

EVALUATION OF A DECOY-ONLY PUBLIC GOOSE HUNTING OPPORTUNITY IN CENTRAL SOUTH DAKOTA: THE ROLE OF HARVEST SUCCESS ON HUNTER SATISFACTION

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ABSTRACT

An important measure of success for wildlife managers is hunter satisfaction, and it often has been assumed that harvest success is related to satisfaction and may even be a surrogate measure for hunter satisfaction. However, introduction of the multiple satisfactions concept, showing that hunters seek and receive a number of benefits from hunting in addition to harvest success, has directed research into the factors associated with hunter satisfaction and the relevant role of harvest success. In 1998, the South Dakota Game, Fish and Parks Department (SDGFP) established the Lower Oahe Waterfowl Hunting Access Area (LOWHAA) located approximately 15 miles north of Pierre, South Dakota. It was managed to provide a variety of quality goose hunting opportunities along the Missouri River. Part of the package included field decoy-only areas with limited access, via registration, to ensure an uncrowded goose hunting experience. The registration process for gaining access included collecting harvest information and a question measuring hunters' satisfaction. A review of data collected by the SDGFP (1998 – 2011) measuring hunting participation, harvest, and satisfaction with the day's hunting experience at the decoy-only unit of the LOWHAA revealed a strong relationship between goose harvest and satisfaction of the hunting party, but also identified a segment of hunters for whom harvest success was not related to satisfaction. A better understanding of this segment of hunters may identify factors that managers can influence to maintain or increase hunter satisfaction.

Keywords

hunter satisfaction, harvest success, decoy goose hunting

INTRODUCTION

An important measure of success for wildlife managers is hunter satisfaction, and U.S. hunter satisfaction has long been assumed to be equivalent to success in

bagging game (Stankey et al. 1973). In the early 1970's the concept of multiple satisfactions was introduced, suggesting that hunters seek and receive a variety of benefits from hunting in addition to harvesting game (Brown et al. 1977; Decker et al. 1980; Hautaluoma and McPhail 1977; Hendee 1974; Potter et al. 1973; Stankey et al. 1973). The multiple satisfaction approach led to research designed to quantify and explain the relationship between harvest success and hunter satisfaction (Gigliotti 2000; Langenau et al. 1981; Vaske et al. 1986). However, Vaske, et al. (1986) noted that most studies focused on multiple satisfactions associated with deer hunting and suggested that many types of hunters and hunting should be evaluated to determine the relevance of multiple factors that may contribute to their satisfaction. For example, the relationship of harvest success and satisfaction may be different for big game hunters when compared to hunters of game species with a bag limit of more than one, such as geese.

Research regarding the role of harvest success for producing a quality hunting experience for big game hunters (e.g., deer, elk and turkey) has suggested that harvest success does in fact increase hunter satisfaction for many types of hunters; however, hunter perceptions of game abundance were generally better predictors of hunter satisfaction than harvest success (Gigliotti 2000; Miller and Graefe 2001; Siemer et al. 1996; Tynon 1997). Brunke and Hunt (2008) reported that harvest was strongly correlated with satisfaction of waterfowl hunters as were meeting expectations and seeing waterfowl (i.e., perceived abundance). The role of harvest success on satisfaction is a dynamic, complex relationship rooted in hunter typologies (e.g., hunter typologies based on dimensions of experience level, intensity, specialization, or motivation), game species involved, site-specific situations, and past hunting experiences (Gigliotti 2000). Fully understanding the relationship between hunting harvest success and satisfaction requires a range of studies across many different types of hunting experiences and settings.

The primary purpose of this paper is to identify any existing relationships of harvest success and satisfaction for a sample of former participants who hunted on a structured, limited-entry, public, field-decoy goose hunting operation conducted during 2002–2011 in central South Dakota.

STUDY AREA

Most quality locations for field goose hunting along the Missouri River in central South Dakota are on posted, private lands; thus, it is difficult for goose hunters to pursue this species without using a commercial operation. The Lower Oahe Waterfowl Hunting Access Area (LOWHAA) is managed with a package of varied goose hunting opportunities. It is located approximately 15 miles north of Pierre, South Dakota, and designed to provide quality public field goose hunting along the Missouri River. The LOWHAA was established in 1998 following directives from the 1998 Legislature, specifically House Concurrent Resolution 1003, which outlined two primary objectives: 1) to provide new quality waterfowl areas for hunters who cannot, or will not, pay for a commercial hunt, and; 2) to develop these areas through cooperative lease agreements with private landowners.

The LOWHAA provides pass-shooting on the bluffs, hunting zones adjacent to cropland feeding areas, shooting strips next to an existing refuge, and field hunting with decoys. To fund this package of public goose hunting opportunities, the Legislature authorized the Game, Fish and Parks Commission to issue up to 2,000 new, restrictive non-resident waterfowl licenses. Unlike the existing quota of 4,000 10-day licenses, these new licenses are valid only on private land and only for three consecutive days. This arrangement benefits South Dakota residents by providing quality public waterfowl hunting opportunities paid for by nonresident waterfowl hunters. Nonresident waterfowl hunters benefit by having additional waterfowl hunting opportunities in South Dakota, because the demand for waterfowl licenses was greater than the existing quota of 4,000 licenses. In turn, local commercial goose hunting operations benefited from the additional nonresident hunters this arrangement brought to the area.

The South Dakota Game, Fish and Parks (SDGFP) staff involved with the development, management and evaluation of the LOWHAA focused on providing a quality waterfowl hunting experience for the public. The design of the LOWHAA (e.g., regulations, spacing of shooting pits, and limited entry for some units) reduced the chances that hunters would feel crowded. Evaluations conducted in the first few years of operation identified areas for improvement; for example, "sky-busting" (i.e., hunters shooting at geese out of effective shotgun range) was mentioned as a factor contributing to dissatisfaction by some hunters. In response, the agency emphasized the need for ethical behavior by hunters using this public area and provided information in the LOWHAA guide book on how to judge distances when shooting at geese, including providing rangefinders on loan (free) to hunters.

Hunters also complained that the corn crop harvest operations in the fields of the decoy-only hunting left stubble that was so tall that it discouraged geese from landing. Subsequently, the SDGFP worked with cooperators to ensure that future farming practices left the fields in more suitable conditions for field-decoy goose hunting. In addition, goose decoys were also available for loan (free) to hunters to use or supplement their own decoys. Overall, the decoy-only unit of the LOWHAA provides some public hunting opportunities with many amenities otherwise available only from commercial operations.

The SDGFP evaluated hunter use and opinions of the area using a site-intercept personal interview and a follow-up mail survey to collect information from hunters in 1998 and 1999 (Gigliotti 1998, 1999). Because conducting a site-intercept survey was expensive, it was discontinued after the second survey year. However, hunters using the decoy-only unit were still required to provide daily registration from which some information could be collected from these hunters at low expense.

The LOWHAA provided access to a variety of potential goose hunting opportunities; however, certain weather conditions or hunting patterns could cause the geese to abandon the area. Although hunting access could be restricted to limit hunting pressure to hold geese in the area, the effects of weather conditions were unmanageable. It was assumed that if hunter harvest was relatively high in the decoy-only unit, then geese were using the area, and hunter use and harvest

would also be relatively high in the other types of hunting opportunities in the LOWHAA. Thus, evaluation of the decoy-only unit could serve as a surrogate measure for the entire LOWHAA.

METHODS

Registration at the decoy-only unit required each hunting party to designate a group leader to complete a registration card, pick a field number, and receive a postage-paid report card. Group size was initially limited to four hunters, but was increased to six hunters in 2003. The report card identifies the field number hunted, date of the hunt, party-size, number of geese (and ducks) harvested, and a measure of the group's satisfaction with their hunting experience for that day. Most harvest report cards were turned in at the registration trailer, whereas a few were returned via the mail (85% average harvest report card return rate for the study period 1998 – 2011). This process measured hunter use, harvest, and satisfaction for the decoy-only hunting portion of the LOWHAA.

Satisfaction was measured using a 7-point scale (scale recoded: very dissatisfied = -3, moderately dissatisfied = -2, slightly dissatisfied = -1, neutral = 0, slightly satisfied = 1, moderately satisfied = 2, very satisfied = 3). All data reported herein have been summarized from annual human dimensions reports available from the SDGFP. Participation data were available from the beginning of the project (1998) through 2011. Harvest data analyzed by satisfaction were available only for 2002–2011. Data used in the correlation between satisfaction and harvest rate were obtained from raw data for 2003–2006 and 2008–2011 combined. Group success was calculated based on the average number of geese harvested by the hunting parties. Also, groups were classified as successful if the group harvested one or more geese and unsuccessful if the group did not harvest any geese. Harvest rate was calculated as the average number of geese harvested by individual hunters (group harvest / party size).

RESULTS

Participation at the decoy-only unit of the LOWHAA increased in 2003 and remained relatively high, as did harvest, when compared to the previous five years (1998 – 2002) (Figures 1 and 2). Harvest rate (geese harvested per group and per person) followed a similar pattern, with the exception of also having a relatively high harvest rate in 2000 (Figure 3). Mean satisfaction of hunters from 2003 through 2011 was relatively high compared to the previous five years (Figure 4).

From 2002 through 2011 harvest data were analyzed by satisfaction level (Table 1). Overall, 82% of the hunters using the decoy-only unit of the LOWHAA were satisfied and harvested 95% of the total geese harvested in the decoy-only unit. Satisfaction was strongly related to the number of geese harvested by the group (Figure 5) and most of the satisfied hunting groups were successful in harvesting one or more geese, whereas most of the dissatisfied hunting groups were unsuccessful in harvesting any geese (Table 1). Pearson correlation between satisfaction

and average harvest per hunter was 0.420 (n = 3,207). However, harvest success was not a requirement for all hunters; 19% of the hunter groups that reported being “very satisfied” had not harvested any geese.

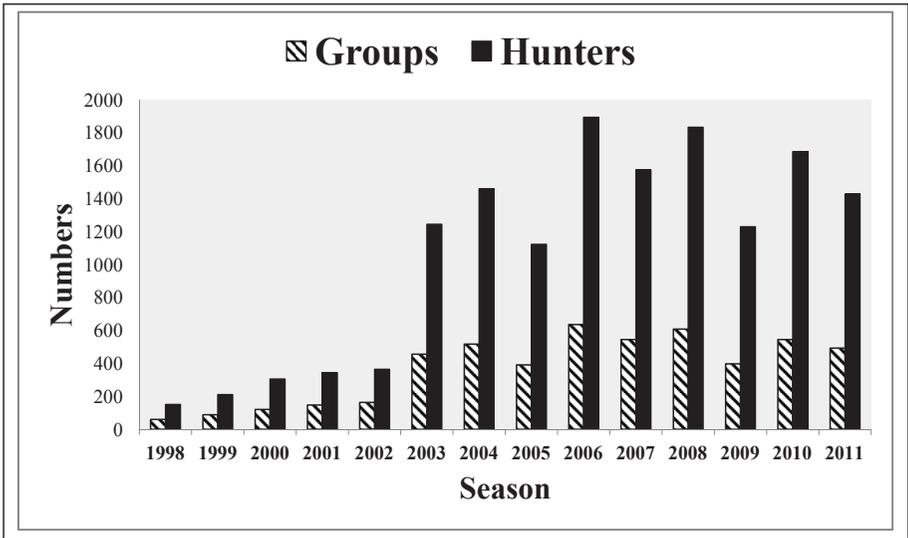


Figure 1. Use of the decoy-only unit of the Lower Oahe Waterfowl Hunting Access Area for the 1998 – 2011 seasons (NOTE: maximum group size increased from 4 to 6 hunters in 2003).

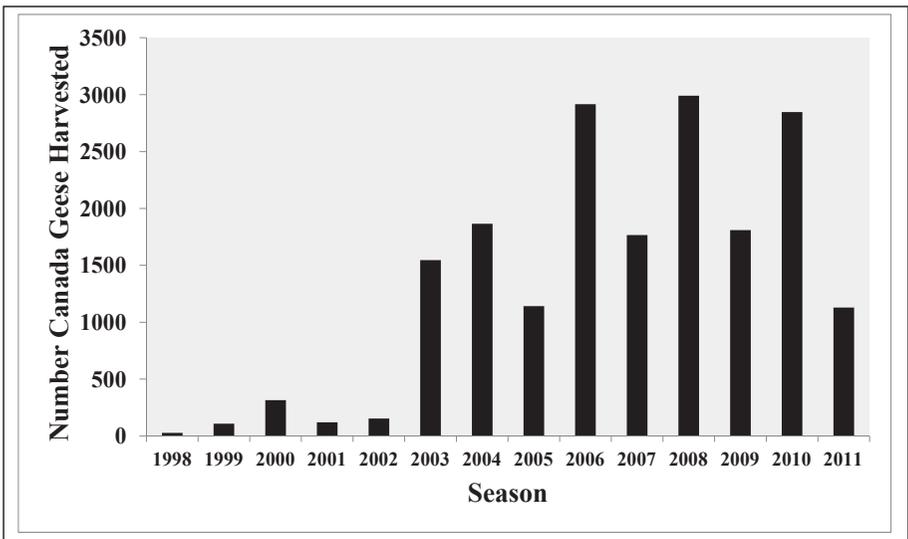


Figure 2. Canada geese harvested from the decoy-only unit of the Lower Oahe Waterfowl Hunting Access Area for the 1998 – 2011 seasons.

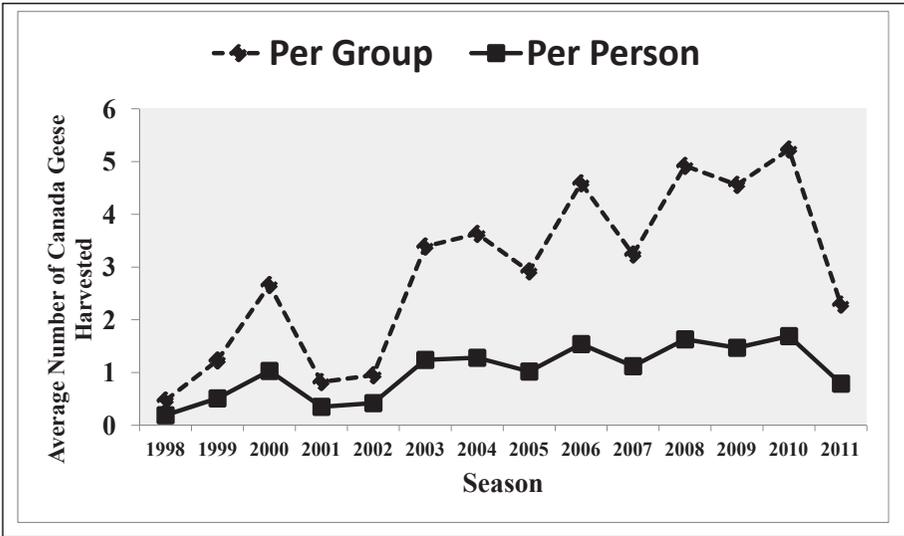


Figure 3. Average number of Canada geese harvested (per group & per person) from the decoy-only unit of the Lower Oahe Waterfowl Hunting Access Area for the 1998 – 2011 seasons.

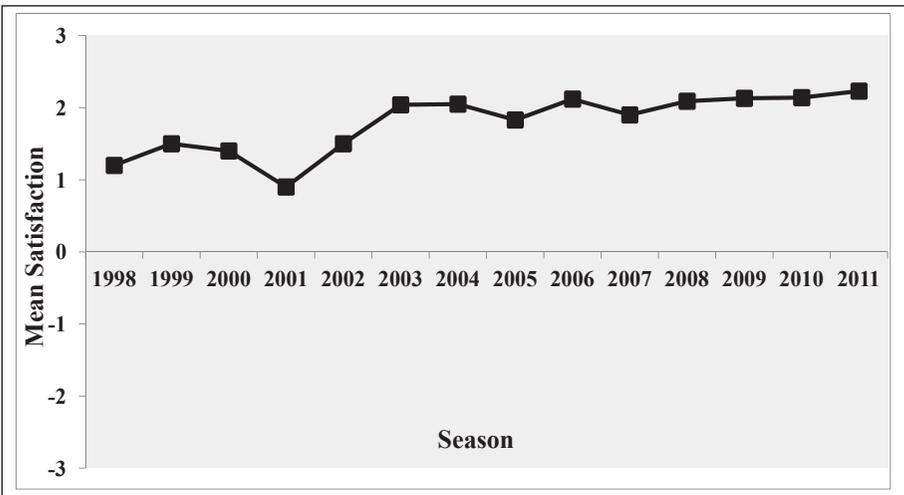


Figure 4. Mean satisfaction of hunters using the decoy-only unit of the Lower Oahe Waterfowl Hunting Access Area (1998 – 2011). [Scale: Very Satisfied = 3; Moderately Satisfied = 2; Slightly Satisfied = 1; Neutral = 0; Slightly Dissatisfied = -1; Moderately Dissatisfied = -2; Very Dissatisfied = -3]

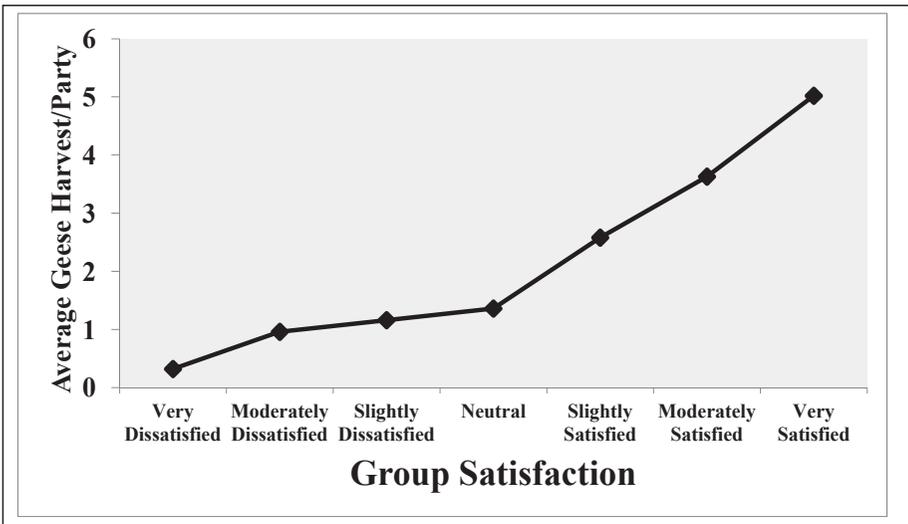


Figure 5. Average number of geese harvested by satisfaction level of groups using the decoy-only unit of the Lower Oahe Waterfowl Hunting Access Area for the combined seasons 2002 – 2011.

Table 1. Summary of the number of hunting groups and harvest analyzed by satisfaction level using the decoy-only unit of the Lower Oahe Waterfowl Hunting Access Area from 2002 through 2011.

Satisfaction	Number of Hunting Groups	Percent of Hunting Groups	Number of Geese Harvested	Percent of Geese Harvested	Group Harvest Rate	Percent Successful
Very Satisfied	2,169	57%	10,887	74%	5.02	81%
Moderately Satisfied	595	16%	2,158	15%	3.63	71%
Slightly Satisfied	324	9%	835	6%	2.58	63%
Neutral	503	13%	686	5%	1.36	36%
Slightly Dissatisfied	107	3%	124	1%	1.16	36%
Moderately Dissatisfied	54	1%	52	<1%	0.96	35%
Very Dissatisfied	44	1%	14	<1%	0.32	18%
Total	3,796	100%	14,756	100%	3.89	69%

DISCUSSION

This case study of the relationship between harvest success and satisfaction examines a situation which offers free access to field decoy goose hunting opportunities in an area in which most other similar opportunities are commercial operations. In addition, many other amenities are provided by the SDGFP in an attempt to provide a “quality” hunting experience, such that only the presence of geese available for harvest was left to chance. The multiple satisfactions concept of hunters seeking and receiving a number of benefits from hunting other than simply bagging game (Hendee 1974) might suggest little relationship between harvest success and satisfaction, reasoning that even unsuccessful hunters would be satisfied just having free “quality” field decoy goose hunting opportunities. However, my results show a strong relationship between harvest success and satisfaction for hunting groups using the decoy-only unit of the LOWHAA.

A number of possible reasons may explain the strong relationship between harvest success and satisfaction for this field decoy-goose hunting opportunity. First, this hunting opportunity eliminated many of the factors that may cause dissatisfaction, with the exception of harvesting geese; thus, harvest success is the most logical metric by which a hunter could evaluate their satisfaction with the experience. Further, when satisfaction is measured at the end of the experience, as in this study, the day’s harvest may be more salient and immediately impressive on the hunter, which would strongly relate to satisfaction as opposed to measuring satisfaction at the end of the season (Manfredo 1984; Vrtiska et al. 2010). Second, setting up decoys for field hunting requires a lot of effort which may increase participants’ expectations for success. If that effort does not result in harvest (i.e., a reward), then hunters may be less likely to be satisfied. Third, nature enjoyment is often considered an important contribution to satisfactions when measured for deer hunting (Gigliotti 2000; Gigliotti and Metcalf 2016; Hautaluoma and Brown 1979). However, sitting in a cornfield may not be as aesthetic compared to spending time in a forested environment, and thus, other factors, such as harvest success, may play a larger role in contributing to field goose hunters’ overall satisfaction with their hunting experience.

Fourth, hunter expectations may play a large role in satisfaction (Brunke and Hunt 2007, 2008). For example, hunters in this study tended to not use the decoy-only unit unless they had evidence that geese were in the area. Local hunters often scouted the area to locate which fields in the decoy-only unit geese were using before planning a hunt in this unit. When geese were in the area, it is likely that word spread quickly, which may have resulted in high expectations for success of hunters arriving at decoy-only unit. High expectations for success can lead to dissatisfaction if those expectations are not met (Brunke 2007; Brunke and Hunt 2007, 2008).

Hunter typology based on motivations for hunting can improve our understanding of satisfaction (Gigliotti 2000). Some hunter types place more emphasis on harvest success, while for other hunter types, satisfaction is influenced more by such factors as nature enjoyment or social interaction. Although hunter motivations were not measured in this study, it did identify some unsuccessful groups of

hunters who reported being satisfied with their hunting experience for the day. A better understanding of the satisfaction of this segment of hunters may identify factors that managers can influence in order to maintain or to increase hunter satisfaction (Stafford et al. 2010).

Future Research. Although we found a strong relationship between harvest success and hunter satisfaction with their daily hunting experiences for this decoy-only goose hunting unit, we also identified a subgroup of unsuccessful hunters who were very satisfied with their daily hunting experiences. The multiple-satisfaction approach for understanding hunter behavior states that hunters seek/receive many benefits from their hunting experiences (Hendee 1974). Research that addresses these questions can add insight into the multiple-satisfaction approach and may identify additional strategies for agencies to increase participant satisfaction. One avenue of research that may improve understandings of the relationship between harvest success and hunter satisfaction involves various personality theories (House 1977; House and Mortimer 1990; McLeod and Lively 2006). For example, locus of control, which defines the degree of control (or lack of control) that an individual feels they have over outcomes, may partly explain how they evaluate their hunting experience (Rotter 1966). Acquiescence, the tendency to agree, is another personality concept that may introduce bias in satisfaction surveys (Mirowsky and Ross 1991). Degree of contentment with one's social or economic status may influence how an individual evaluates various experiences (Ross and Mirowsky 1992; Ross and Van Willigen 1997). Also, group structure and dynamics may play a role in defining the relationship between harvest success and hunter satisfaction (Berger et al. 1972; Deutsch 1949; Riley and Burke 1995).

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