

Differences among Nonresident Tourists Making Consumptive and Nonconsumptive Uses of Alaskan Wildlife

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ABSTRACT. Tourism is an important sector of Alaska's economy; 23% of 4202 parties of tourists vacationing in Alaska from October 1982 to September 1983 indicated they hunted or fished. Tourists making consumptive use (hunting or fishing) of wildlife differed significantly from other visitors. Those who hunted or fished: 1) were in larger groups that contained a higher proportion of males; 2) tended to be younger; 3) were more involved in planning their vacation as indicated by starting the planning for their trip earlier and using more sources of information; 4) spent longer in the state and camped more often; 5) were more likely to charter aircraft within Alaska; 6) rated their experience highly, but thought they received a lower value for monies spent; 7) expended fewer total funds on their vacation; and 8) were more likely to return to Alaska than their counterparts who neither hunted nor fished. Visitors who used wildlife consumptively provided funds directly to the state for the conservation of these species through the purchase of hunting and fishing licenses and the subsequent receipt by the state of federal funds via the Pittman-Robertson and Dingell-Johnson acts. No formal mechanism exists for nonconsumptive users to aid wildlife conservation even though some nonconsumptive uses of resources are detrimental to wildlife. Although wildlife and their habitats are an important attractor for tourists, too little attention is given to the long-term benefits from the tourism industry in assessing the economic value of resource development and use that affects wildlife.

Key words: Alaska, fishing, hunting, tourists, wildlife

RÉSUMÉ. Le tourisme représente un secteur important de l'économie alaskienne, et 23% des 4202 groupes de touristes qui ont passé des vacances en Alaska entre octobre 1982 et septembre 1983, ont indiqué qu'ils avaient chassé ou pêché. Les touristes qui consommaient le produit de leur chasse ou de leur pêche différaient sensiblement des autres visiteurs sur les points suivants: 1) ils formaient de plus grands groupes qui contenaient une plus grande proportion d'hommes; 2) leur moyenne d'âge était généralement plus basse; 3) ils s'impliquaient plus dans la planification de leurs vacances en commençant les préparatifs de leur voyage plus tôt par exemple et en utilisant plus de sources d'information; 4) ils passaient plus de temps en Alaska et campaient plus souvent; 5) ils avaient plus tendance à nolisier un avion à l'intérieur de l'Alaska; 6) ils évaluaient leur expérience de façon très positive, mais pensaient qu'ils n'en avaient pas eu autant pour leur argent; 7) ils dépensaient moins d'argent au total durant leurs vacances et 8) ils étaient plus susceptibles de revenir en Alaska. Les visiteurs qui consommaient le produit de leur chasse et de leur pêche apportaient directement des fonds à l'État pour la conservation de ces espèces avec l'achat de leur permis de chasse et de pêche, ainsi qu'avec l'application des lois Pittman-Robertson et Dingell-Johnson concernant le versement subséquent de fonds de la part du gouvernement fédéral. Il n'existe à l'heure actuelle aucun mécanisme touchant les touristes ne consommant pas de poisson ni de gibier pour aider à la conservation de la faune, alors même que celle-ci est affectée de façon négative par l'utilisation de certaines ressources où n'intervient pas la consommation de poisson et de gibier. Bien que la faune et son habitat soient des éléments importants en ce qui concerne l'attrait pour les touristes, trop peu d'attention est accordée aux bénéfices à long terme provenant de l'industrie du tourisme lorsqu'on évalue la valeur économique du développement et l'utilisation des ressources qui touchent la faune.

Mots clés: Alaska, pêche, chasse, touristes, faune

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INTRODUCTION

Considerable information exists on the ethics, attitudes, and characteristics of those who make consumptive use (hunting or fishing) of wildlife and those who do not (Klein, 1973; More, 1973; Tocher and Milne, 1974; Fazio and Belli, 1977; Peterle and Scott, 1977; Shaw, 1977; Kellert, 1978; Marsters, 1978; Shaw and King, 1980; Applegate, 1982; Lyons, 1982), including how satisfied they are with the outcome of such activities (Potter *et al.*, 1973; Hendee, 1974; Decker *et al.*, 1980; McCullough and Carmen, 1982). Moreover, the economic value of wildlife and how best to measure this parameter have received considerable attention (Pearse and Bowden, 1969; Weeden, 1969; Horvath, 1974; Hay and Charbonneau, 1978; Martin and Gum, 1978; Arthur and Wilson, 1979; Noonan and Zagata, 1982; Sorg and Loomis, 1985). Although studies on consumptive uses of wildlife have not excluded tourists, data specifically addressing the importance of wildlife to tourism, especially differences between tourists who make consumptive or nonconsumptive uses of this resource, are comparatively rare. Moreover, few data on tourism in the Arctic are available.

In 1983, tourism was the fourth most important sector of

Alaska's economy; about 646 000 nonresident tourists visited Alaska (Alaska Department of Commerce and Economic Development, 1984). In-state sales to these tourists exceeded \$550 million. One major attractor for visitors to Alaska is its abundant wildlife. Indeed, the value of wildlife to Alaska's economy has been well documented (Buckley, 1957). Visitors to the state often encounter wildlife, whether or not that was the primary purpose of their vacation. For instance, >30% of all nonresident tourists visited national parks or wilderness areas in 1983 (Alaska Department of Labor, 1984).

The tourism industry recognizes natural resources as the foundation for many activities in addition to hunting and fishing. Components of the tourism economy that relate to nonconsumptive uses of wildlife include transportation, accommodations, shopping, and other activities (McIntosh and Goeldner, 1986). Tourists visit Alaska primarily for its scenery and wildlife (Field *et al.*, 1985). Hence, we believe the economic viability of Alaska's tourism industry rests largely on how natural resources are perceived, managed, and used. Additionally, planning for the wise management of wildlife resources necessitates better understanding of tourists, both those who hunt and fish and those who do not engage in these activities.

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We examined differences between nonresident tourists who made consumptive and nonconsumptive uses of wildlife (including fish) while vacationing in Alaska. Clawson and Knetsch's (1966) model of the vacation experience facilitated our comparison of behaviors and attitudes of these tourists; specifically, travel party composition, vacation planning, travel to and within the state, "vacation behavior," and evaluation of the vacation experience were compared. Further, we discuss relationships between the tourism industry and Alaska's wildlife resources.

METHODS

Data provided by the Alaska Division of Tourism were used to delineate differences between visitors who came to Alaska to hunt or fish (consumptive tourists) and those who did not participate in hunting and fishing (nonconsumptive tourists). Our analysis excludes those who traveled to Alaska for business purposes. We recognize that visitors who did not hunt or fish could be subdivided into numerous categories (Alaska Department of Labor, 1984); such was not the purpose of this study. The term "nonconsumptive user" to

identify these individuals is used for simplicity and clarity. Further, we combined nonresidents who hunted and fished into a single category because the proportion of individuals that do both has increased (Snepenger and Ditton, 1985).

During the 1983 tourism year (October 1982-September 1983) groups of tourists ($n = 4202$) at multiple checkpoints throughout the state were sampled monthly using a self-administered questionnaire (Table 1). People on selected airline flights were sampled in Anchorage, Fairbanks, and Juneau. Those traveling in automobiles were sampled at border crossings near Haines, Skagway, Beaver Creek, and Dawson. Those traveling aboard cruise ships or ferries were sampled on board ship or at their last Alaskan port of call. Each group of tourists traveling together and sharing expenses was asked to complete a single questionnaire. Thus, the "traveling party" was the sampling unit for our analyses.

Data were analyzed using a VAX 8800 computer and SPSS Statistical Package at the University of Alaska Fairbanks. Variables were evaluated for skewedness and kurtosis and the most appropriate inferential statistic applied. Statistics used in this paper included the Mann-Whitney *U*-test and Chi-square test of independence (Siegel, 1956).

TABLE 1. Descriptions and measures of variables used to characterize travel parties of Alaskan tourists making consumptive or nonconsumptive uses of Alaska wildlife extracted from a self-administered questionnaire (variables are organized by Clawson and Knetsch's [1966] model for the vacation experience)

Segment descriptions	Variables	Measurements
A. Travel party variables	1. Group gender 2. Group size 3. Average age index	Percentage males in travel party Number of individuals in travel party under 18 scored 1 18-24 scored 2 25-34 scored 3 35-44 scored 4 45-54 scored 5 55-64 scored 6 65 and over scored 7 Age categories were summed and divided by group size to get a measure of average group age
B. Vacation planning variables	1. Weeks planned 2. Information search index	Number of weeks before the trip planning occurred Total number of the following information sources used in planning vacation: A. saw an advertisement B. friends/relatives C. travel agent D. Alaskan Division of Tourism Information E. Prior visit F. Convention & Visitor Bureaus G. Chambers of Commerce H. Airlines I. Tour/brochures/guide books
C. Travel to variables	1. Commercial airline 2. Cruise ship 3. Auto or camper	Travel to Alaska on a commercial airline, yes or no Travel to Alaska on a cruise ship, yes or no Travel to Alaska in an automobile or camper, yes or no
D. Trip variables	1. Monetary expenditures 2. Leisure activities index	Total monetary expenditures in dollars Number of the following leisure activities engaged in by travel party: sightseeing, visiting friends/relatives, taking short education course, hunting, camping/hiking, visiting museums, attending concerts and performing arts, sport fishing, skiing, snowmobiling, other winter sports, small pleasure boating, learning about different cultures, visiting national parks and monuments
E. Evaluation	1. Rate vacation 2. Value of trip 3. Visit again	Rated overall vacation on a 5-point Likert scale from poor (1) to excellent (5) Rated the value received on money spent on the trip from poor value (1) to excellent value (5) Plan on visiting Alaska again — 5-point scale from definitely not (1) to will (5)

RESULTS

Of 4202 groups of nonresident tourists, 23% indicated they fished or hunted while vacationing in Alaska. Vacationing parties consumptively using wildlife were significantly more likely to have a larger proportion of males, be younger, and travel in larger groups than their nonconsumptive counterparts (Table 2).

Tourists making consumptive uses of wildlife devoted more effort to planning their vacations. They began planning their trip earlier and used more sources of information (Table 2).

Use of commercial airlines in travel to Alaska did not differ significantly between tourists who fished and hunted and those who did not (Table 2). Not surprisingly, once within Alaska those engaged in hunting and fishing activities were significantly more likely to charter aircraft (Table 2).

Although hunters and anglers spent over \$2500 per travel party, this sum was significantly less than for other visitors. Nevertheless, those who fished or hunted spent 68% more days within the state, which differed significantly from the other tourists. As expected, those making consumptive use of wildlife also spent significantly more nights camping (Table 2).

The categories of tourists did not differ significantly in rating the quality of their vacation experience; both rated the trip highly (Table 2). Although those who did not fish or hunt believed they had received a higher value for monies spent, they indicated that they were less likely to return to Alaska than their counterparts (Table 2).

DISCUSSION

Tourism in Alaska is a rapidly growing industry; visitors to the state have increased by >230 000 from 1977 to 1985.

TABLE 2. Behavioral and attitudinal characteristics of nonresident tourists who hunted or fished and those who did not while vacationing in Alaska, October 1982-September 1983

Variable ¹	Tourists who hunted or fished (N = 970)		Tourists who did not hunt or fish (N = 3232)		P-value ²
Vacation party					
Gender index (\bar{x} , SD)	0.595	0.307	0.419	0.328	<0.001
Age index (\bar{x} , SD)	4.758	1.691	5.441	1.594	<0.001
Size (\bar{x} , SD)	1.993	1.203	1.656	0.953	<0.001
Vacation planning					
Weeks planned (\bar{x} , SD)	25.25	19.28	20.3	15.89	<0.001
Information sources index (\bar{x} , SD)	2.237	1.238	2.002	1.115	<0.001
Vacation travel					
Commercial airline to Alaska (%)	50.4		47.5		0.129 ³
Charter aircraft while in Alaska (%)	19.1		10.1		<0.001 ³
Vacation behavior					
Total monetary expenditure (\bar{x} , SD)	2528.13	2249.17	3379.26	3529.82	<0.001
Nights in Alaska (\bar{x} , SD)	18.67	19.41	11.11	13.05	<0.001
Nights camping (\bar{x} , SD)	16.76	20.63	11.92	14.09	<0.001
Vacation evaluation					
Overall rating (\bar{x} , SD)	4.32	0.88	4.31	0.81	0.166
Monetary value (\bar{x} , SD)	3.61	1.06	3.73	1.00	0.011
Intend to return to Alaska (\bar{x} , SD)	3.88	1.06	3.19	1.08	<0.001

¹Tabular values explained in Table 1.

²P-values are for the two-tailed Mann-Whitney U-test unless otherwise noted.

³P-value is for the Chi-square test of independence.

Likewise, in-state sales to visitors have risen >\$460 million in the same 9-year period (Alaska Department of Commerce and Economic Development, 1984). Tourism is currently the third most important sector of Alaska's economy. Nonetheless, we believe the importance of wildlife to the tourism industry and how tourists perceive and use wildlife and their habitats in Alaska are not fully appreciated. A first step in this process is to characterize tourists making different uses of wildlife resources.

Clear differences exist between tourists who consumptively use wildlife and others vacationing in Alaska. Although those who fished and hunted spent less on their trips, we suspect their expenditures within the state may have equaled or exceeded those of other tourists. Those who hunted and fished were six times less likely than others to visit the state as part of an organized tour package (Snepenger, 1987). Monies spent for tour packages tend to stay within the state from which the tour originates and therefore are less likely to circulate within Alaska. Moreover, monies spent on tour packages often constitute a large percentage of total vacation expenditures. In contrast, use of chartered aircraft and purchase of camping supplies and services stimulate local economies, especially those in rural areas. Further, those who hunted or fished occurred in larger parties and were more likely to return to the state, thereby providing additional economic stimulus.

Because more sources were consulted by consumptive users when planning their trips, promotional efforts to target tourists desiring to hunt and fish should consider greater use of multiple information outlets such as travel agents and guide books in addition to hunting and fishing magazines. Women are participating more in consumptive uses of wildlife (Snepenger and Ditton, 1985); data on gender composition of the travel parties in this study also indicate women were included in groups that hunted and fished (Table 2). Consequently, advertising directed at those who hunt and fish should consider women.

Direct expenditures on nonresident hunting and fishing licenses and subsequent receipt of federal Pittman-Robertson (P-R) and Dingell-Johnson (D-J) funds by the state are other ways consumptive users help benefit Alaskan wildlife. Clearly, the consumptive use of Alaska's wildlife requires continued management to avoid overexploitation, but consumptive users provide direct support to aid in this process.

Adverse effects also may result from nonconsumptive uses of wildlife and critical habitat. In a review of the literature, Boyle and Samson (1985) reported negative effects on wildlife from a variety of nonconsumptive activities, including hiking and camping, boating, wildlife observation and photography, off-road vehicles, snowmobiles, spelunking, swimming and shore recreation, and rock climbing. Such impacts from tourism also will increase in Alaska as the visitor industry grows. Indeed, Denali National Park and Preserve already has closed much of its road system to private vehicles to help minimize disturbance to wildlife. No formal mechanism exists, however, for nonconsumptive users to provide direct funds to benefit wildlife.

Lautenschlager and Bowyer (1985) noted that wildlife was of value to both consumptive and nonconsumptive users of natural resources. Not only do those engaging in hunting or fishing benefit from the wise management of natural resources, but so do nonconsumptive users of wildlife, as well as those directly involved in the tourism industry.

Nevertheless, the value of wildlife and their habitats in attracting tourists may not be fully understood or appreciated by the tourism industry. Indeed, we know of no instance where tourism monies have been expended for wildlife management or research.

The perception of pristine wilderness and abundant wildlife is clearly an important lure for tourists. For example, a survey of cruise ship passengers showed that the principal motivation for participating in an Alaskan cruise was to view the scenery of the Inside Passage and its wildlife (Field *et al.*, 1985). Exploitation or use of natural resources that leads to real or perceived degradation of wildlife and their habitats is likely to negatively affect the tourism industry. For instance, extensive placer mining in and around Birch Creek, near Fairbanks, threatens an important sport fishery for grayling (*Thymallus arcticus*) (Wagener and LaPerriere, 1985; Reynolds *et al.*, 1989). Logging of substantial areas of old-growth forest in southeastern Alaska has reduced critical habitat for numerous species, including black-tailed deer (*Odocoileus hemionus*), brown bear (*Ursus arctos*), bald eagle (*Haliaeetus leucocephalus*), and several species of salmon (*Oncorhynchus* spp.) (Schoen *et al.*, 1988). Proposed oil extraction from the Arctic National Wildlife Refuge holds the potential to negatively affect use of calving areas by the Porcupine Caribou (*Rangifer tarandus*) Herd (U.S. Fish and Wildlife Service, 1987). Large breeding colonies of marine birds on the Pribilof Islands in the southeastern Bering Sea are an important tourist attraction. Large commercial harvests of walleye pollock (*Theragra chalcogramma*), however, have coincided with declines of piscivorous seabirds, including murre (*Uria* spp.) and kittiwakes (*Rissa* spp.) (Springer and Byrd, 1988). In addition to influencing wildlife populations, some of these resource uses cause considerable visual changes to the landscape that are likely to negatively affect tourism.

Effects of the *Exxon Valdez* oil spill on wildlife in and adjacent to Prince William Sound have been substantial. Direct mortality from oil occurred among many species of seabirds and marine mammals, especially sea otters (*Enhydra lutra*) (D.G. Calkins, Coordinator of Oil Spill Studies, Alaska Department of Fish and Game, pers. comm. 1989). The State of Alaska allocated >\$35 million to deal with legal and scientific aspects of the spill through February 1990, and more funds probably will be required. (The state, however, may be reimbursed under the provisions of the Comprehensive Environmental Response Compensation Act.) Of funds allocated to the spill, nothing was earmarked specifically for tourism; the state has no plans to direct any special tourism advertising toward changing negative impressions about Alaska brought about by the oil spill (J.C. Wright, Marketing Coordinator, Alaska Tourism Marketing Council, pers. comm. 1989). Exxon Corporation, however, gave \$4 million for an emergency marketing campaign to the Alaska Visitor's Association (a nonprofit organization) for exactly this purpose (K.S. Cowart, Executive Director, Alaska Visitor's Association, pers. comm. 1989).

Resource development and use, especially on nonrenewable resources, hold the promise of short-term and sometimes localized benefits to Alaska's economy. We believe too little attention has been given to the long-term benefits of tourism in assessing the economic value of resource development that may affect wildlife in Alaska.

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