

## Findings Abstract

# Comparing a Convenience Sample Against a Random Sample of Duck Hunters

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*State wildlife agencies frequently host public meetings to gather feedback from stakeholders. We investigated differences between duck hunters attending public open houses and duck hunters statewide regarding changes in the regulatory framework for duck hunting seasons in Illinois. We administered two separate surveys to investigate potential differences between attendees at the open houses and a random sample of waterfowl hunters in Illinois. Open-house participants hunted significantly more days than mail-back participants and harvested more mallards than mail-back participants. Additionally, open-house participants hunted significantly more counties than mail-survey participants and had been hunting for more years. It is important that state wildlife agency managers understand participants in public meetings may not represent the general population, and interpreting input received from these forums should be used with caution.*

**Keywords** public involvement, hunting, stakeholders, wildlife agencies, wildlife management

Public input is essential for sound natural resources management. Attendees to public meetings, however, may not represent the population of interest (Gundry & Heberlein, 1984; Johnson, Johnson, Edwards, & Wheaton, 1993; McComas & Scherer, 1998; McComas, 2001; Cornicelli & Grund, 2011). We compared survey responses from duck hunters attending public open houses to those from a statewide random sample regarding changes in the regulatory framework for duck hunting seasons in Illinois.

Illinois is approximately 400 miles north to south. The Illinois Department of Natural Resources (IDNR) delineated their single waterfowl zone into two waterfowl zones (North and South zone) in 1977, followed by the addition of a third zone (Central) in 1980 (Havera, 1999). Recently, hunters in the northern portion of the South zone expressed their desire for an earlier opening date, and hunters in the southern portion of the South zone indicated their preference for a later opening date. Consequently, the IDNR requested

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the U.S. Fish and Wildlife Service (USFWS) allow Illinois the option of having four waterfowl hunting zones with no split seasons, in place of the current three waterfowl hunting zones. Anticipating approval from the USFWS, biologists with the IDNR hosted informal open houses in five locations throughout Illinois to gather feedback from the public.

We administered two separate surveys to investigate potential differences between attendees at the open houses and a random sample of Illinois waterfowl hunters. A mail survey was administered to 4,723 randomly selected buyers of the 2009–2010 Illinois State Waterfowl Stamp following the close of the 2010–2011 season (response rate = 54%,  $n = 2,558$ ). Identical questions regarding zones and season dates were administered to 483 participants of the IDNR open houses (June 2011) (response rate = 99%,  $n = 480$ ). In both surveys, respondents were asked to provide the number of counties hunted (continuous dependent variable) and the number of years hunting (continuous dependent variable). Attendees in the open house survey were presented with two categorical variables from which to select: number of days hunted (0, 1–10, 11–22, >22) and mallards harvested (0, 1–14, 15–36, >36) during the 2010–2011 duck season. Mail-survey respondents reported number of days hunted and mallards harvested as continuous variables and we recoded these variables to correspond to the categories of the respective variables with which open-house attendees were presented. The independent variable was open-house attendees versus mail-survey respondents. We included only those individuals who reported they hunted ducks during the prior season, and used the first county a respondent listed in our analysis of days hunted and mallard harvested. Hunters who filled out both open-house and mail-back surveys ( $n = 95$ ) were not included in the analyses. We measured effect sizes using Cramer's  $V$ .

Open-house participants hunted significantly more days than mail-survey participants ( $\chi^2 = 372.94$ ,  $df = 3$ ,  $p < .001$ ) and harvested more mallards ( $\chi^2 = 340.61$ ,  $df = 3$ ,  $p < .001$ ) than mail-survey participants (Table 1). For example, 48% of the open-house participants hunted more than 22 days and a quarter (24%) harvested more than 36 mallards. By comparison, only 10% of the mail-survey respondents hunted more than 22 days and only 3% harvested more than 36 mallards. The effect sizes for the distributions were substantial (Cramer's  $V = .44$  and  $.42$ , respectively, Vaske, 2008).

Independent samples  $t$ -tests suggested open-house participants hunted significantly more counties ( $M = 1.57$ ) than mail-survey participants ( $M = 1.31$ ,  $t = 5.37$ ,  $df = 490.39$ ,  $p < .001$ ). Open-house participants also hunted more years ( $M = 30.27$  years) than mail-survey participants ( $M = 22.01$ ,  $t = 8.38$ ,  $df = 1,792$ ,  $p < .001$ ).

Duck hunters at the open houses did not represent duck hunters randomly sampled in Illinois. Attendees hunted more years, more days, and counties during the 2010–2011 season, and harvested more mallards during the 2010–2011 season than mail-survey participants. Previous studies have suggested that the disparity between meeting participants and non-participants has resulted in participants being more critical of current management techniques and more likely to express opinions on management options than non-participants (Johnson et al., 1993). It is important that state wildlife agency managers understand participants in public meetings may not represent the general population, and interpreting input received from these forums should be used with caution.

**Table 1**  
 Comparisons of harvest and days hunted between open house attendees and statewide duck hunters in Illinois

	Days hunting				Mallards harvested					
	Open house (n = 376)	Mail survey (n = 1,586)	$\chi^2$	p	V	Open house (n = 376)	Mail survey (n = 1,586)	$\chi^2$	p	V
0	1%	15%	372.94	<.001	.44	13%	37%	340.61	<.001	.42
1-10	28	60				33	49			
11-22	23	16				31	11			
>22	48	10				24	3			

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