participation permits and would like to have a participation permit sent if they did not receive a harvest tag.

Some were resentful that they had to obtain a participation permit when other types of hunters did not.

All were distrusting of the MDNR's use of license dollars. Most would not oppose the participation permit fee if they thought the money was going into bear research instead of the "general fund".

Most had considered changing, or knew somebody who had changed, their social security number on their application form to have a better chance of receiving a harvest permit. None admitted to actually doing this.

Some were in favor of a nonrefundable application fee or a higher license fee on the basis that

it would limit the number of nonhunters who applied. Others did not want to have more money going to the MDNR or were worried that higher or nonrefundable fees would make hunting a "rich man's" sport.

Participants did not have a problem with having to obtain a pack registration for their dogs.

ATTITUDES TOWARD THE MDNR
There was an overall distrust in the MDNR's use of money on appropriate projects.

Participants were concerned that there were not enough conservation officers in the field to enforce hunting regulations.

Some were vaguely familiar with bear research being done and most had positive comments.

Only one participant had a positive impression of MDNR biologists; others would like MDNR biologists to consider bear hunters a source of information on bear hunting instead of just checking them for licenses.

INFORMATION AND EDUCATIONS
Current hunter education for young hunters was thought to be inadequate for teaching gun use and safety.

Most had not participated in any workshops on hunting.

Some were current or past members of bear hunting organizations.

Participants had mixed responses about the representativeness of bear hunting organizations, but most were familiar with them and agreed that the organizations, overall, were beneficial to bear hunting through providing leadership and information sources.

All agreed that more meetings with bear hunters would improve the MDNR's understanding of what is actually going on in the woods.

Newspapers and bear hunting friends were used for information about bear and bear hunting. An increased use of newspapers and magazines by the MDNR for publishing information about bear issues was suggested for improved communication to bear hunters.

FUTURE OF BEAR AND BEAR HUNTING
Participants did not agree on the status of the bear population; some thought that it was drastically decreased while others were sure it was increasing.

Availability of food was considered more responsible for bear numbers than any changes in bear hunting regulations.

Most were concerned about the effects of the animal rights movement on hunting.

Some were worried about commercial guiding and its impacts on bear hunting.

Most were aware of current legislation to limit bear hunting and some had written letters to

newspapers or public officials.

Participants thought that hunter ethics needed to be improved to ensure the future of bear hunting.

Use of collars for radio-tracking dogs was not considered an unethical use of equipment. Participants thought that the problems associated with this equipment were mainly due to a misunderstanding in how the collars were being used.

Escanaba Bait Group - Low Level of Bear Hunting Experience

Participants

#	city	sex	1st yr. bear hunted	# yrs. bear hunted	# bear taken	hunt w/dogs	hunt over bait	memb. of bear organ.
1	Bark River	m	1992	1	0	no	yes	no
2	Wallace	m	1992	1	0	no	yes	no
3	Rapid Rivr	m	1992	1	0	no	yes	no
4	Hermansvil	m	1992	1	1	no	yes	no
5	Escanaba	m	1990	2	0	no	yes	no
6	Daggett	m	1992	1	0	no	yes	no
7	Wells	m	1992	1	0	no	yes	no
8	Stephenson	m	1990	1	1	no	yes	no

INVOLVEMENT IN BEAR HUNTING

All had just recently begun bear hunting. Most became interested in bear hunting from seeing friends or relatives bear hunt or helping someone bait. Others had decided to take up bear hunting as a change of pace from other types of hunting.

Most started baiting as soon as it was legal in the fall. Some would only spend weekends attending to the bait while others went almost every day.

Scouting activities before the baiting season were fairly limited for most participants.

Most spent no more than a week or so stockpiling baits; however, they did suggest that they would be spending more time at that in the future because they found they did not have adequate supplies to last the season.

Bear hunting was not the most important recreational activity to any of the participants, but some preferred the solitude of the woods during bear season over other hunting seasons.

Some had negative comments about hunting bear with dogs that were based mainly on rumors from other hunters, but most were fairly accepting of it as an alternative method.

Although all had used only bait to hunt bear, some stated that they would be interested in using dogs to hunt bear in the future.

HUNTER SATISFACTION

Participants found the following aspects of bear hunting created a satisfying experience: spending time in the woods, observing wildlife without them being disturbed, the challenge, observing the behavior of bear and other wildlife, the peacefulness of the woods, anticipation of hearing movement, the thrill of harvesting a bear, swapping stories with other hunters, being in the woods in the fall.

The top three most satisfying elements of bear hunting were: being in the woods, watching bears and their habits, and harvesting a bear.

ALLOCATION OF HARVEST TAGS

Having a stable bear population was the only benefit to having a limited entry system that was mentioned.

Cheating was considered a serious problem with a limited entry system. Some were concerned about anti-hunters and nonhunting friends or relatives applying for the harvest tags.

Having to wait for long periods of time for a harvest tag was also a problem associated with having limited entry.

Some were concerned that with a waiting time for a tag more small bears were being taken because hunters were less willing to wait for a bigger bear and take the chance of not getting a bear.

Most did not trust the methods used by the MDNR to obtain information about the bear population for setting harvest quotas.

A few were vaguely familiar with a point preference system as it is used in western states; more were familiar with a random lottery.

After discussing the pros and cons of point preference and random lottery, all thought that the point preference system was a better choice; however, most would only be satisfied waiting 3-4 years to get a harvest tag.

SEASONS

The five days without dogs at the start of the first hunt period in the U.P. was considered too short.

Most thought that dog hunters were generally more successful than baiters so dog hunters should have a shorter season.

Training dogs up until the start of the first hunt period was not approved; most thought that bear would not come back to an area for several days once they had been chased by dogs.

Conflict between dog and bait hunters was thought to be a serious problem and could be best handled by keeping the groups as separate as possible.

Separate seasons were favored even when the number of hunting days in each season was shortened to 2-3 weeks as long as bait hunters were allowed to hunt first.

APPLICATION PROCESS

Some thought that the application forms were too complicated. Suggestions for improving the system were to send preprinted forms to those applicants who had previously applied.

A nonrefundable application fee for the price of a license or higher was considered a good idea, mainly because it would limit the number of people that applied for a permit but did not intend to hunt. They did not regard the cost as a barrier to participation because they thought that other expenses associated with hunting were much higher.

Participation permits for dog hunters were considered unnecessary for those that were not handling the dogs and just going along on the hunt.

ATTITUDES TOWARD THE MDNR

Participants were unfamiliar with research being done by the MDNR on black bear.

Some stated that the MDNR should involve hunters more in helping to estimate bear numbers.

Conservation officers were thought to be enforcing the laws fairly well. Some had negative comments about situations involving conservation officers, while others had positive comments.

INFORMATION AND EDUCATION

Some were members of hunting organizations, but none were members of a bear hunting organization or were very familiar with any.

Bear organizations were thought to represent bear hunting in general, even though bait hunters were not a large part of these organizations.

Unclear bear hunting rules and regulations were a problem for many. A lack of communication on the part of the MDNR for changes in regulations was thought to be responsible.

Bear workshops and regional meetings were considered good potential methods of communicating information to bear hunters.

The focus groups were thought to be an effective way of getting information from hunters.

Some had experienced problems in getting in touch with individuals at the MDNR who could answer any questions that they may have about bear or bear hunting.

Participants received most of their information about bear and bear hunting from the hunting guide with little information coming from newspapers, or magazines. Some information was obtained from friends, but overall, participants considered bear hunters a secretive group who did not share much information.

FUTURE OF BEAR AND BEAR HUNTING

Most felt that the bear population was stable or growing. Fluctuations in the number of bears seen by hunters were thought to be a result of changes in bear habits or habitat and not necessarily due to more bear.

Bear nuisance and how it should be dealt with was a problem that participants did not agree on. Some believed that nuisance bears should be live-trapped and moved, while others wanted property owners to have the right to shoot nuisance bear if needed.

Animal rightists were not considered a serious problem; however, one participant did recount an argument with an animal rightist on the ethics of hunting.

Participants agreed that nonhunters who have an interest in black bear should have a say in how bear are managed, but some thought that experienced hunters have more knowledge than nonhunters about bear.

All agreed that hunters must learn to organize themselves to protect hunting for the future and put their differences aside. Fighting among hunters was recognized as a big problem for hunting.

Escanaba Bait Group - High Level of Bear Hunting Experience

Participants

#	city	sex	1st yr. bear hunted	# yrs. bear hunted	# bear taken	hunt w/dogs	hunt over bait	memb. of bear organ.
1	Cedar Rivr	m	1960	20	7	no	no	no
2	Wallace	m	1977	15	3	no	yes	no
3	Vulcan	m	1965	17	0	no	yes	no
4	Bark River	m	1980	16	3	no	yes	no
5	Bark River	m	1978	15	2	no	yes	no
6	Rapid Rivr	m	1945	6	2	no	no	no
7	Manistique	m	1960	25	9	no	yes	no
8	Spalding	m	1985	8	3	no	yes	no

INVOLVEMENT IN BEAR HUNTING

Most started hunting bear because of exposure to bear while out hunting other animals.

Some started with family members, and others began with friends or alone.

Many spend all year involved in some aspect of bear hunting, from collecting bait throughout the winter to scouting bear throughout the spring and summer.

Collecting bait was a very time consuming activity for some participants and resulted in large stockpiles of foods from various sources.

Only two of the participants considered bear hunting their most important recreational activity, but others considered it important.

Many used a bow to hunt bear; one participant commented that he used a bow to hunt deer, but did not feel confident using a bow to hunt bear.

None used dogs to hunt bear and if they could not bait they would stalk bear as opposed to using dogs. Some comments about hunting with dogs were negative; however, most supported the rights of hunters to use their method of choice as long as they obeyed the hunting rules.

HUNTER SATISFACTION

The aspects of bear hunting that made for a satisfying experience included: harvesting animals, sharing the experience with kids, being in the woods alone, experiencing bears coming close to you, scouting an area for bear, taking pictures and observing wildlife, the personal challenge of hunting a lesser hunted animal, and studying bear behavior.

The most important aspects were: being in the woods, observing wildlife, and harvesting bears.

ALLOCATION OF HARVEST TAGS

When participants were asked about the positive and negative aspects of limiting the number of harvest tags, most responded with negative comments.

Many participants said that there is an equitability problem in allocating harvest tags; hunters living in bear areas should have preference over those who do not.

Some were concerned about the cheating that might occur in a limited entry system. Changing the numbers in your social security number was brought up, and one individual admitted that he had gotten a harvest tag every year by using this method.

Nonresident hunting licenses for bear were considered unfair to resident hunters, and some thought that they should be eliminated.

The main concern for using an allocation system appeared to be over the methods used for collecting information on bear. Most considered the data inadequate for correctly estimating the number of bear that could be harvested.

On the positive side, some recognized that the bear population could be improved by limiting the number of bear harvested, if done correctly.

Half had heard of the point preference system as it is used in other states for allocating harvest tags. Those who were familiar with the point preference system had positive comments about its use in other states.

After discussing both the point preference and random lottery system, most thought the point preference system was a better choice.

Participants focused much more on the equitablility aspects (i.e. nonresidents and preference to those living in bear areas) of harvest tag allocation than with the type of system that should be used.

Most were willing to wait 2-3 years for a harvest tag and still remain satisfied with bear hunting. A longer wait of 5-6 years was considered unsatisfactory, but most reported that they probably would not quit bear hunting.

SEASONS

Half applied for the first hunt period in the Upper Peninsula, so they could hunt during the first five days without there being dogs in the woods. The other half who applied for the second period reported that by applying in the second period they had a better chance of getting a tag, and to them, that was more important than hunting without dogs.

All agreed that it was important to have the option of applying for a period that has some days when dogs can't be used. Some thought that five days was not enough time and that 10 days would be more fair.

None of the participants preferred having a shorter season, even if it meant that more harvest tags would be available.

Some would like the season to be moved to a week or so later in the season so they were not competing with an abundance of berries and other natural foods.

Some liked the idea of splitting the season to have shorter, separate hunt periods for bait and dogs, but they thought it would be a problem due to the majority of hunters being baiters.

APPLICATION PROCESS

The application deadline was thought to be too late in the year, with little time to plan a hunt for those that were successful at receiving a tag.

Some had problems obtaining application forms due to a shortage in availability of the form or an inconvenient location.

All were unaccepting of a nonrefundable application fee on the basis that they did not trust the MDNR to use money properly. They reported that if they knew the money was being spent on either the cost of running the application system or bear research, then they would not have any problem with paying a nonrefundable fee.

Some participants thought raising the application fee would help discourage low interest hunters from applying, but most considered this unfair to lower income hunters who may not be able to afford a higher application fee.

ATTITUDES TOWARD THE MDNR

There was also an overall mistrust in the MDNR's ability to make good management decisions regarding the bear population and bear hunting.

Most said that money was the motivating factor behind management decisions rather than the good of the resource or resource users.

Conservation officers were thought to be doing a good job, overall.

Most had heard of some bear research being done in Michigan, but most of their information was based on what they had heard from other hunters. Details about actual research was sketchy at best, and all were skeptical about the quality of the research. All agreed that more research was needed, and money should be earmarked for that purpose.

INFORMATION AND EDUCATION

All agreed that the MDNR should spend money on educational programs to improve the public's knowledge of wildlife issues.

None were members of a bear hunting organization, and those who had heard of any of these organizations considered them interested primarily in dog hunting. All agreed that these organizations were good for bear hunting in general despite their concentration on dog hunting issues.

Information about bear and bear hunting was obtained mainly from other hunters. Magazines were used somewhat and newspapers very little.

Participants recommended having more information about bear and bear hunting available at the district offices when they picked up application forms.

All thought that the focus groups were a good way getting information to the MDNR, and they would also be interested in attending more meetings.

FUTURE OF BEAR AND BEAR HUNTING

Most thought that the bear population was increasing and some thought limiting the number of bear harvested was responsible for this increase. Most reported seeing many bear over the past year. One individual guessed that there were more than 50,000 bear in the Upper Peninsula.

Some had experienced confrontations with animal rights groups, and all were concerned about the damage they were doing to hunting. Some brought up pro-active strategies to deal with the problem such as educating school-age children and using positive messages about hunting.

Nonhunter involvement in bear management was thought to be a problem; most considered nonhunters to have little knowledge of bear and bear hunting issues.

The unsportsman-like actions of hunters was a concern, and all agreed that hunters must do a better job at policing themselves. They thought that, overall, bear hunters were more likely to comply with hunting regulations than other types of hunters.

APPENDIX VI

Pilot survey

*** 1993 Opinion Survey of Michigan Bear Hunters ***

I. Your Involvement in Bear Hunting in Michigan

1. How have you participated in bear hunting in Michigan? (Check one)

____I HAVE HUNTED BEAR WHILE BEING LICENSED TO LEGALLY HARVEST A BEAR *[GO TO QUESTION 2]*
____I HAVE NOT RECEIVED A HARVEST TAG BUT I HAVE GONE ALONG ON A BEAR HUNT...*[SKIP TO QUESTION 25]*
____I HAVE NEVER BEEN ON A BEAR HUNT IN MICHIGAN... *[SKIP TO QUESTION 25]*

2. How many bears, if any, have you personally harvested in Michigan or elsewhere?

_____ BEARS

3. What year did you first go hunting specifically for bears in Michigan?

ABOUT 19____

4. A bear hunting license has been required to hunt bear since 1980. Since then about how many years have you hunted bear in each of the following areas? (Please refer to the map of Michigan)

Map of Michigan

_____ YEARS IN THE WESTERN UPPER PENINSULA
_____ YEARS IN THE EASTERN UPPER PENINSULA
_____ YEARS IN THE LOWER PENINSULA
_____ YEARS ON DRUMMOND ISLAND

5. Since 1980, what percent of your bear hunting has been spent using each of the following methods?

ABOUT ____% OF THE TIME I USED DOGS THAT WERE STARTED OVER BAIT
ABOUT ____% OF THE TIME I USED DOGS THAT WERE NOT STARTED OVER BAIT ABOUT
ABOUT ____% OF THE TIME I SAT OVER BAIT
ABOUT ____% OF THE TIME I USED OTHER METHODS NOT INVOLVING DOGS OR BAIT

6. In the last 3 bear seasons (1990-1992), how many bears, if any, have you personally shot using the following methods (do not include wounded bears that were not retrieved)? (Circle number)

NUMBER OF BEARS SHOT:				METHOD USED:
0	1	2	3	DOGS THAT WERE STARTED OVER BAIT
0	1	2	3	DOGS THAT WERE NOT STARTED OVER BAIT
0	1	2	3	SITTING OVER BAIT
0	1	2	3	OTHER (NOT INVOLVING DOGS OR BAIT)

There has been a drawing to allocate bear harvest tags since 1990.

7. What year(s) did you apply for a harvest tag in this 4 year period? (Circle all that apply)

1990 1991 1992 1993

8. How many times, if any, did you receive a harvest tag in this 4 year time period? (Circle one number)

0 1 2 3 4

9. The following table asks how your bear hunting practices have changed since harvest tags were limited in 1990.

Did the change in 1990 cause you to:	**(Circle only one)**
CHANGE THE METHOD YOU USE TO HUNT BEAR.	YES NO
INCREASE THE NUMBER OF DAYS YOU PLAN TO SPEND BEAR HUNTING IN A SEASON.	YES NO
DECREASE THE NUMBER OF DAYS YOU SPEND BEAR HUNTING IN A SEASON.	YES NO
BE MORE LIKELY TO SHOOT THE FIRST LEGAL BEAR YOU SEE.	YES NO
BE MORE SELECTIVE ABOUT THE SIZE OF THE BEAR YOU SHOOT.	YES NO
BECOME MORE INTERESTED IN BEAR HUNTING.	YES NO
BECOME LESS INTERESTED IN BEAR HUNTING.	YES NO
BE MORE LIKELY TO VIOLATE BEAR HUNTING REGULATIONS.	YES NO
BE MORE LIKELY TO HIRE A BEAR HUNTING GUIDE.	YES NO
CHANGE WHO YOU GO BEAR HUNTING WITH.	YES NO
CHANGE THE AREA THAT YOU HUNT FOR BEAR.	YES NO

10. Did you hunt bear in Michigan during 1992? (Check one)

____NO ... ***[SKIP TO NUMBER 11]***

____YES... IF YES, please circle the days that you hunted bear in Michigan during 1992.

SEPTEMBER 1992

Su	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

OCTOBER 1992

Su	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

11. In the last 3 bear seasons (1990-1992), did you pay any individuals to assist you in any part of bear hunting? (Check one)

____ NO *[IF NO, SKIP TO QUESTION 15]*

____ YES

12. If yes, in which years did you pay someone for assistance? (Circle one)

1990 1991 1992

13. What kind of bear hunting assistance did they provide to you? (Check all that apply)

____ SET OUT BAITS FOR ME
____ PROVIDED THE OPPORTUNITY FOR ME TO HUNT WITH THEIR DOGS
____ RETRIEVED/FIELD DRESSED MY BEAR
____ SCOUTED AN AREA FOR ME TO HUNT OR BAIT IN
____ OTHER (PLEASE EXPLAIN):

14. Which of these years did you kill a bear? (Circle one choice)

1990	1991	1992	I DIDN'T KILL A BEAR 1990-92

15. In the *next 5 years*, which of the following hunting method(s) do you intend to use to hunt bears in Michigan? (Check all that apply to you)

____DOGS THAT ARE STARTED OVER BAIT
____DOGS THAT ARE NOT STARTED OVER BAIT
____SITTING OVER BAIT
____OTHER METHOD NOT INVOLVING DOGS OR BAIT
____I DO NOT PLAN ON HUNTING BEARS IN MICHIGAN IN THE NEXT 5 YEARS.
(PLEASE EXPLAIN):

16. How important is bear hunting to you compared to other types of recreation that you participate in, such as fishing, camping, gardening, hiking, jogging, competitive sports and other types of hunting? (Check only one)

BEAR HUNTING IS...

____THE MOST IMPORTANT RECREATIONAL ACTIVITY THAT I PARTICIPATE IN.
____ONE OF THE MORE IMPORTANT RECREATIONAL ACTIVITIES THAT I PARTICIPATE IN.
____NO MORE IMPORTANT THAN ANY OTHER RECREATIONAL ACTIVITY THAT I PARTICIPATE IN.
____LESS IMPORTANT THAN MOST OTHER RECREATIONAL ACTIVITIES THAT I PARTICIPATE IN.
____NOT AT ALL IMPORTANT TO ME.

II. WHAT MAKES BEAR HUNTING SATISFYING?

17. How important are each of the following as reasons why you would go bear hunting? Please circle the number for each reason that best shows how important you think it is. (Circle number)

How important would this be as a reason why you would go bear hunting?	Most Important	<——>			Not Important
TO ENJOY EATING BEAR MEAT	1	2	3	4	5
TO GET AWAY FROM WORK, SCHOOL, OR STRESS AND RELAX	1	2	3	4	5
TO ENJOY USING MY SHOOTING SKILLS	1	2	3	4	5
ENJOYMENT OF TRAINING BEAR DOGS	1	2	3	4	5
TO BE A SUCCESSFUL HUNTER AND GET A BEAR	1	2	3	4	5
BEING IN, SEEING AND LEARNING ABOUT NATURE	1	2	3	4	5
TO GET A TROPHY QUALITY BEAR	1	2	3	4	5
TO ENJOY THE FREEDOM OF CHOICE WHILE HUNTING	1	2	3	4	5
TO SPEND TIME WITH MY FAMILY	1	2	3	4	5
TO ENJOY USING MY HUNTING SKILLS (E.G, TRACKING, SCOUTING ETC)	1	2	3	4	5
THE EXCITEMENT OF HUNTING A DANGEROUS ANIMAL	1	2	3	4	5
ENJOYMENT OF SEEING AND HEARING BEAR DOGS WORK THE BEAR	1	2	3	4	5
TO SPEND TIME WITH MY FRIENDS	1	2	3	4	5

18. Please show how much each of these factors influence your satisfaction with bear hunting by ranking each of them from 1 to 5. Use "1" for the most important factor and "5" for the least important factor.

_____ NOT BEING CROWDED AND HAVING OTHER BEAR HUNTERS INTERFERE WITH MY HUNT
_____ HAVING A LONG BEAR HUNTING SEASON
_____ NOT HAVING TO WAIT MANY YEARS FOR A BEAR HARVEST PERMIT
_____ HAVING A VERY HIGH CHANCE OF GETTING A BEAR
_____ FREEDOM TO CHOOSE WHEN AND IN WHAT PART OF THE STATE I HUNT

19. Overall, how satisfied are you with your bear hunting opportunities in Michigan? (Check only one)

____ VERY SATISFIED
____ SOMEWHAT SATISFIED
____ NEITHER SATISFIED NOR DISSATISFIED
____ SOMEWHAT DISSATISFIED
____ VERY DISSATISFIED

III. YOUR OPINIONS ABOUT BEAR HUNTING AND THE MICHIGAN DNR

Please review the following information before proceeding any further with the survey.

- Prior to 1990 hunters could purchase a bear license and hunt in any part of the state open to bear hunting.
- Under the new system, hunters apply for a harvest tag by selecting a hunt period within one of eight management units located in the Upper and northern Lower Peninsulas.
- Harvest tags are issued through a drawing that has varied slightly each year since 1990.
- The chance of being drawn for a bear harvest tag in 1993 was about 1 in 3. This is because there were ____ bear hunter applicants and only ____ harvest tags.
- The number of harvest tags available is determined by DNR biologists based on the bear population, bear habitat and human needs. For 1993 the harvest goal is 1000 bears.

20. Please indicate whether you agree or disagree with the following statements. (Circle one answer that best represents your opinion for each statement)

SA = STRONGLY AGREE A = AGREE NS = NOT SURE D = DISAGREE SD = STRONGLY AGREE	
I AM CONFIDENT THE MICHIGAN DNR HAS ENOUGH INFORMATION ON THE BEAR POPULATION TO CORRECTLY DECIDE HOW MANY BEARS TO HARVEST IN MICHIGAN EACH YEAR.	SA A NS D SD
IN SPITE OF WHAT THEY SAY, THE MDNR LIMITED THE HARVEST OF BEARS MORE BECAUSE OF POLITICAL PRESSURE THAN BECAUSE OF BIOLOGICAL EVIDENCE OF A DECREASING BEAR POPULATION.	SA A NS D SD
I TRUST THE DNR TO FAIRLY CONSIDER THE INTERESTS OF HUNTERS WHEN THEY SET BEAR HUNTING REGULATIONS.	SA A NS D SD
THE DNR SHOULD GIVE MICHIGAN RESIDENTS THAT LIVE IN OR NEAR BEAR HABITAT A GREATER CHANCE IN A HARVEST TAG DRAWING.	SA A NS D SD
THE DNR SHOULD GIVE SENIOR CITIZENS A GREATER CHANCE IN A HARVEST TAG DRAWING.	SA A NS D SD
THE DNR SHOULD GIVE YOUNG HUNTERS (14-16 YRS) A GREATER CHANCE IN A HARVEST TAG DRAWING.	SA A NS D SD
REGARDLESS OF THE SYSTEM FOR OBTAINING A BEAR HARVEST TAG, IT IS VERY IMPORTANT FOR ME TO GET A TAG THE SAME YEAR AS MY HUNTING PARTNER.	SA A NS D SD

21. Please circle the answers that best represent your opinions about hunting bear with dogs or over bait.

SA = STRONGLY AGREE A = AGREE NS = NOT SURE D = DISAGREE SD = STRONGLY AGREE					
WHEN PROPERLY REGULATED, THERE IS NOTHING UNETHICAL OR IMMORAL ABOUT HUNTING BEAR OVER BAIT.	SA	A	NS	D	SD
BAIT HUNTERS TAKE MORE THAN THEIR SHARE OF THE BEAR.	SA	A	NS	D	SD
BAITING ACTIVITIES INTERFERE WITH OTHER METHODS OF HUNTING BEAR.	SA	A	NS	D	SD
BAIT SITTERS HAVE A BETTER CHANCE OF HARVESTING A BEAR THAN HUNTERS THAT USE DOGS.	SA	A	NS	D	SD
HUNTING BEAR WITH BAIT SHOULD CONTINUE TO BE ALLOWED IN MICHIGAN.	SA	A	NS	D	SD
WHEN PROPERLY REGULATED, THERE IS NOTHING UNETHICAL OR IMMORAL ABOUT HUNTING BEAR WITH DOGS.	SA	A	NS	D	SD
HUNTERS WHO USE DOGS TAKE MORE THAN THEIR SHARE OF THE BEAR.	SA	A	NS	D	SD
HUNTING WITH DOGS INTERFERES WITH OTHER METHODS OF HUNTING BEAR.	SA	A	NS	D	SD
DOG HUNTERS HAVE A BETTER CHANCE OF HARVESTING A BEAR THAN BAIT SITTERS.	SA	A	NS	D	SD
HUNTING BEAR WITH DOGS SHOULD CONTINUE TO BE ALLOWED IN MICHIGAN.	SA	A	NS	D	SD

Please check the answer that best represents your opinion

22. From your own experience and knowledge of bears in Michigan, is the 1993 bear harvest goal of 1000 bears: (Check only one)

____ TOO LOW?
____ ABOUT RIGHT?
____ TOO HIGH?
____ I'M NOT SURE

23. What do you think is happening to the black bear population in the area you hunt most often? (Check only one)

____ SEEMS TO BE INCREASING
____ SEEMS TO BE ABOUT THE SAME EACH YEAR
____ SEEMS TO BE DECREASING
____ I'M NOT SURE

IV. YOUR OPINIONS ABOUT BEAR REGULATIONS IN MICHIGAN

24. Please indicate whether you approve or disapprove of each of the following methods for limiting the number of bears harvested each year in Michigan. (Circle the one answer that best represents your opinion for each statement)

SA = STRONGLY APPROVE A = APPROVE NS = NOT SURE D = DISAPPROVE SD = STRONGLY DISAPPROVE					
LIMIT THE NUMBER OF BEAR HUNTERS BY USING SOME FORM OF DRAWING.	SA	A	NS	D	SD
DO NOT LIMIT THE NUMBER OF BEAR HUNTERS, BUT CLOSE THE SEASON EACH YEAR AFTER A SET QUOTA OF BEAR KILLS HAS BEEN REACHED.	SA	A	NS	D	SD
DO NOT LIMIT THE NUMBER OF BEAR HUNTERS, BUT SET A SHORT SEASON TO LIMIT THE NUMBER OF DAYS AVAILABLE TO HUNT.	SA	A	NS	D	SD
DO NOT LIMIT THE NUMBER OF BEAR HUNTERS, BUT RESTRICT THE METHODS USED TO HARVEST BEARS (E.G, USE OF DOGS AND/OR BAIT).	SA	A	NS	D	SD

We understand you may not actually agree with the need to limit bear hunters, but for the rest of this section please assume that the number of bear hunters must be limited each year in Michigan.

25. Which of the following arrangements would you be satisfied with? (Check only one)

FOR ME TO BE SATISFIED I WOULD HAVE TO GET A BEAR HARVEST TAG IN MICHIGAN:

____ EVERY YEAR.
____ AT LEAST ONCE EVERY 2 YEARS
____ AT LEAST ONCE EVERY 3 YEARS
____ AT LEAST ONCE EVERY 4 YEARS
____ AT LEAST ONCE EVERY 5 YEARS
____ AT LEAST ONCE EVERY 6 YEARS
____ AT LEAST ONCE EVERY 7 YEARS
____ I'M NOT SURE

26. What is the longest you would wait to receive a bear harvest tag before you would *QUIT* applying in Michigan? (Check only one)

I WOULD QUIT APPLYING FOR A HARVEST TAG IN MI IF I HAD TO WAIT:

____ MORE THAN 2 YEARS
____ MORE THAN 3 YEARS
____ MORE THAN 4 YEARS
____ MORE THAN 5 YEARS
____ MORE THAN 6 YEARS
____ MORE THAN 7 YEARS
____ I WOULD CONTINUE TO APPLY EVEN AFTER A 7 YEAR WAIT
____ I'M NOT SURE

HUNTER SUCCESS FOR MICHIGAN BEAR HUNTING
In Michigan over the last 3 years the proportion of hunters who tag a bear on the average is: *1 out of 10 hunters in the Lower Peninsula* *2 out of 10 hunters in the Upper Peninsula* *3 out of 10 hunters on Drummond Island*

27. *Assuming there is a limit to the number of bear that the DNR can allow to be harvested in Michigan each year,* what is the lowest chance for harvesting a bear that you would be satisfied with in the area that you hunt? (Check only one)

FOR ME TO BE SATISFIED I WOULD WANT THE SUCCESS RATE FOR BEAR HUNTING TO BE NO LESS THAN:

____ 1 OUT OF 10 HUNTERS HARVEST A BEAR
____ 2 OUT OF 10 HUNTERS HARVEST A BEAR
____ 3 OUT OF 10 HUNTERS HARVEST A BEAR
____ 4 OUT OF 10 HUNTERS HARVEST A BEAR
____ 5 OUT OF 10 HUNTERS HARVEST A BEAR
____ I'M NOT SURE

CURRENT HUNT PERIODS FOR MICHIGAN BEAR HUNTING				
	Hunt Period #1	*Hunt Period #2*	*Hunt Period #3*	*Hunt Period #4*
Where	*Upper Peninsula*	*Upper Peninsula*	*Northern Lower Peninsula*	*Drummond Island*
When	*Sept 10 - Oct 21*	*Sept 15 - Oct 26*	*Sept 17 - Sept 23 and Oct 1 - Oct 7*	*Sept 10 - Sept 16*
What methods are allowed	*No dogs in woods during 1st 5 days*	*All forms of bear hunting allowed*	*Archery only from Oct 1 - Oct 7*	*All forms of bear hunting allowed*

28. *Under the current system where dog hunters and bait sitters share most hunt periods,* what is the shortest hunt period that you would be satisfied with for the area that you hunt? (Check only one)

FOR ME TO BE SATISFIED I WOULD NEED THE HUNT PERIOD TO BE AT LEAST:

____ 7 DAYS (INCLUDING 1 WEEKEND).
____ 9 DAYS (INCLUDING 2 WEEKENDS).
____ 16 DAYS (INCLUDING 3 WEEKENDS).
____ 23 DAYS (INCLUDING 4 WEEKENDS).
____ 30 DAYS (INCLUDING 5 WEEKENDS).
____ 37 DAYS (INCLUDING 6 WEEKENDS).
____ 44 DAYS (INCLUDING 7 WEEKENDS).
____ OTHER (PLEASE SPECIFY DAYS_____).
____ I'M NOT SURE

29. ***If the hunt period for dog hunters was completely separate from the hunt period for other bear hunters (e.g, bait sitters, still hunters)***, what is the shortest hunt period that you would be satisfied with? (Check only one)

WITH SEPARATE HUNT PERIODS, I WOULD BE SATISFIED IF THE HUNT PERIOD WAS AT LEAST:

____ 7 DAYS (INCLUDING 1 WEEKEND).
____ 9 DAYS (INCLUDING 2 WEEKENDS).
____ 16 DAYS (INCLUDING 3 WEEKENDS).
____ 23 DAYS (INCLUDING 4 WEEKENDS).
____ 30 DAYS (INCLUDING 5 WEEKENDS).
____ 37 DAYS (INCLUDING 6 WEEKENDS).
____ 44 DAYS (INCLUDING 7 WEEKENDS).
____ OTHER (PLEASE SPECIFY DAYS_____).
____ I'M NOT SURE

V. WHAT TRADE-OFFS WOULD YOU CHOOSE?

Bear hunters now have to wait an average of 2-3 years for a harvest tag in Michigan.

30. Remembering that currently no more than 3 out of every 10 hunters successfully harvest a bear in Michigan, would you choose to wait one additional year to receive a harvest tag if your chance for harvesting a bear was increased to any of the following? (Check only one)

I WOULD CHOOSE TO WAIT AN ADDITIONAL YEAR IF MY SUCCESS RATE INCREASED TO:

____ 4 OUT OF 10
____ 5 OUT OF 10
____ 6 OUT OF 10
____ 7 OUT OF 10
____ MORE THAN 7 OUT OF 10
____ I WOULD NOT CHOOSE TO WAIT ONE ADDITIONAL YEAR NO MATTER HOW HIGH MY CHANCES FOR HARVESTING A BEAR.
____ I'M NOT SURE

31. Remembering that the number of days in a hunt period range from 7 to 41, would you choose to wait one additional year to receive a harvest tag if the number of days in your hunt period was *increased by* any of the following: (Check only one)

I WOULD CHOOSE TO WAIT AN ADDITIONAL YEAR IF MY HUNT PERIOD WAS INCREASED BY:

____ 3 DAYS (INCLUDING 1 WEEKEND)
____ 7 DAYS (INCLUDING ONE WEEKEND)
____ 10 DAYS (INCLUDING TWO WEEKENDS)
____ 16 DAYS (INCLUDING THREE WEEKENDS)
____ I WOULD NOT WAIT ONE ADDITIONAL YEAR FOR ANY OF THE INCREASED NUMBER OF DAYS LISTED ABOVE.
____ I'M NOT SURE

32. As bear hunting regulations are designed for Michigan there are going to have to be trade-offs. In your opinion, how much importance should the DNR assign to each of the following in the trade-off process?

How important are each of these factors?	Very Important	Important	Somewhat Important	Not Important	Not Sure
A INTERFERENCE AMONG BEAR HUNTERS IN THE WOODS	1	2	3	4	5
B PROTECTION OF THE BEAR POPULATION	1	2	3	4	5
C LENGTH OF SEASONS	1	2	3	4	5
D NUMBER OF YEARS HUNTERS WAIT FOR A BEAR HARVEST PERMIT	1	2	3	4	5
E CHANCES OF GETTING A BEAR (SUCCESS RATES)	1	2	3	4	5
F FREEDOM TO CHOOSE WHAT PART OF MI TO HUNT IN	1	2	3	4	5
G FREEDOM TO CHOOSE WHEN TO HUNT	1	2	3	4	5

33. Of the above factors, please identify the 3 most important to you by putting the letter of the factor on the appropriate line below.

____MOST IMPORTANT ____SECOND MOST IMPORTANT ____THIRD MOST IMPORTANT

Following are two possible systems for allocating bear harvest tags in Michigan.

POINT PREFERENCE SYSTEM	*RANDOM LOTTERY SYSTEM*
• *Applicants receive points each year that they apply for a harvest tag and do not get one*	• *All applicants have an equal chance of being drawn for a harvest tag each year, even if they were successful the previous year*
• *Applicants with the most points receive harvest tags first, but all applicants will get a harvest tag eventually if they keep applying*	• *Applicants may be redrawn each year; however there is no guarantee of they will ever be drawn*
• *The longest waiting time for a harvest tag depends on the number of permits issued and the number of hunters that apply*	• *The chance of being drawn for a harvest tag each year depends on the number of harvest tags available and the number of hunters that apply*
• *Once applicants get a harvest tag, their points go back to zero*	

34. If the average amount of time you have to wait for a harvest tag in Michigan is ***2 to 3 years***, would you prefer the point preference system or the random lottery system? (Check only one)

____ I PREFER THE POINT PREFERENCE SYSTEM
____ I PREFER THE RANDOM LOTTERY SYSTEM
____ EITHER SYSTEM IS ACCEPTABLE
____ I'M NOT SURE

35. If the average amount of time you have to wait for a harvest tag in Michigan is ***4 to 6 years***, would you prefer the point preference system or the random lottery system? (Check only one)

____ I PREFER THE POINT PREFERENCE SYSTEM
____ I PREFER THE RANDOM LOTTERY SYSTEM
____ EITHER SYSTEM IS ACCEPTABLE
____ I'M NOT SURE

36. This is your opportunity to tell the Michigan DNR how you would like to see bear hunting regulated in Michigan. Please comment on any aspects which you feel are critical for the DNR to consider as they set future regulations and plans for allocating bear harvest tags.

VI. SOURCES OF BEAR HUNTING INFORMATION

37. The following table asks about your awareness and involvement with bear hunting organizations in Michigan. (Circle yes or no for each question)

Organization	Are you familiar with this organization?	Were you ever a member of this organization?	Are you currently a member of this organization?	Have you ever been an officer in this organization?
MICHIGAN BEAR HUNTERS ASSOCIATION	YES NO	YES NO	YES NO	YES NO
MICHIGAN HUNTING DOG FEDERATION	YES NO	YES NO	YES NO	YES NO
UNITED BEAR HUNTERS	YES NO	YES NO	YES NO	YES NO
NORTHEASTERN MICHIGAN HOUNDSMEN ASSOCIATION	YES NO	YES NO	YES NO	YES NO
MICHIGAN COON HUNTERS	YES NO	YES NO	YES NO	YES NO
MICHIGAN BOW HUNTERS ASSOCIATION	YES NO	YES NO	YES NO	YES NO
U.P. BEAR HOUNDSMEN ASSOCIATION	YES NO	YES NO	YES NO	YES NO
MICHIGAN UNITED CONSERVATION CLUBS (MUCC)	YES NO	YES NO	YES NO	YES NO

38. How much do you use the following sources for information on bear and bear hunting? Circle the number that best describes how much you use each source.

Information Source	Frequently	Sometimes	Rarely	Never
MAGAZINES	1	2	3	4
NEWSPAPERS	1	2	3	4
TELEVISION	1	2	3	4
HUNTING ORGANIZATION PUBLICATIONS	1	2	3	4
FRIENDS	1	2	3	4
DNR EMPLOYEES	1	2	3	4
LICENSE APPLICATION GUIDE	1	2	3	4
OTHER (EXPLAIN):	1	2	3	4

39. What information would you like to have about bear and bear hunting that is not currently available to you?

_____

_____

_____

_____

_____

40. How interested would you be in attending workshops and/or other types of informational meetings about bear and bear hunting? (Check only one)

____ very interested
____ moderately interested
____ slightly interested
____ not at all interested

VII. DESCRIPTIVE INFORMATION

Since we won't know your name, the following are personal questions that will help us describe the people who are involved in bear hunting.

41. What is your age? _____ years

42. What is your gender? (Check one)

____ male ____ female

43. What was the highest grade level you completed in school? (Check only one)

____ grade school
____ some high school
____ completed high school
____ vocational training
____ some college
____ completed college
____ graduate or professional school

44. What county do you live in? _____ county

45. Since 1990, have you gone hunting for any of the following: (Check all that apply)

____ whitetail deer
____ elk
____ rabbits
____ game birds (e.g, grouse, pheasant)
____ water fowl

46. Do you currently own dogs that you use in bear hunting?

____ no ____ yes

APPENDIX VII

Summary of changes based on pilot survey results

Summary of Changes Based on Pilot Survey Results

Identified by question number on survey and **respondent number from pilot group**

5. using gun and bow **-9**

6. sitting over bait with gun, sitting over bait with bow **-9**

8. Did not answer this question **-6**

9. Delete "plan to hunt", change to "spent" **-11**
Room for comments under box **-9**
Skipped some of the questions **-1**
Room for comments under box **-13**
"More likely to violate baiting regulations" **-20**
Did not answer any questions in the box - he did not receive a tag **-21**

10. Wrote in "one week for L.P. and the week of bow only" - "asked why this question?" **-4**

14. Answered this even though he did not use a guide **-32**
Answered this even though he did not use a guide **-10**

15. sitting over bait with gun, sitting over bait with bow **-9**

16. Change "no more important" to "equally as important" **-11**

17. "Does not include reasons applicable to do-it-yourself bait sitters"
"Combine shooting skills and hunting skills"
"Add - The opportunity to see a bear in his natural habitat"
"Add - The challenge of outsmarting a bear"
"Add a does not apply choice"**-13**
He put a ? next to the freedom of choice item **-36**
Only answered 2 of the questions in the box - **24**

18. May be confusing, does each get ranked 1-5 or collectively? **11**
Ranked items incorrectly **-31**
Only ranked 2 choices **-24**
"I found this question confusing! Not sure how to answer" **-8**
Ranked items incorrectly **-17**

19. "Should not confuse bear hunting opportunity with MDNR bungling of permit system" - **13**
"somewhat dissatisfied- can't get a tag **-36**
"Ask this as a 2-part question - before 1990 and after 1990 **-17**

20. Add plural to partner **-13**
"Trust is confusing - change to think or feel" **-8**

21. Why no questions about bow hunting? Break it down into gun, bow and dogs-**9**

23. Room for comments under this question **-35**
Checked increasing but wrote comments of decline prior to 1990 **-20**

27. Success rate is not important - opportunity to shoot one is what counts **-36**
Add option of "not important" **-8**

28. Put a "3" on the line next to 23 days **-1**
Checked 2 choices **-24**

29. Did not answer **-1**

30. Did not answer **-1**
Suggest adding additional option of "Hunting with bear hunting pals more important than success rate"
"This question is misleading ... (see survey) **-31**
Add option of "success rate not important" **-8**
Asked "how does this relate?"

31. Did not answer **-1**
"The season should be shorter not longer" **-20**
Put a ? next to this question **-4**

32. "Circle the appropriate number for each item" **-11**
"This question is ambiguous -and these goals are not mutually exclusive as is implied" **-20**
Wrote in "in my area" for an item he checked as not important **-36**
Did not anwer any questions in the box **-6**

33. Delete the word "longest" under point prefer. syst. **-11**
Did not fill in 3rd most important **-1**

34. "If the wait is the same, why do they favor one over the other. You are not informing them that one will be different from the other. Leave out years wait **-11**
"Make it clear that the prefer. syst. may include a 3-18 yr wait within a few yrs, and the system would be locked in forever." **-9**
Did not answer **-1**
Wrote in "neither is acceptable" - "I do not favor either of these systems. I favor a data base approach" (see survey) **-36**

35. Did not answer **-11, 1**

36. Do you want to include costs of licenses and hunts here? **-11**
"One area that is being avoided is how many bears are being wounded and by whom? I feel this has serious impact on the resource" (See survey for sample question) **-9**

37. Did not answer any of these questions **-6**

38. No room to write what "other" is.
Personal scouting should be a source. - **11**
"Other bear hunters" as a choice -**36**
"Find out on my own" -**24**
Did not answer any of these questions -**6**
Put a ? next to the "other" option but circled "3" -**8**
Add "Bear Researchers/Biologists" option -**10**
Add "My own Experience" option -**17**

APPENDIX VIII

Mailing contents for statewide bear hunter survey: questionnaire, cover letters, and postcard reminder

1993 OPINION SURVEY OF MICHIGAN BEAR HUNTERS

I. YOUR INVOLVEMENT IN BEAR HUNTING IN MICHIGAN

1. How have you participated in bear hunting in Michigan? (Check only one.)

   1 ☐ I HAVE HUNTED BEAR WHILE BEING LICENSED TO HARVEST A BEAR. *[GO TO QUESTION 2]*
   2 ☐ I HAVE NEVER HAD A HARVEST TAG BUT I HAVE GONE ALONG ON A BEAR HUNT. *[SKIP TO QUESTION 11]*
   3 ☐ I HAVE NEVER BEEN ON A BEAR HUNT IN MICHIGAN. *[SKIP TO QUESTION 11]*

2. How many bear, if any, have you personally harvested in Michigan or elsewhere?

   _____ BEAR

3. What year did you first go hunting specifically for bear in Michigan?

   ABOUT 19_____

4. A bear hunting license has been required to hunt bear since 1980. Since then about how many years have you hunted while being licensed to harvest a bear in each of the following areas? (Please refer to the map below.)

   _____ YEARS IN THE WESTERN UPPER PENINSULA.
   _____ YEARS IN THE EASTERN UPPER PENINSULA.
   _____ YEARS IN THE LOWER PENINSULA.
   _____ YEARS ON DRUMMOND ISLAND.

5. Since 1980, what percent of your bear hunting (with a harvest tag) was done using each of the following methods?

   ABOUT _____% OF THE TIME I USED DOGS THAT WERE STARTED OVER BAIT.
   ABOUT _____% OF THE TIME I USED DOGS THAT WERE NOT STARTED OVER BAIT.
   ABOUT _____% OF THE TIME I SAT OVER BAIT.
   ABOUT _____% OF THE TIME I USED OTHER METHODS NOT INVOLVING DOGS OR BAIT.

There has been a drawing to issue bear harvest tags since 1990.

6. Did you receive a harvest tag and go bear hunting at least once during 1990 - 1992? (Check only one.)

   1 ☐ NO *[SKIP TO QUESTION 11]*

   2 ☐ YES *[GO TO QUESTION 7]*

7. Circle the years that you personally shot a bear using each of the following methods. Do not include wounded bear that were not retrieved. Circle year(s) or "no bear" for each method.

YEAR BEAR WERE SHOT:				METHOD USED:
1990	1991	1992	NO BEAR	DOGS THAT WERE STARTED OVER BAIT.
1990	1991	1992	NO BEAR	DOGS THAT WERE NOT STARTED OVER BAIT.
1990	1991	1992	NO BEAR	SITTING OVER BAIT.
1990	1991	1992	NO BEAR	OTHER METHOD NOT INVOLVING DOGS OR BAIT.

8. The following table asks whether your bear hunting practices have changed because of the decision to issue harvest tags through a drawing in 1990. Circle one response for each statement.

Did the change to a drawing for harvest tags cause you to:	(Circle answer)		
...become more interested in bear hunting?	YES	NO	NOT SURE
...become less interested in bear hunting?	YES	NO	NOT SURE
...be more likely to shoot the first legal bear you see?	YES	NO	NOT SURE
...be more selective about the size of the bear you shoot?	YES	NO	NOT SURE
...be more likely to hire a bear hunting guide?	YES	NO	NOT SURE
...change the method you use to hunt bear?	YES	NO	NOT SURE
...increase the number of days you spend bear hunting in a season?	YES	NO	NOT SURE
...decrease the number of days you spend bear hunting in a season?	YES	NO	NOT SURE
...change who you go bear hunting with?	YES	NO	NOT SURE
...change the area that you hunt for bear?	YES	NO	NOT SURE

Comments:

_____

_____

9. Did you bear hunt with a harvest tag in Michigan during 1992? (Check only one.)

1 ☐ NO *[GO TO NUMBER 10]*

2 ☐ YES...If yes, please circle all of the days that you hunted bear in Michigan during 1992.

SEPTEMBER 1992						
Su	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

OCTOBER 1992						
Su	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

10. In the last 3 bear seasons (1990-1992), did you pay anyone to assist you in any part of bear hunting? (Check only one.)

1 ☐ NO *[GO TO QUESTION 11]*

2 ☐ YES ...If yes, which years did you pay someone for assistance? (circle year(s).) 1990 1991 1992

11. In the *next 5 years*, which of the following hunting method(s) do you intend to use to hunt bear in Michigan? (Check all that apply to you.)

1 ☐ DOGS THAT ARE STARTED OVER BAIT.

2 ☐ DOGS THAT ARE NOT STARTED OVER BAIT.

3 ☐ SITTING OVER BAIT.

4 ☐ OTHER METHOD NOT INVOLVING DOGS OR BAIT.

5 ☐ I DO NOT PLAN ON HUNTING BEAR IN MICHIGAN IN THE NEXT 5 YEARS.

(PLEASE EXPLAIN):

12. How important is bear hunting to you compared to other types of recreation that you participate in, such as fishing, camping, gardening, hiking, jogging, competitive sports and other types of hunting? (Check only one.)

1 ☐ THE MOST IMPORTANT RECREATIONAL ACTIVITY THAT I PARTICIPATE IN.

2 ☐ ONE OF THE MORE IMPORTANT RECREATIONAL ACTIVITIES THAT I PARTICIPATE IN.

3 ☐ NO MORE IMPORTANT THAN ANY OTHER RECREATIONAL ACTIVITY THAT I PARTICIPATE IN.

4 ☐ LESS IMPORTANT THAN MOST OTHER RECREATIONAL ACTIVITIES THAT I PARTICIPATE IN.

5 ☐ NOT AT ALL IMPORTANT TO ME.

II. WHAT MAKES BEAR HUNTING SATISFYING?

13. How important is each of the following as a reason why you would go bear hunting? For each reason listed below, circle the number to show how important it is to you.

How important is this as a reason why you would go bear hunting?	Most Important	<——>			Not Important
To spend time with my bear hunting friends.	1	2	3	4	5
To get away from work, school, or stress and to relax.	1	2	3	4	5
To use my hunting skills.	1	2	3	4	5
To have bear meat.	1	2	3	4	5
To have the opportunity to get a shot at a bear.	1	2	3	4	5
To be in the woods.	1	2	3	4	5
To harvest a bear.	1	2	3	4	5
To spend time with my family.	1	2	3	4	5
To have the challenge of hunting a dangerous animal.	1	2	3	4	5
To enjoy the prehunt baiting activities.	1	2	3	4	5
To have the opportunity to see a bear in its natural habitat.	1	2	3	4	5
To see and hear bear dogs work.	1	2	3	4	5

III. YOUR OPINIONS ABOUT BEAR HUNTING AND THE MICHIGAN DNR

Please review the following information before continuing with the survey.

- Before 1990 hunters could purchase a bear license and hunt in any part of the state open to bear hunting.
- Since 1990, harvest tags have been issued through a drawing that has varied slightly each year.
- Under the new system, hunters apply for a harvest tag by selecting a hunt period within one of eight management units located in the Upper and northern Lower Peninsulas.
- The chance of being drawn for a bear harvest tag in 1993 was about 1 in 3. This is because there were 16,377 eligible bear hunter applicants and 5,063 harvest tags issued.
- The number of harvest tags available is determined by DNR biologists based on the bear population, bear habitat and human needs. For 1993 the harvest goal is approximately 1,000 bear.

14. Please indicate whether you agree or disagree with the following statements. Circle one answer that best represents your opinion for each statement.

SA = STRONGLY AGREE A = AGREE NS = NOT SURE D = DISAGREE SD = STRONGLY DISAGREE					
I am confident the DNR has enough information on the bear population to correctly decide how many bear to harvest in Michigan each year.	SA	A	NS	D	SD
In spite of what they say, the DNR limited the harvest of bear more because of political pressure than because of biological evidence of decreasing bear populations.	SA	A	NS	D	SD
I trust the DNR to fairly consider the interests of hunters when they set bear hunting regulations.	SA	A	NS	D	SD
The DNR should give Michigan residents that live in or near bear habitat a greater chance of receiving a harvest tag even if it reduces my own chances.	SA	A	NS	D	SD
The DNR should give senior citizens a greater chance of receiving a harvest tag even if it reduces my own chances.	SA	A	NS	D	SD
The DNR should give young hunters (14-16 yrs) a greater chance of receiving a harvest tag even if it reduces my own chances.	SA	A	NS	D	SD
Regardless of the system for obtaining a bear harvest tag, it is very important for me to get a tag the same year as my hunting partner(s).	SA	A	NS	D	SD

15. Overall, how satisfied are you with current bear management in Michigan? (Check only one.)

1 ☐ VERY SATISFIED.
2 ☐ SOMEWHAT SATISFIED.
3 ☐ NEITHER SATISFIED NOR DISSATISFIED.
4 ☐ SOMEWHAT DISSATISFIED.
5 ☐ VERY DISSATISFIED.

16. What do you think is happening to the black bear population in the area you hunt most often? (Check only one.)

1 ☐ SEEMS TO BE INCREASING.
2 ☐ SEEMS TO BE ABOUT THE SAME EACH YEAR.
3 ☐ SEEMS TO BE DECREASING.
4 ☐ I'M NOT SURE.
5 ☐ I HAVE NOT YET HUNTED BEAR IN MICHIGAN.

COMMENTS: _____

_____

_____

_____

17. From your own experience and knowledge of bear in Michigan, is the 1993 bear harvest goal of approximately 1,000 bear: (Check only one.)

1 ☐ TOO LOW?
2 ☐ ABOUT RIGHT?
3 ☐ TOO HIGH?
4 ☐ I'M NOT SURE.

18. For each of the following statements, please circle the answer that best represents your opinion.

SA = STRONGLY AGREE A = AGREE NS = NOT SURE D = DISAGREE SD = STRONGLY DISAGREE					
When properly regulated, there is nothing unethical or immoral about hunting bear over bait.	SA	A	NS	D	SD
Bait hunters take more than their share of the bear.	SA	A	NS	D	SD
Baiting activities interfere with other methods of hunting bear.	SA	A	NS	D	SD
Bait sitters have a greater chance of harvesting a bear than hunters that use dogs.	SA	A	NS	D	SD
Hunting bear with bait should continue to be allowed in Michigan.	SA	A	NS	D	SD
When properly regulated, there is nothing unethical or immoral about hunting bear with dogs.	SA	A	NS	D	SD
Hunters who use dogs take more than their share of the bear.	SA	A	NS	D	SD
Hunting with dogs interferes with other methods of hunting bear.	SA	A	NS	D	SD
Dog hunters have a greater chance of harvesting a bear than bait sitters.	SA	A	NS	D	SD
Hunting bear with dogs should continue to be allowed in Michigan.	SA	A	NS	D	SD

IV. YOUR OPINIONS ABOUT BEAR REGULATIONS IN MICHIGAN

19. Please indicate whether you approve or disapprove of each of the following methods for limiting the number of bear harvested each year in Michigan. Circle the one answer that best represents your opinion for each statement.

SA = STRONGLY APPROVE A = APPROVE NS = NOT SURE D = DISAPPROVE SD = STRONGLY DISAPPROVE					
Limit the number of bear hunters by using some form of drawing.	SA	A	NS	D	SD
Do not limit the number of bear hunters, but close the season each year after a set quota of bear have been harvested.	SA	A	NS	D	SD
Do not limit the number of bear hunters, but set a very short season to limit the number of bear harvested.	SA	A	NS	D	SD
Do not limit the number of bear hunters, but restrict the methods used to harvest bear (use of dogs and/or bait).	SA	A	NS	D	SD

We understand you may not actually agree with the need to limit bear hunters, but for the rest of this section please assume that the number of bear hunters must be limited each year in Michigan.

20. What is the longest wait for a bear harvest tag that you would be satisfied with?

I WOULD BE SATISFIED IF I RECEIVED A BEAR HARVEST TAG IN MICHIGAN NO LESS THAN: (CHECK ONLY ONE.)

1 ☐ EVERY YEAR.
2 ☐ ONCE EVERY 2 YEARS.
3 ☐ ONCE EVERY 3 YEARS.
4 ☐ ONCE EVERY 4 YEARS.
5 ☐ ONCE EVERY 5 YEARS.
6 ☐ ONCE EVERY 6 YEARS.
7 ☐ I WOULD STILL BE SATISFIED EVEN AFTER A 6 YEAR WAIT.
8 ☐ I'M NOT SURE.

21. What is the longest you would wait to receive a bear harvest tag before you would *QUIT* applying in Michigan?

I WOULD QUIT APPLYING IN MICHIGAN IF I COULD NOT GET A HARVEST TAG AT LEAST: (CHECK ONLY ONE.)

1 ☐ ONCE EVERY 2 YEARS.
2 ☐ ONCE EVERY 3 YEARS.
3 ☐ ONCE EVERY 4 YEARS.
4 ☐ ONCE EVERY 5 YEARS.
5 ☐ ONCE EVERY 6 YEARS.
6 ☐ I WOULD CONTINUE TO APPLY EVEN AFTER A 6 YEAR WAIT.
7 ☐ I'M NOT SURE.

22. ***Currently about 2 in 10 hunters harvest a bear.*** What is the lowest chance for harvesting a bear that you would be satisfied with in the area that you hunt?

I WOULD BE SATISFIED IF THE SUCCESS RATE FOR HARVESTING A BEAR WAS NO LESS THAN: (CHECK ONLY ONE.)

1 ☐ 1 OUT OF 10 HUNTERS HARVEST A BEAR.
2 ☐ 2 OUT OF 10 HUNTERS HARVEST A BEAR.
3 ☐ 3 OUT OF 10 HUNTERS HARVEST A BEAR.
4 ☐ 4 OUT OF 10 HUNTERS HARVEST A BEAR.
5 ☐ 5 OUT OF 10 HUNTERS HARVEST A BEAR.
6 ☐ I'M NOT SURE.
7 ☐ SUCCESS RATE IS NOT IMPORTANT TO ME.

23. ***Under the current system where dog hunters and bait sitters share most bear hunting seasons, seasons range from 7-41 days.*** What is the shortest season that you would be satisfied with for the area that you hunt?

I WOULD BE SATISFIED IF THE SEASON I HUNT IN LASTED NO LESS THAN: (CHECK ONLY ONE.)

1 ☐ 7 DAYS (INCLUDING 1 WEEKEND).
2 ☐ 9 DAYS (INCLUDING 2 WEEKENDS).
3 ☐ 16 DAYS (INCLUDING 3 WEEKENDS).
4 ☐ 23 DAYS (INCLUDING 4 WEEKENDS).
5 ☐ 30 DAYS (INCLUDING 5 WEEKENDS).
6 ☐ 37 DAYS (INCLUDING 6 WEEKENDS).
7 ☐ 44 DAYS (INCLUDING 7 WEEKENDS).
8 ☐ OTHER (PLEASE SPECIFY DAYS_____).
9 ☐ I'M NOT SURE.

24. ***If the bear hunting season for dog hunters was completely separate from the season for other bear hunters (bait sitters and still hunters) both seasons would have to be shortened.*** What is the shortest season that you would be satisfied with?

WITH SEPARATE SEASONS, I WOULD BE SATISFIED IF THE SEASON LASTED NO LESS THAN: (CHECK ONLY ONE.)

1 ☐ 7 DAYS (INCLUDING 1 WEEKEND).
2 ☐ 9 DAYS (INCLUDING 2 WEEKENDS).
3 ☐ 16 DAYS (INCLUDING 3 WEEKENDS).
4 ☐ 23 DAYS (INCLUDING 4 WEEKENDS).
5 ☐ 30 DAYS (INCLUDING 5 WEEKENDS).
6 ☐ 37 DAYS (INCLUDING 6 WEEKENDS).
7 ☐ HAVING SEPARATE SEASONS IS NOT IMPORTANT TO ME.
8 ☐ I'M NOT SURE.

V. WHAT TRADE-OFFS WOULD YOU CHOOSE?

Bear hunters now have to wait an average of 2-3 years for a harvest tag in Michigan.

25. Currently about 2 out of every 10 hunters successfully harvest a bear in Michigan. If fewer hunters were issued harvest tags, a hunter's chances of harvesting a bear would increase. Would you choose to wait one additional year to receive a harvest tag if it improved your chances for harvesting a bear?

I WOULD CHOOSE TO WAIT AN ADDITIONAL YEAR IF THE SUCCESS RATE INCREASED TO: (CHECK ONLY ONE.)

1 ☐ 3 OUT OF 10 HUNTERS HARVEST A BEAR.
2 ☐ 4 OUT OF 10 HUNTERS HARVEST A BEAR.
3 ☐ 5 OUT OF 10 HUNTERS HARVEST A BEAR.
4 ☐ 6 OUT OF 10 HUNTERS HARVEST A BEAR.
5 ☐ MORE THAN 6 OUT OF 10 HUNTERS HARVEST A BEAR.
6 ☐ I WOULD RATHER HAVE A SHORTER WAIT FOR A HARVEST TAG THAN AN INCREASED CHANCE FOR HARVESTING A BEAR.
7 ☐ I'M NOT SURE.

26. The number of days in a bear hunting season range from 7 to 41. Would you choose to wait one additional year to receive a harvest tag if the number of days in your hunting season was ***increased.***

I WOULD CHOOSE TO WAIT AN ADDITIONAL YEAR IF THE SEASON I HUNT IN WAS LENGTHENED BY AT LEAST: (CHECK ONLY ONE.)

1 ☐ 3 DAYS (INCLUDING 1 WEEKEND).
2 ☐ 7 DAYS (INCLUDING 1 WEEKEND).
3 ☐ 10 DAYS (INCLUDING 2 WEEKENDS).
4 ☐ 16 DAYS (INCLUDING 3 WEEKENDS).
5 ☐ I WOULD RATHER HAVE A SHORTER WAIT FOR A HARVEST TAG THAN A LONGER SEASON.
6 ☐ I'M NOT SURE.

27. As bear hunting regulations are developed for Michigan there will be trade-offs made. In your opinion, how much importance should the DNR assign to each of the following factors when deciding trade-offs? Circle the appropriate number for each factor.

How important are each of these factors?	Most Important	<———		———>	Not Important	Not Sure
Interference among bear hunters in the woods.	1	2	3	4	5	6
Protection of the bear population.	1	2	3	4	5	6
Length of bear hunting seasons.	1	2	3	4	5	6
Number of years hunters wait for a bear harvest permit.	1	2	3	4	5	6
Chances of harvesting a bear.	1	2	3	4	5	6
Freedom to choose what area of Michigan to hunt in.	1	2	3	4	5	6
Freedom to choose when to hunt.	1	2	3	4	5	6

VI. YOUR OPINIONS ABOUT ISSUING BEAR HARVEST TAGS

A major debate among many bear hunters concerns how they would like the harvest tags issued each year. Following is some important information about two possible systems which have been used in Michigan and other states to issue hunting permits. Please read the information and answer the questions which follow. Your thoughtful input is important!

	POINT PREFERENCE SYSTEM	RANDOM LOTTERY SYSTEM
How It Works:	-Applicants receive points each year they apply for a harvest tag and do not get one. -Applicants with the most points receive harvest tags first. -Once applicants receive a harvest tag, their point total goes back to zero.	-Applications are drawn randomly by computer each year to decide who gets a harvest tag. -All applicants have an equal chance of being drawn in a given year.
Possible Advantages:	-You are assured of eventually getting a harvest tag. -Once the system is operating, you could predict closely the year you would have enough points to receive a tag.	-You have the same chance of being drawn, even if you hunted the year before. -It is possible that you might be drawn for a harvest tag more often than you would expect, perhaps every year.
Possible Disadvantages:	-You can predict when you will have enough points accumulated to be drawn for a harvest tag, but there is little chance that you could get one sooner.	-It is possible that you might never be drawn for a harvest tag or less often than you would expect.
	-If more people apply for harvest tags, it would decrease your chances of being drawn in the random lottery system or increase how long you would have to wait to get a harvest tag under the point preference system.	

Considering the current number (in 1993) of bear harvest tag applicants and available harvest tags, the probability of being drawn under a random system would be 1 in 3. Under a point preference system you would get a tag every 3 years (if you applied every year).

28. **Given these current numbers,** which system would you prefer? (Check only one.)

1 ☐ A RANDOM LOTTERY.
2 ☐ A POINT PREFERENCE SYSTEM.
3 ☐ EITHER ONE.
4 ☐ I'M NOT SURE.

Interest in bear hunting may continue to increase. If more people apply for harvest tags, this means the chance of being drawn under the lottery system each year would decrease; or, under a point preference system, the number of years you would have to wait would increase.

29. Suppose the number of applications each year increased so that under a random lottery system, your chances of getting a harvest tag was 1 in 5, or under the point preference system you would have to wait 5 years to get a harvest tag. Under these conditions, which would you prefer? (Check only one.)

1 ☐ A RANDOM LOTTERY.
2 ☐ A POINT PREFERENCE SYSTEM.
3 ☐ EITHER ONE.
4 ☐ I'M NOT SURE.

30. If a POINT PREFERENCE SYSTEM was used in Michigan for allocating bear harvest tags, how likely is it that you would apply for a harvest tag every year? (Check only one.)

1 ☐ I DEFINITELY WOULD.
2 ☐ I PROBABLY WOULD.
3 ☐ I PROBABLY WOULD NOT.
4 ☐ I DEFINITELY WOULD NOT.
5 ☐ I'M NOT SURE.

31. If a RANDOM LOTTERY SYSTEM was used in Michigan for allocating bear harvest tags, how likely is it that you would apply for a harvest tag every year? (Check only one.)

1 ☐ I DEFINITELY WOULD.
2 ☐ I PROBABLY WOULD.
3 ☐ I PROBABLY WOULD NOT.
4 ☐ I DEFINITELY WOULD NOT.
5 ☐ I'M NOT SURE.

32. In the space below, please add any additional comments you might have on using a POINT PREFERENCE SYSTEM or a RANDOM LOTTERY SYSTEM for issuing bear harvest tags. (Please include additional pages if necessary.)

_____

_____

_____

_____

_____

_____

_____

VII. SOURCES OF BEAR HUNTING INFORMATION

33. The following table asks about your awareness and involvement with bear hunting organizations in Michigan. (Circle yes or no for each question.)

Organization	Are you familiar with this organization?	Were you ever a member of this organization?	Are you currently a member of this organization?	Have you ever been an officer in this organization?
Michigan United Conservation Clubs (MUCC)	YES NO	YES NO	YES NO	YES NO
Michigan Hunting Dog Federation	YES NO	YES NO	YES NO	YES NO
United Bear Hunters Association	YES NO	YES NO	YES NO	YES NO
Northeastern Michigan Houndsmen	YES NO	YES NO	YES NO	YES NO
Michigan Coon Hunters	YES NO	YES NO	YES NO	YES NO
Michigan Bow Hunters Association	YES NO	YES NO	YES NO	YES NO
UP Bear Houndsmen Association	YES NO	YES NO	YES NO	YES NO
Michigan Bear Hunters Association	YES NO	YES NO	YES NO	YES NO

34. How much do you use the following sources for information on bear and bear hunting? Circle the number that best describes how much you use each source.

Information Source	Frequently	Sometimes	Rarely	Never
Magazines	1	2	3	4
Newspapers	1	2	3	4
Television	1	2	3	4
Hunting organization publications	1	2	3	4
Bear hunting friends	1	2	3	4
DNR employees	1	2	3	4
License application guide	1	2	3	4
Other (explain):				

35. What information would you like to have about bear and bear hunting that is not currently available to you?

_____

_____

36. How interested would you be in attending workshops and/or other types of informational meetings about bear and bear hunting? (Check only one.)

1 ☐ very interested 2 ☐ moderately interested 3 ☐ slightly interested 4 ☐ not at all interested

VIII. DESCRIPTIVE INFORMATION

We need the following information to help compare bear hunters with other hunting groups. This information will remain confidential and will not be associated with your name or address.

37. What is your age? _____ YEARS

38. What is your gender? 1 ☐ MALE 2 ☐ FEMALE

39. What was the highest grade level you completed in school? (Check only one.)
1 ☐ GRADE SCHOOL
2 ☐ SOME HIGH SCHOOL
3 ☐ COMPLETED HIGH SCHOOL
4 ☐ VOCATIONAL TRAINING
5 ☐ SOME COLLEGE
6 ☐ COMPLETED COLLEGE
7 ☐ GRADUATE OR PROFESSIONAL SCHOOL

40. What county do you live in? _____ COUNTY

41. Since 1990, have you gone hunting for any of the following: (Check all that apply.)
1 ☐ WHITETAIL DEER
2 ☐ OTHER BIG GAME (ELK, CARIBOU, ETC.)
3 ☐ SMALL GAME
4 ☐ TURKEY
5 ☐ UPLAND GAME BIRDS (GROUSE, PHEASANT, ETC.)
6 ☐ WATERFOWL

42. Do you currently own dogs that you use in bear hunting? 1 ☐ NO 2 ☐ YES

43. When you hunt bear do you use: 1 ☐ A GUN 2 ☐ A BOW 3 ☐ BOTH

44. Please take this opportunity to tell the Michigan DNR how you would like to see bear hunting regulated in Michigan. Use the space below to comment on any aspects which you feel are critical for the DNR to consider as they set future regulations and plans for allocating bear harvest tags. (Attach extra sheets if needed.)

_____

_____

_____

_____

_____

_____

_____

_____

THANK YOU FOR YOUR PARTICIPATION!

Please place the questionnaire in the stamped envelope provided and mail to: Department of Natural Resources
Wildlife Population Studies
PO Box 30030
Lansing, MI 48909-9965

Letter #1

August 1, 1993

Dear Bear Tag Applicant:

You may be aware of the mixed feelings among bear hunters on certain issues of bear hunting and bear management in Michigan. Michigan State University is working cooperatively with the Department of Natural Resources' Wildlife Division to obtain information from bear hunters, like you, to help better understand your needs. To achieve a balanced bear management plan, the Wildlife Division must consider the needs of people and the well-being of the bear population.

Enclosed is a copy of the "1993 Opinion Survey of Michigan Bear Hunters". We are sending this questionnaire to a small number of hunters who were randomly selected from a list of 1992 bear harvest tag applicants. ***We need your help***--whether or not you consider yourself an active bear hunter. The information obtained in this survey will be used by the Wildlife Division to help define bear hunter priorities in setting bear hunting regulations and issuing harvest tags.

Your participation in this study is entirely voluntary and your name will be kept confidential. Your response is very important, so please fill out the questionnaire and return it to us in the envelope provided ***as soon as possible***.

If you have any questions concerning the survey, please feel free to call Lisa Grise at (517) 353-0308 or Ben Peyton at (517) 353-3236.

Your prompt return of the completed questionnaire is necessary for the success of this study. Thank you for your involvement!

Sincerely,

R. Ben Peyton
Professor, Fisheries & Wildlife
Michigan State University

Lisa Grise
Graduate Assistant, Fisheries & Wildlife
Michigan State University

Postcard Reminder

August 7, 1993

Dear Bear Tag Applicant:

You should have received or will be receiving soon a mail survey regarding your opinions on bear hunting in Michigan. If you have already completed this survey, thank you for your assistance. If not, when you do receive this survey, **please complete and return it as soon as possible.**

If a survey has not arrived within a week, please call us.

The success of our study depends on your prompt return of the completed survey.

Thanks for your help!

Sincerely,

R. Ben Peyton
Professor
Michigan State University
(517) 353-3236

Lisa Grise
Graduate Assistant
Michigan State University
(517) 353-0308

Letter #2

August 14, 1993

Dear Bear Tag Applicant:

Recently we sent you a survey regarding your opinions on bear hunting in Michigan. If you have already completed and returned the "1993 Opinion Survey of Michigan Bear Hunters", thank you for your assistance. If you did not, please take the time to complete the survey. We have enclosed another copy in case you may have misplaced the first copy we sent you.

We would like to remind you of how important your input is to the success of our study. The Department of Natural Resources wants to know how you feel about bear hunting and bear management in Michigan.

Please complete your survey and return it as soon as possible in the envelope provided. Your name will be kept confidential. If you have any questions, please do not hesitate to call either of us.

Thank you for your assistance!

Sincerely,

R. Ben Peyton
Professor, Fisheries & Wildlife
Michigan State University
(517) 353-3236

Lisa Grise
Graduate Assistant
Michigan State University
(517) 353-0308

Letter #3

August 21, 1993

Dear Bear Tag Applicant:

Recently you have received surveys regarding your opinions on bear hunting in Michigan. If you have already completed and returned this survey, thank you for your assistance. If not, we would like to ask you to ***please take the time now to complete it.***

We appreciate how busy you must be at this time of year, but your input into how our natural resources are managed in Michigan is very important. The Department of Natural Resources has the responsibility to manage our environment in our best interests. Yet, even these professionals cannot manage effectively without information about the public they serve. Our role as researchers is to give them the necessary information--but we cannot provide it without your help.

You may not understand why such information is needed and be reluctant to spend the time and effort to complete this survey. All we can say is, we are professionals who respect your privacy and the value of your time. We would not ask for this help if we did not think that it was worthwhile.

Please complete your survey and return it as soon as possible in the envelope provided. If you have misplaced your copy of the survey or if you have any questions, please do not hesitate to call either of us. The return of your completed survey is necessary for the success of our study.

Thank you for your assistance!

Sincerely,

R. Ben Peyton
Professor, Fisheries & Wildlife
Michigan State University
(517) 353-3236

Lisa Grise
Graduate Assistant
Michigan State University
(517) 353-0308