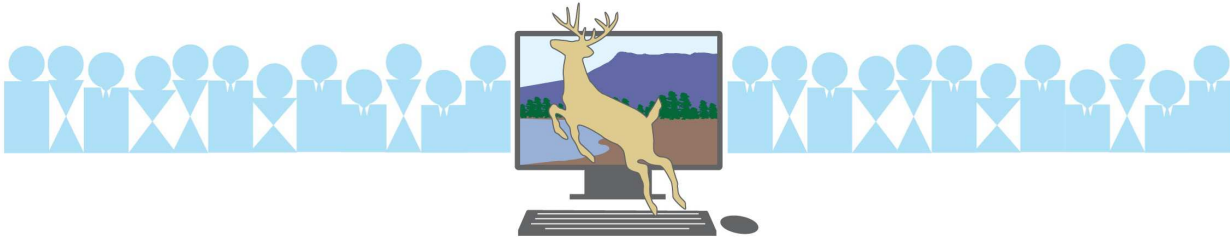


Responsive Management™



OPINIONS ON FISH, WILDLIFE, AND LAND USE AMONG VERMONT RESIDENTS, HUNTERS, AND ANGLERS

Additional Analysis of 2015 Survey

Conducted for Vermont Fish and Wildlife Department

by Responsive Management

2016

**OPINIONS ON FISH, WILDLIFE, AND LAND USE
AMONG VERMONT RESIDENTS,
HUNTERS, AND ANGLERS**

Additional Analysis of 2015 Survey

2016

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INTRODUCTION

This report presents additional analysis requested by the Vermont Department of Fish and Wildlife (hereinafter referred to as the Department) using data collected in a 2015 study. That 2015 study was conducted for the Department to determine the opinions of residents, hunters, and anglers on issues pertaining to the intersection of land use and the management of fish and wildlife. The study entailed three scientific telephone surveys of Vermont residents, hunters, and anglers.

The request from the Department is shown below.

The results of the 2015 Opinions on Fish, Wildlife, and Land Use Among Vermont Residents, Hunters and Anglers generally underscored the strength of both the department and its mission. However, the results suggested weakness with some demographic groups. Understanding and strengthening our relationships with these groups could be critical as the department attempts to widen its support among all Vermonters as traditional constituents, both in number and as a percentage of the population, decline.

Specifically, the survey suggested college-educated, higher income, and urban-suburban residents were less likely to support the department than Vermonters with lower incomes, less educational attainment and more rural homes. In most states, this would seem straightforward: rural vs. urban tension over hunting and trapping. However, educational attainment and income are more equally spread out in Vermont than in many states thus we can't assume they are tied with land use classification. In addition, Vermont has one of the highest levels of educational achievement and college-educated residents, as a proportion of the population, continues to increase. Median income is relatively flat over the last decade but also remains one of the highest in the country. Thus, if we are interpreting the survey results correctly, there is a clear need to learn more about the interaction of education, income and land use classification on long-term department support to determine where more work is needed.

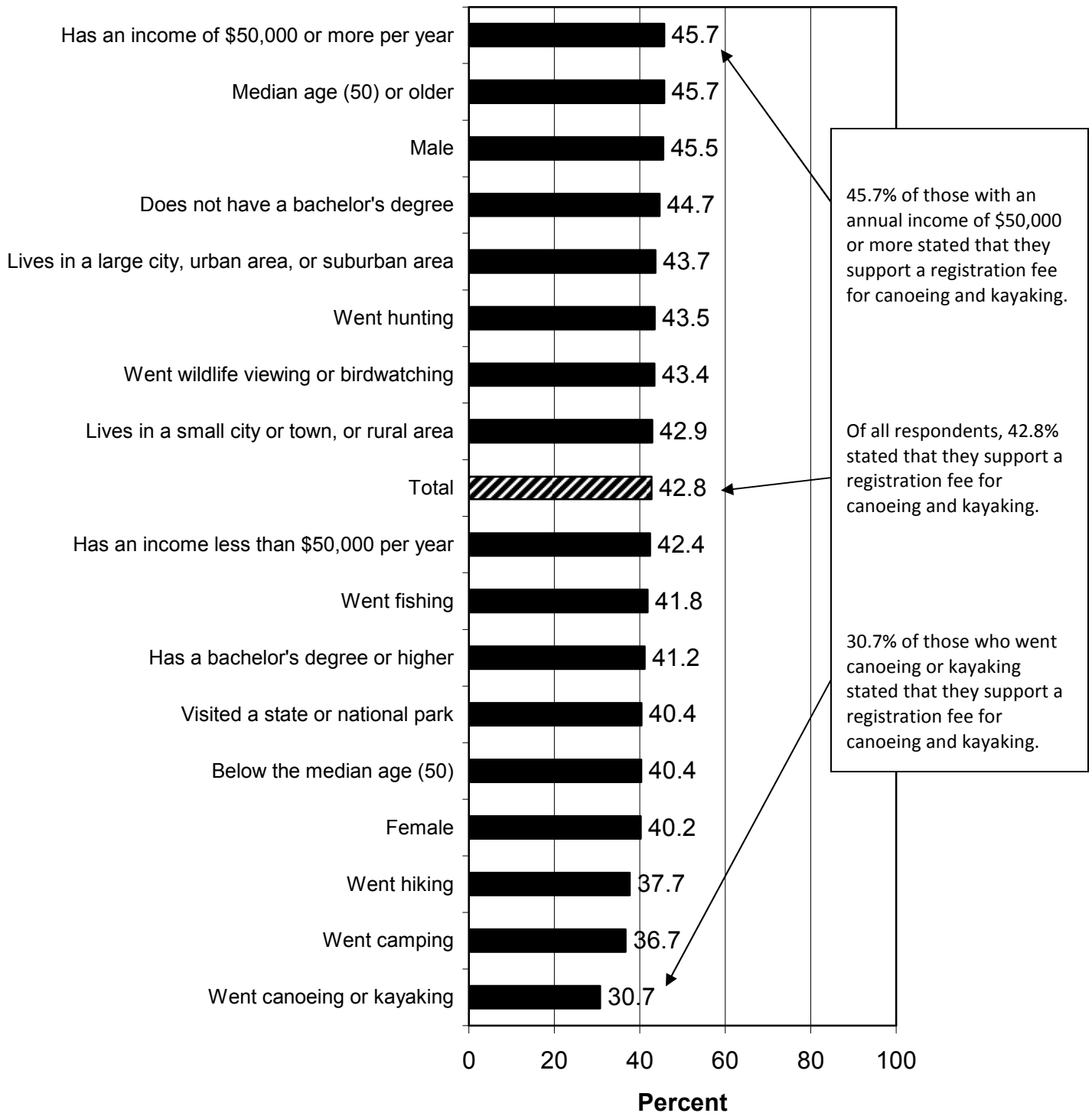
With the above request, the Department provided a list of questions requiring further analysis using the 2015 survey data. This report presents each question, followed by a brief response and associated graph and/or statistical analysis.

DEMOGRAPHIC CROSSTABULATIONS

Responsive Management conducted extensive crosstabulations to compare various subgroups within the data. These crosstabulations provided insights into demographic differences in attitudes and opinions regarding the Department and its operations.

Graphs are included that show how various demographic characteristics correlate with various responses. Each graph shows an overall result, and then it shows the result for that question among various demographic groups. Those groups at the top of the graph have a greater percentage giving a specific response, compared to respondents overall; those groups at the bottom of the graph have a lower percentage giving a specific response, compared to respondents overall. An example of a demographic correlation graph is provided on the following page.

Percent of each of the following groups who support a registration fee for kayaks and canoes as a funding source for conservation:



STATISTICAL ANALYSIS

For this report, nonparametric analyses were used to examine how the various responses related to behavioral, attitudinal, and demographic characteristics. Because of the use of post-stratification weights upon the data, AM Statistical Software was used for all inferential analyses due to its more appropriate handling of standard errors for complex samples (Hahs-Vaughn, 2005). Comparisons were examined using the Generalized Mantel-Haenszel Chi-Square test.

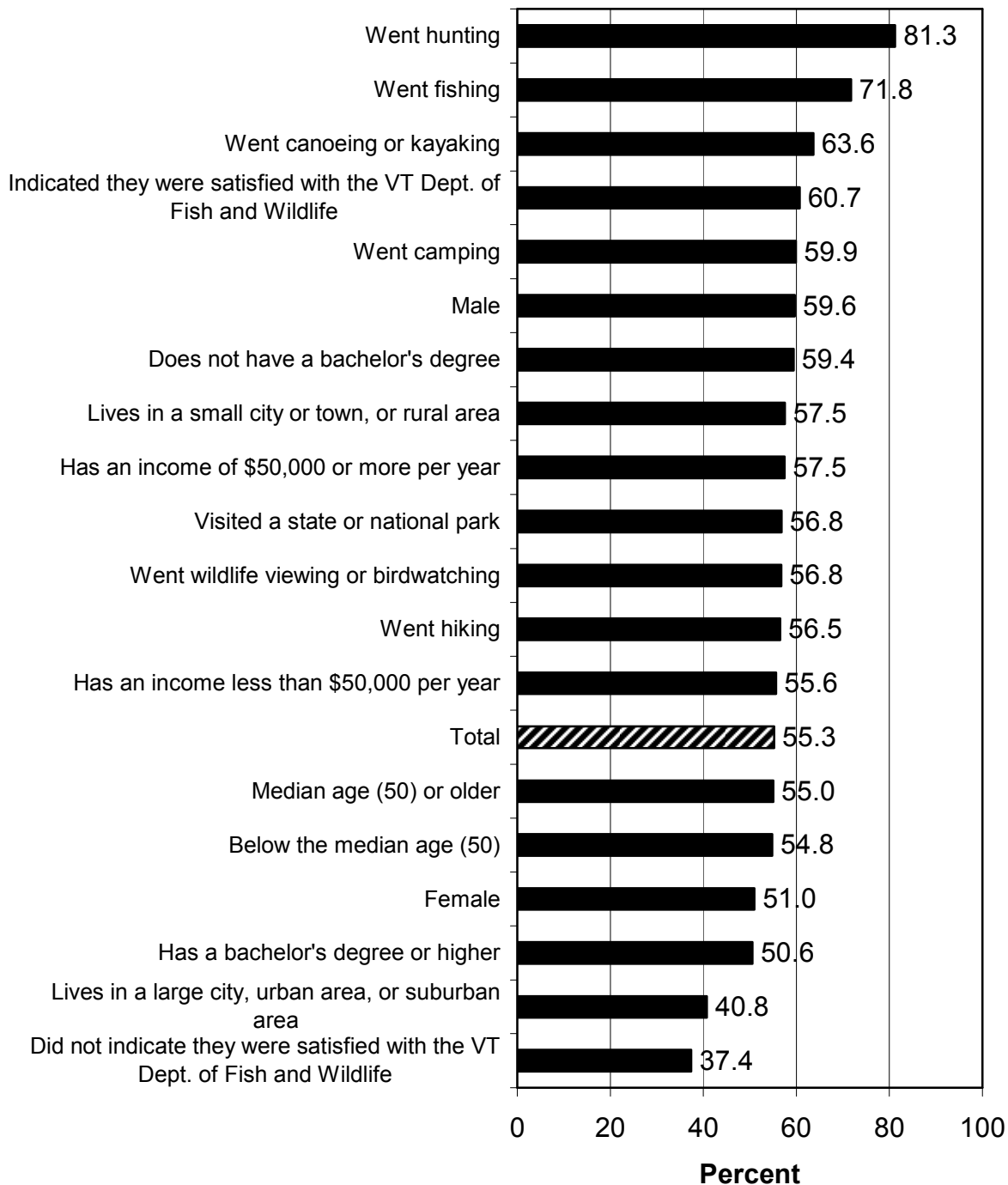
The *p*-values reported in the following section indicate the likelihood of the observed data given that no relationship between the noted variables exists within the population. For example, a *p*-value of <0.01 would indicate that the likelihood of finding the observed data purely by chance, assuming that no relationship actually existed in the true population, was less than 1%—which would in turn offer meaningful evidence that the observed relationship within the collected data is likely to reflect one that also exists in the population.

For the purposes of this report, an alpha level of 0.05 (5% risk of error) was used as a boundary to determine significance.

Are we interpreting the results of the survey correctly? Are there really problems?

Overall, satisfaction with the Department is quite high. Although the satisfaction rate is 76.6%, note that total dissatisfaction with the agency sits at only 2.9%. The remainder of those who did not indicate being satisfied either did not have an opinion or simply did not know enough to indicate satisfaction or dissatisfaction with the Department. When this knowledge is combined with the fact that satisfaction with the Department increases as knowledge of the Department increases, it would appear that the issue is the roughly 40% of respondents who indicated having a little knowledge or no knowledge of the Department prior to the survey. As the following graph indicates, only 37% of those who did not indicate satisfaction with the Department knew more than “a little” about the Department prior to the survey. The other outlier group in terms of knowledge is those who live in an urban or suburban area (41%); this group is discussed in-depth later in this report.

Percent of each of the following groups who knew "a great deal" or "a moderate amount" about the Department prior to the survey:



Which factor is most dominant on support: income, education, or land use classification?

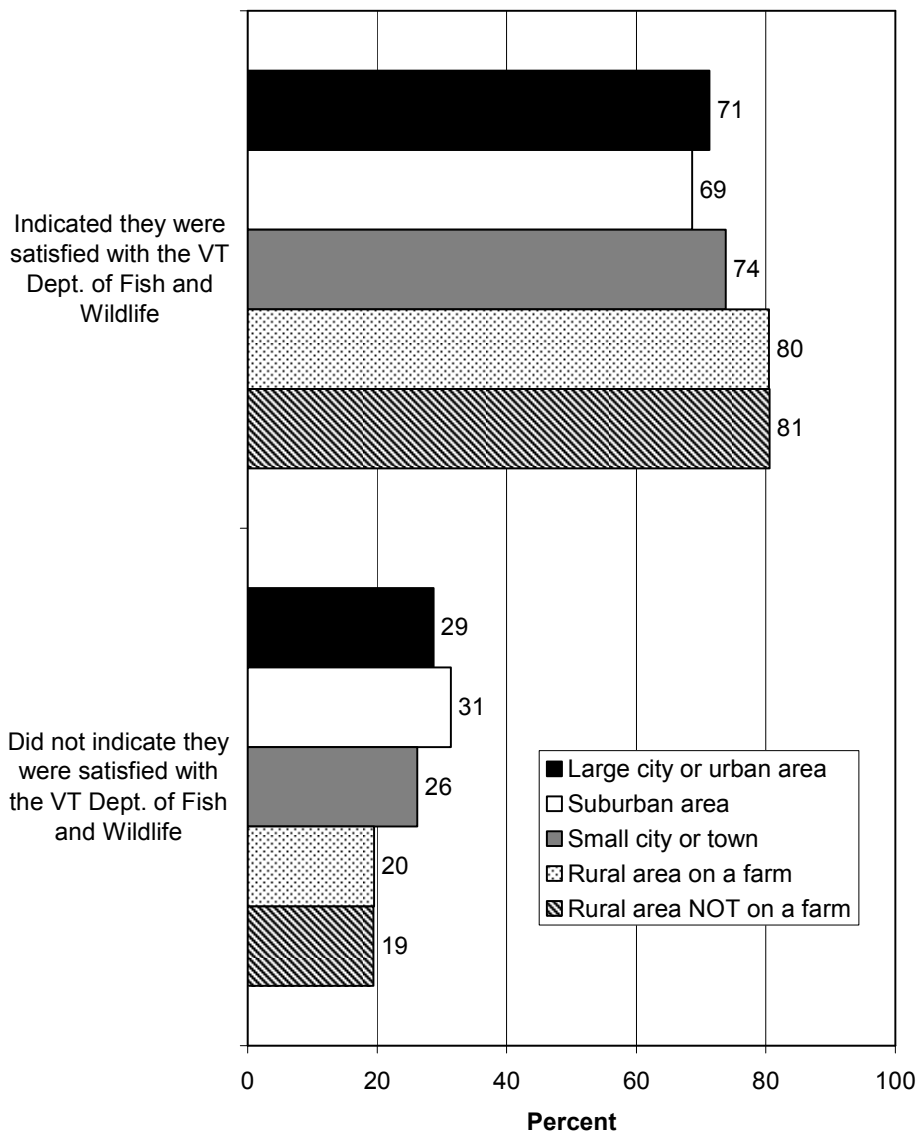
It is clear from the following graph that area of residence has the largest disparity within groups in terms of support for the Department, with an 8% difference between urban and rural residents. It should, however, be noted that this difference was tested statistically and found to not be significant.

Percent of each of the following groups who indicating being satisfied with the Department:

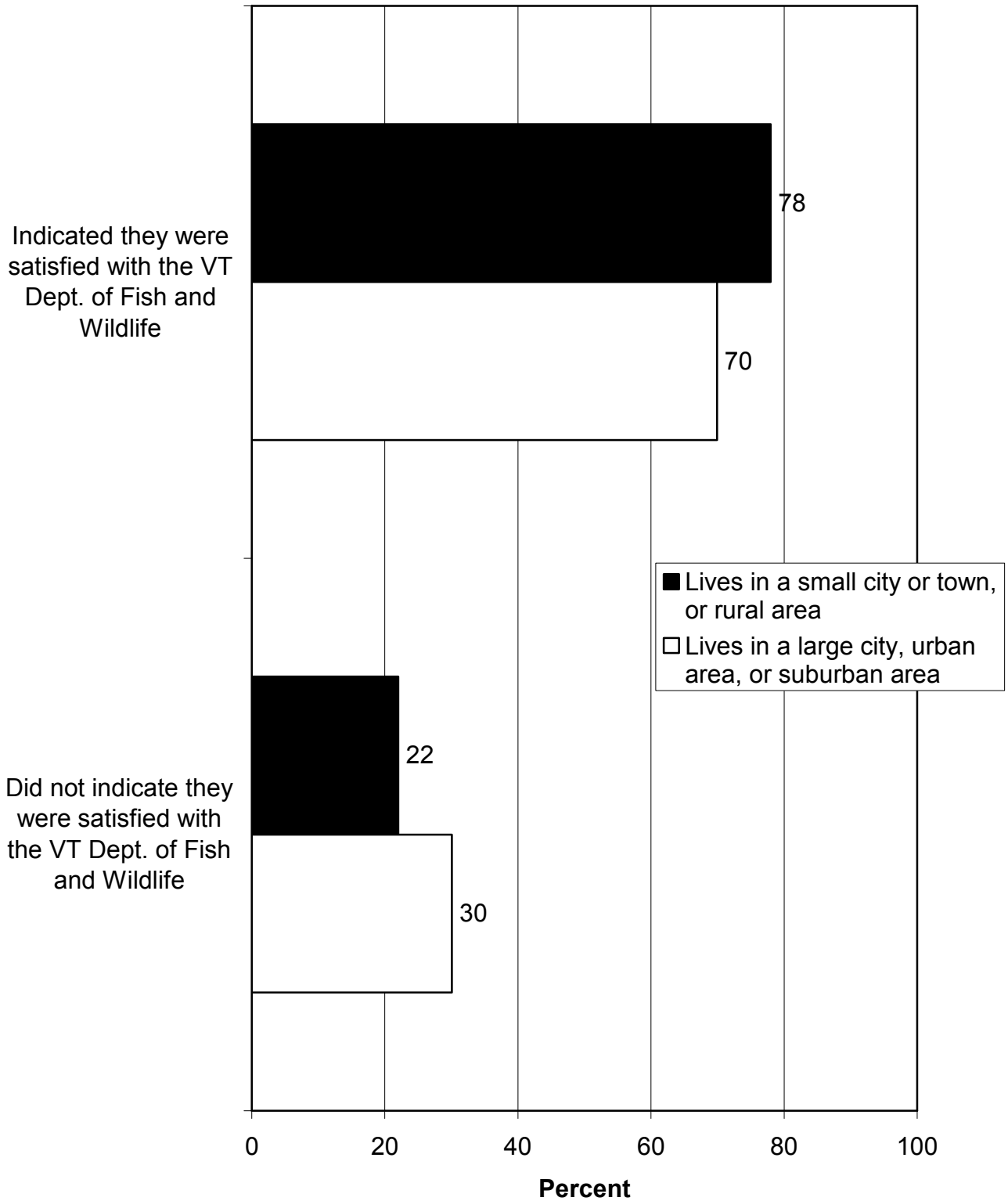
How does support compare to town size?

As illustrated in the following graph, satisfaction with the Department does appear to be related to land use / town size. When the choices are broken down into a binary choice of satisfied/dissatisfied and urban/rural (in which small city/town is counted as rural), 78% of rural respondents expressed satisfaction with the Department, compared with 70% of urban respondents. However, when a Chi Square test is run on this difference, it is not statistically significant ($p = 0.18$). This does not necessarily mean that this difference is not present in the population, but this data does not provide evidence to conclude that these two variables are associated. In this case, a p -value of 0.18 indicates that there is an 18% chance of this pattern occurring even if there is no true difference in the population.

Satisfaction with the Department.

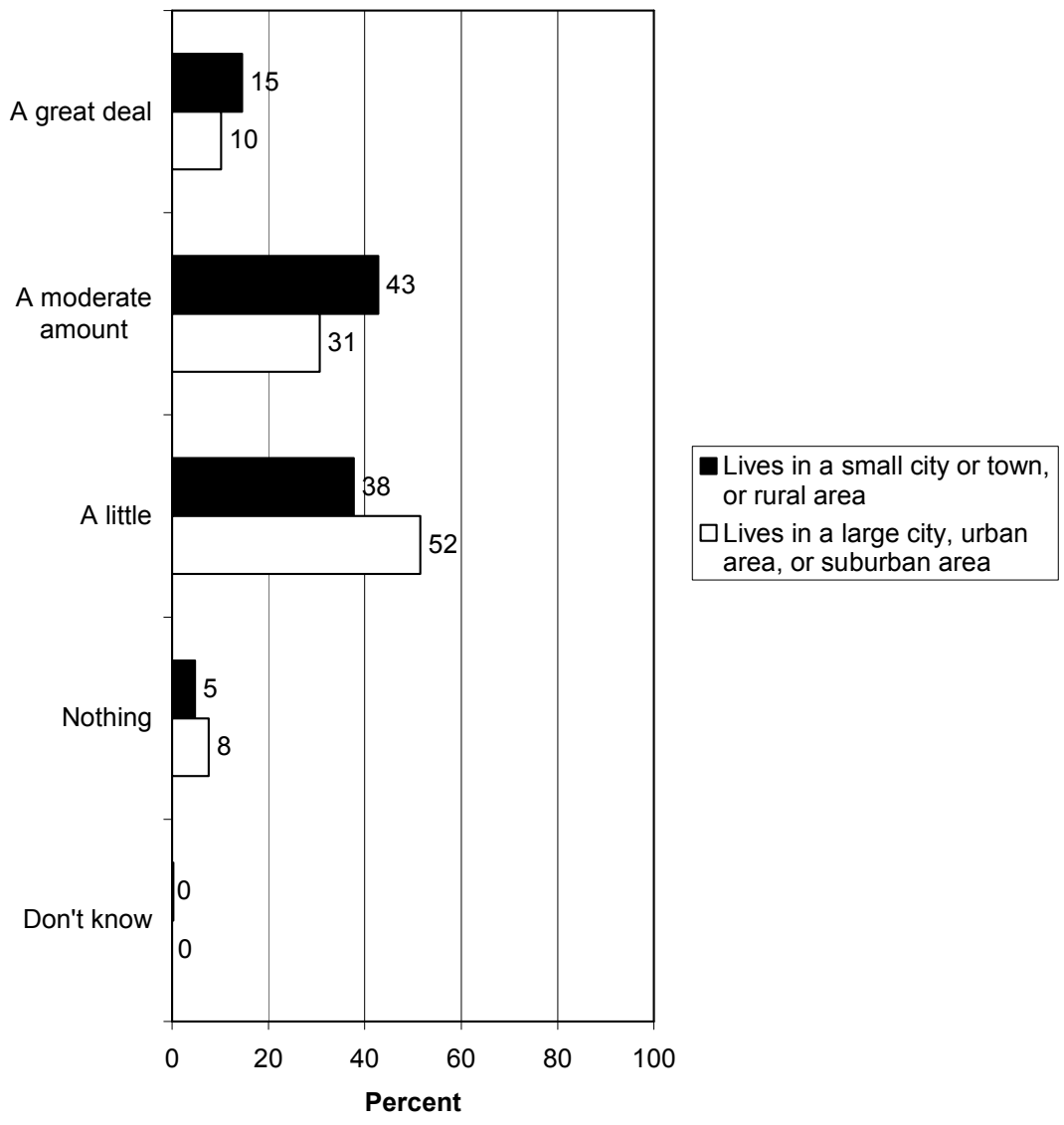


Satisfaction with the Department.

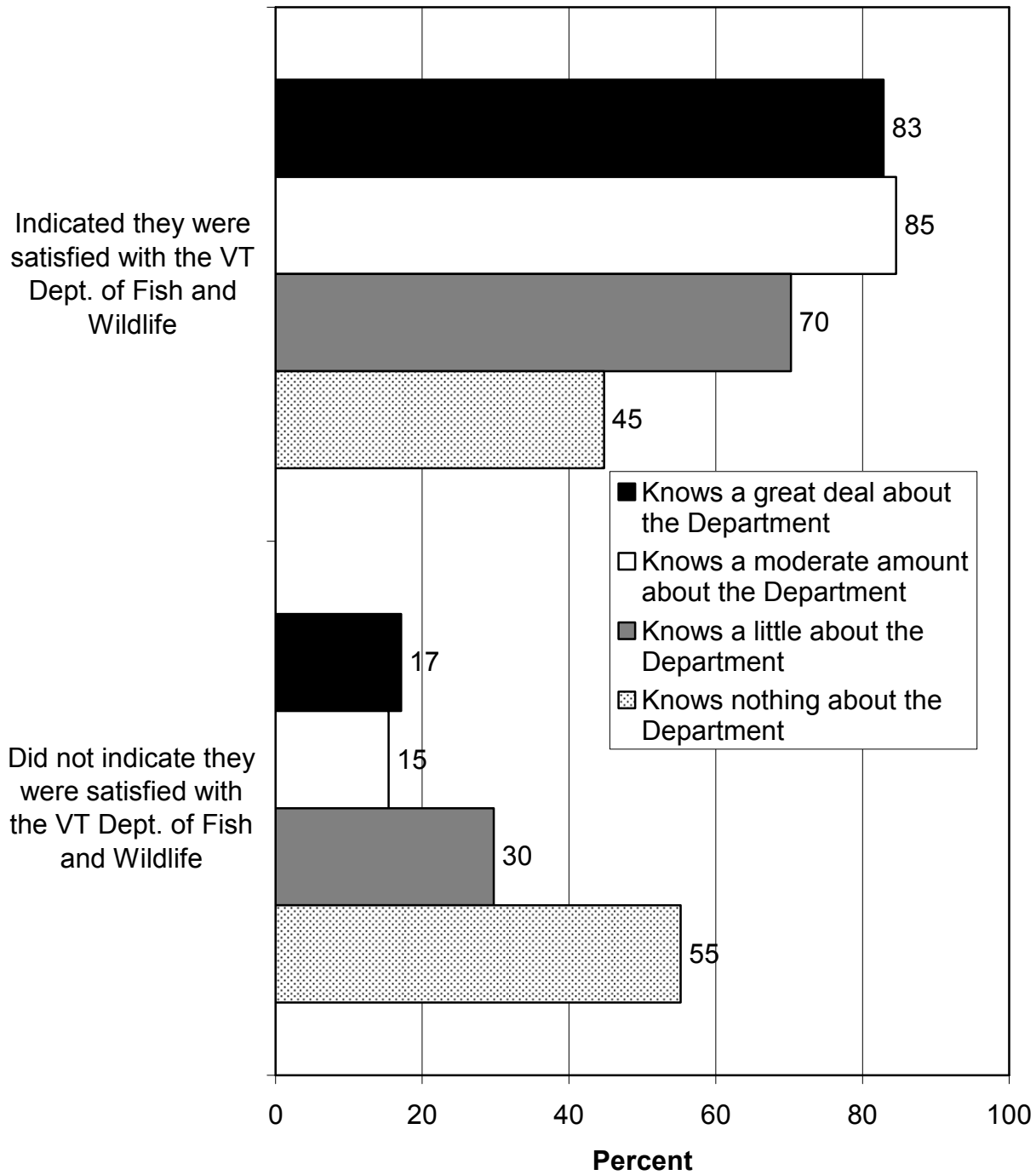


Circumstantial evidence indicates that the lower satisfaction with the Department in urban areas might be related to knowledge of the agency. As the following graphs show, knowledge of the Department is substantially lower among urban respondents than rural respondents, and satisfaction with the Department is closely linked with knowledge of the Department. This indicates that it is more likely that lower satisfaction with the Department among urban respondents is a result of lower knowledge of the Department’s actions rather than a negative reaction to the Department.

Q20. Before this survey, would you say you knew a great deal, a moderate amount, a little, or nothing about the Vermont Fish and Wildlife Department?



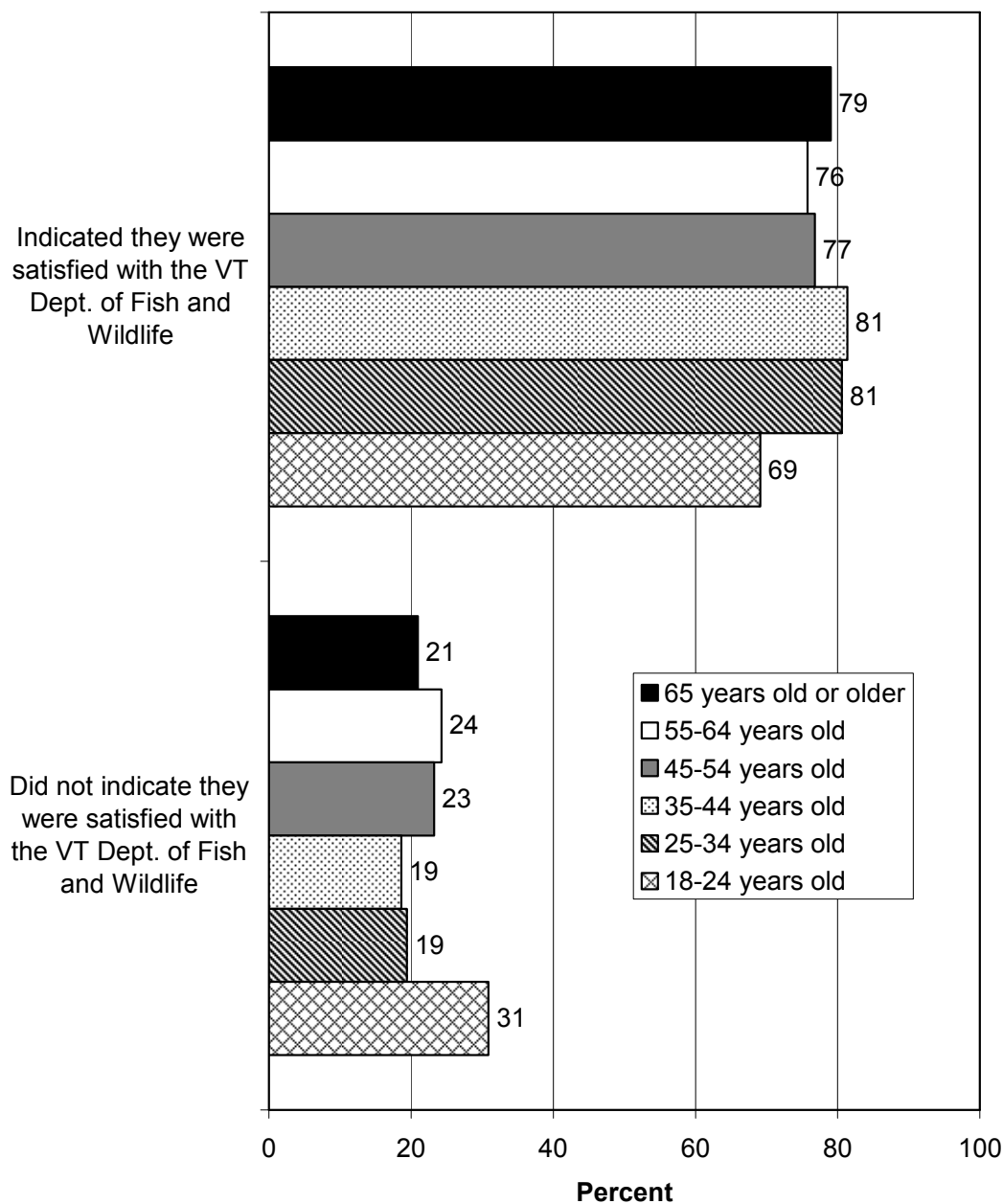
Satisfaction with the Department.



How does age interact with support?

Satisfaction with the Department does not vary notably by age category, with the exception of 18-24 year olds, who indicated a substantially lower level of satisfaction, although not one that is statistically significant ($p = 0.113$). It is also notable that this age group shows a low level of knowledge with the Department, with no respondents age 18-24 indicating that they know “a great deal” about the Department (graph not shown).

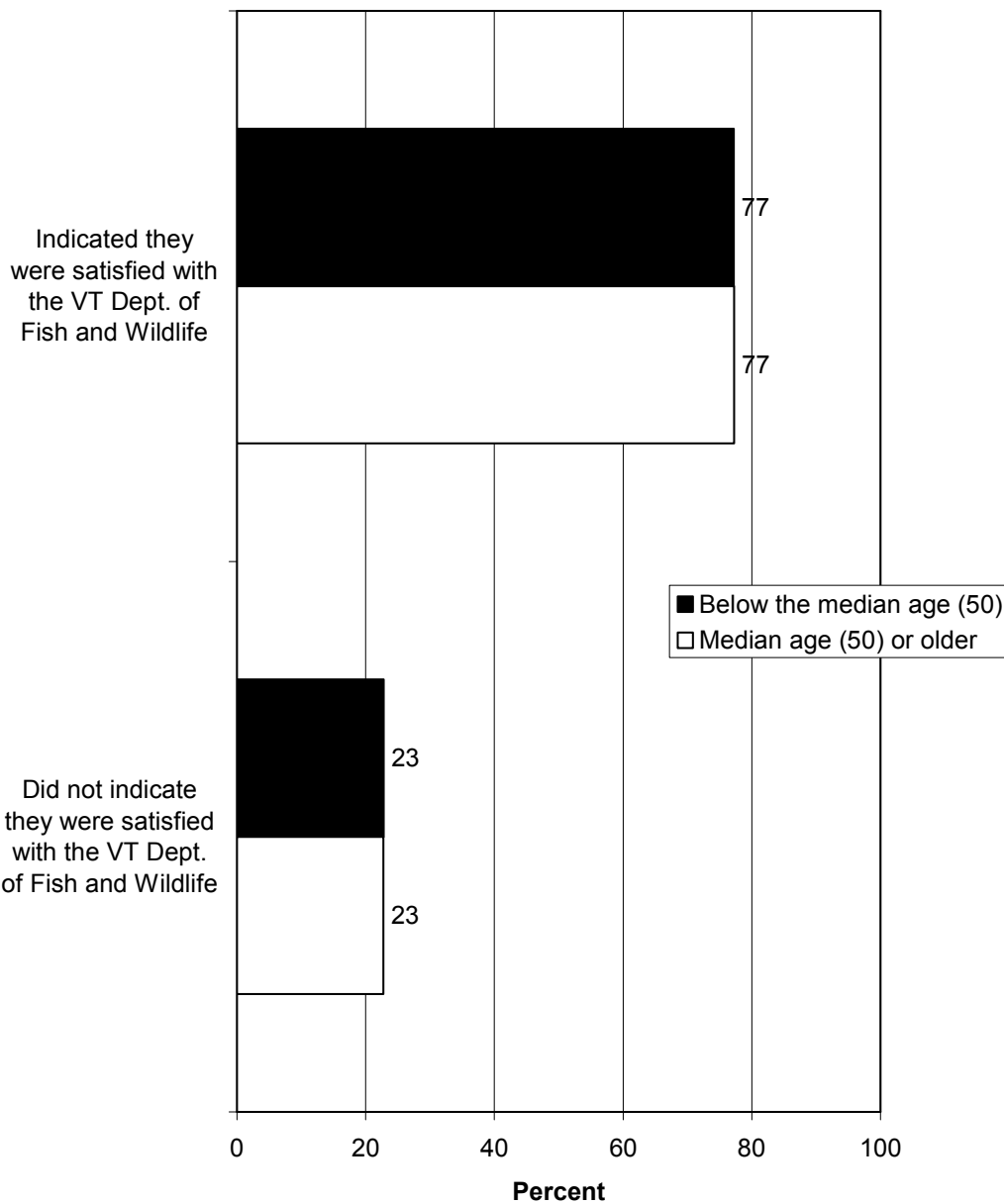
Satisfaction with the Department.



When age groups are broken down to those above and below the median age, the differences between ages completely disappear, with an equal percentage of those above and below the median indicating satisfaction with the Department (77% of each group).

Interestingly, while 35-44 year olds indicated satisfaction with the Department at one of the highest rates among all age groups, they were the least likely to support increasing funding for conservation programs, with 48% indicating that funding for conservation programs should be increased, compared to a mean of 62% across all age groups (graph not shown).

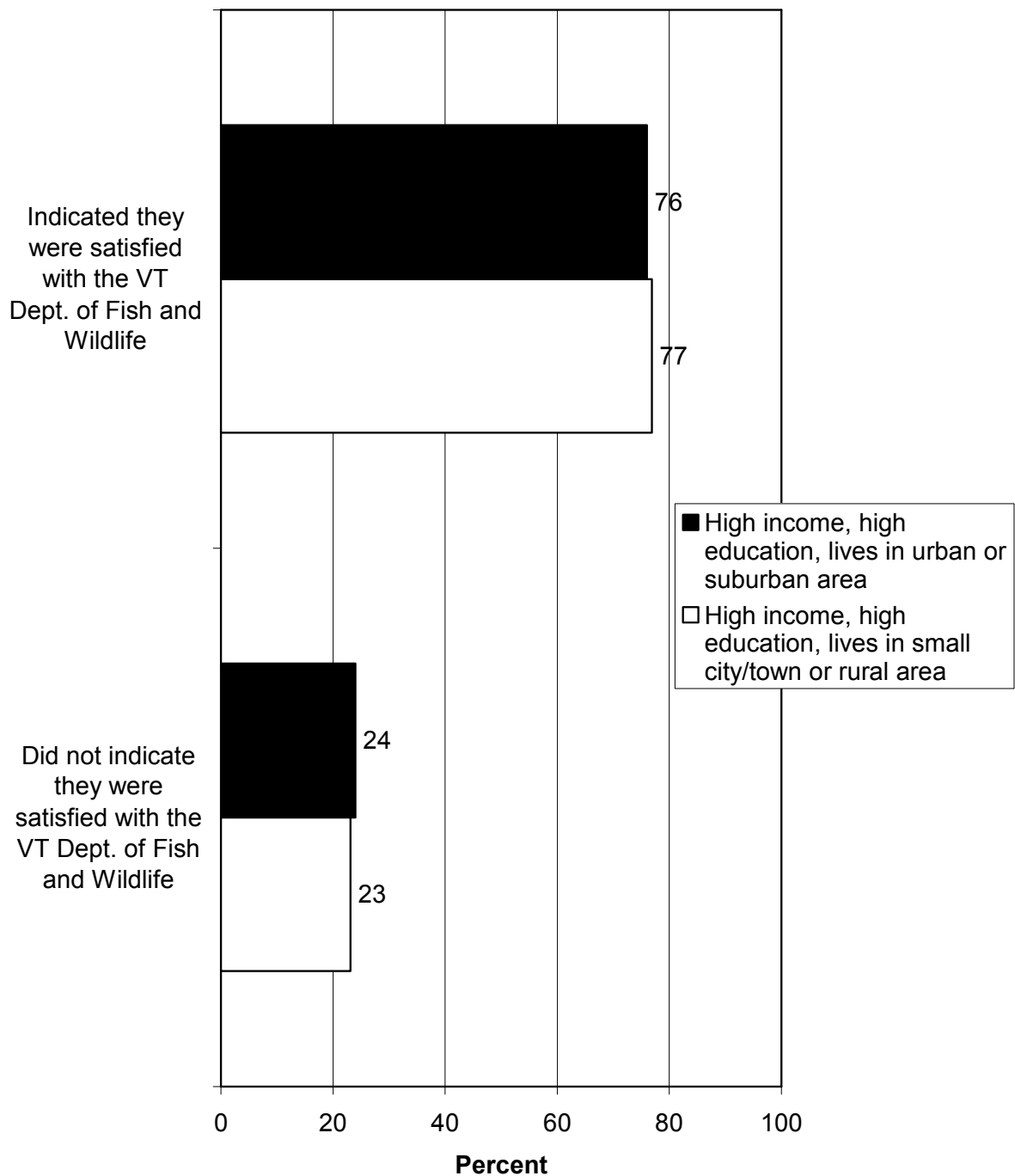
Satisfaction with the Department.



Does support among higher income, more educated Vermonters rise as town size decreases?

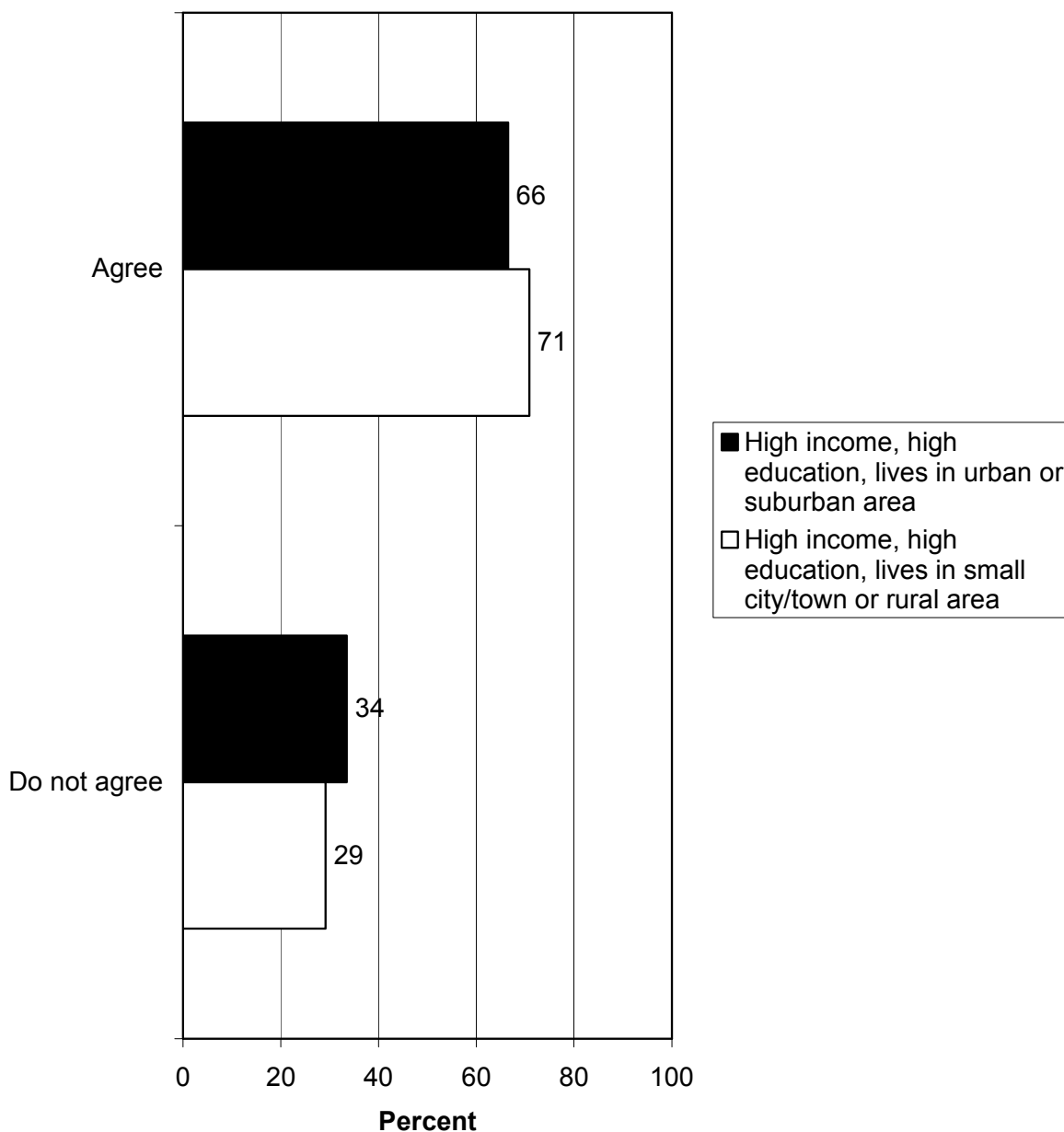
There are not any notable differences within this group in satisfaction with the Department.

Satisfaction with the Department.

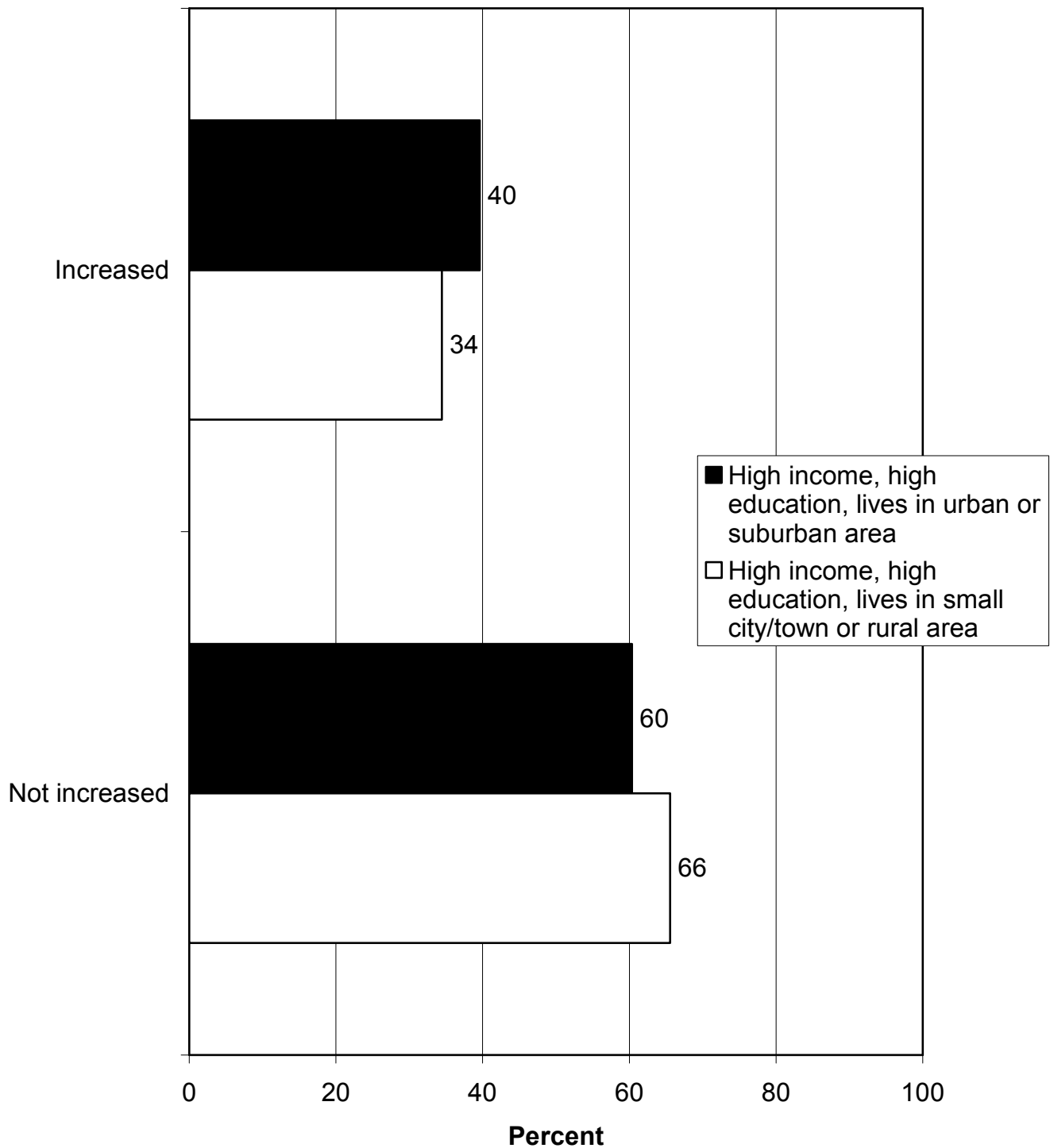


This group shows small variations in other questions concerning support for the Department and its goals, but these differences do not approach statistical significance.

Q60. Do you agree or disagree that the Department effectively balances the interests of anglers, hunters, conservation groups, and the general public?



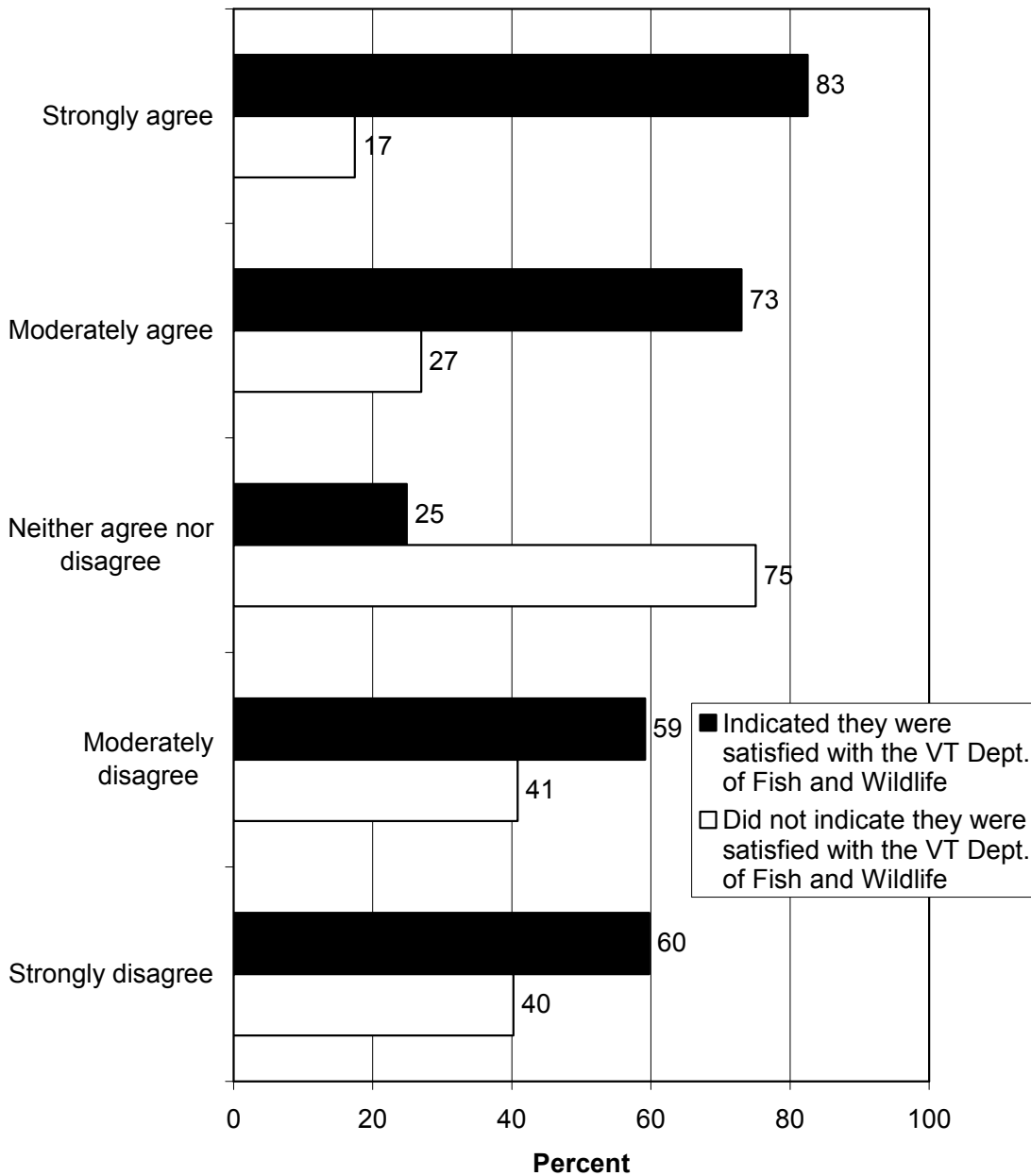
Q67. Should funding for fish and wildlife conservation programs be increased, decreased, or remain the same?



Is support for hunting and trapping related to Department support?

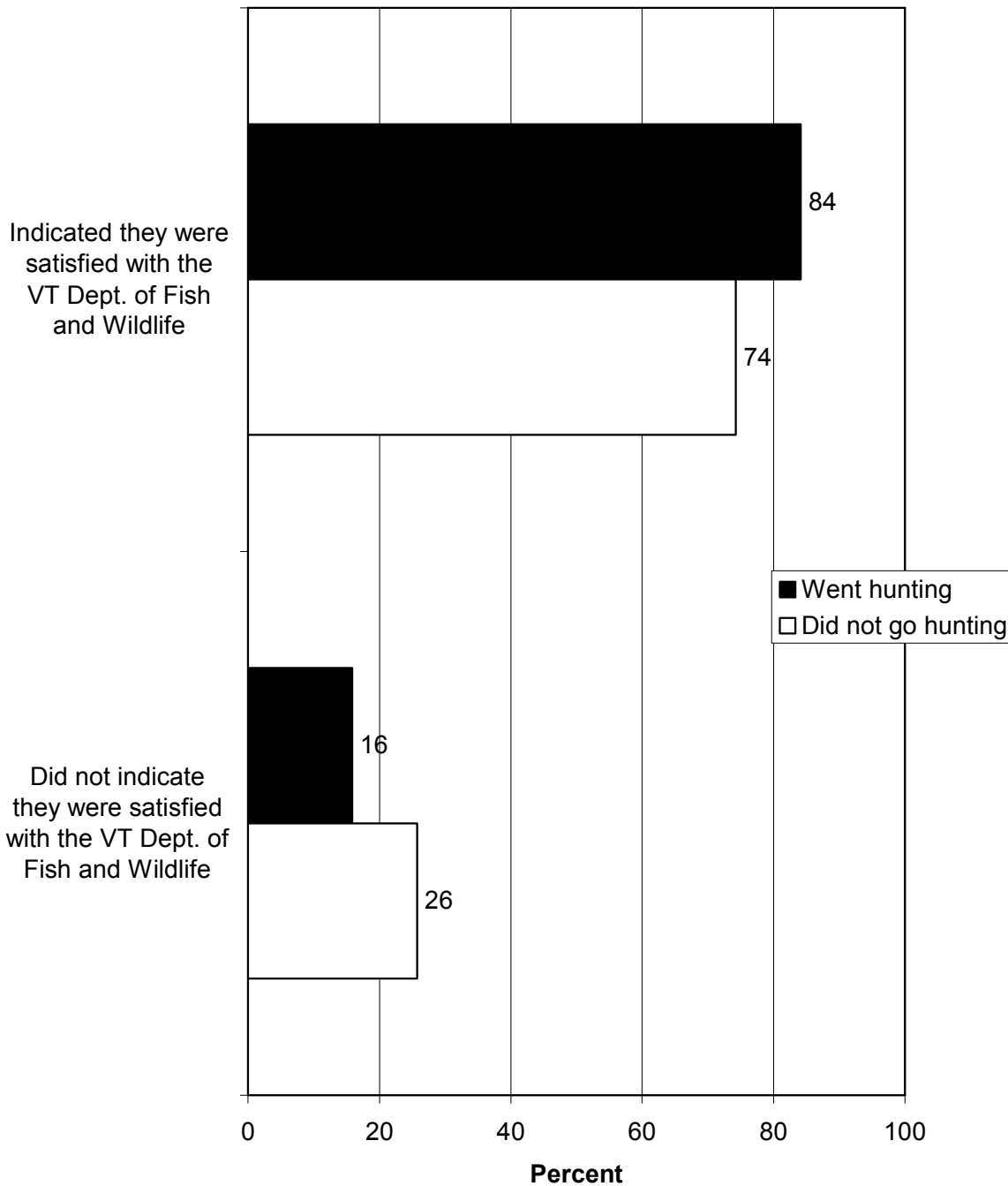
Agreement with the statement “Hunting and fishing are part of scientific management of healthy fish and wildlife populations” is highly predictive of satisfaction with the Department, with the exception of those who gave a neutral reaction to the statement. However, the neutral option was chosen by few respondents and, as such, has a possibility for high error.

Q35. Hunting and fishing are part of scientific management of healthy fish and wildlife populations.



Participation in hunting is correlated with higher satisfaction with the Department at a statistically significant level ($p < 0.05$).

Satisfaction with the Department.



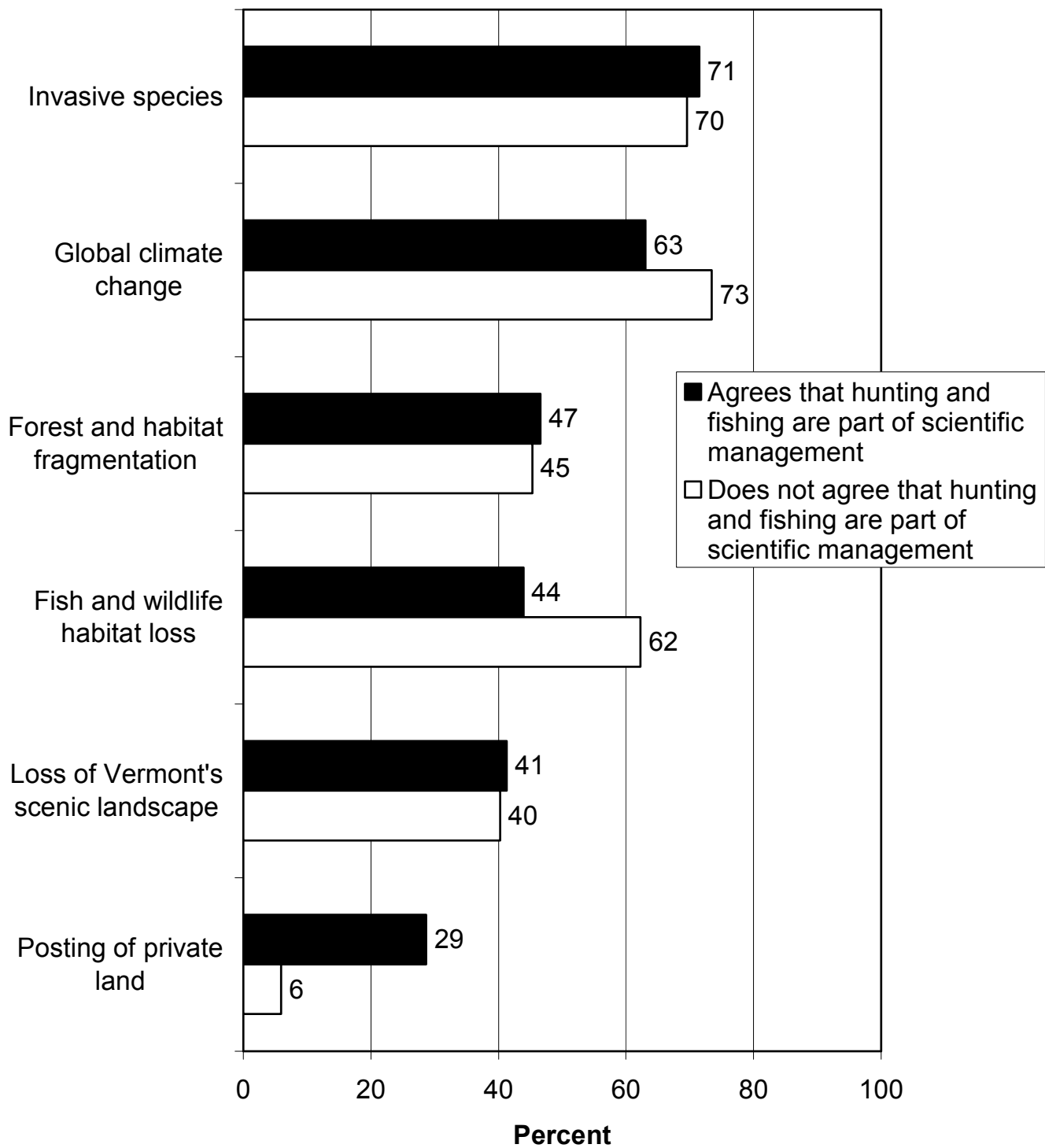
There were not enough participants in trapping to do effective analysis of how it interacts with Department support.

How support for hunting and trapping relate to the other conservation concepts were surveyed?

This is difficult to measure, as the support for hunting and fishing was high across the board – in fact, only 55 total respondents (6.9% of the sample) did not indicate support for hunting and fishing as a scientific management option. Therefore, while differences exist and will be discussed, it should be understood that a small population is prone to large swings.

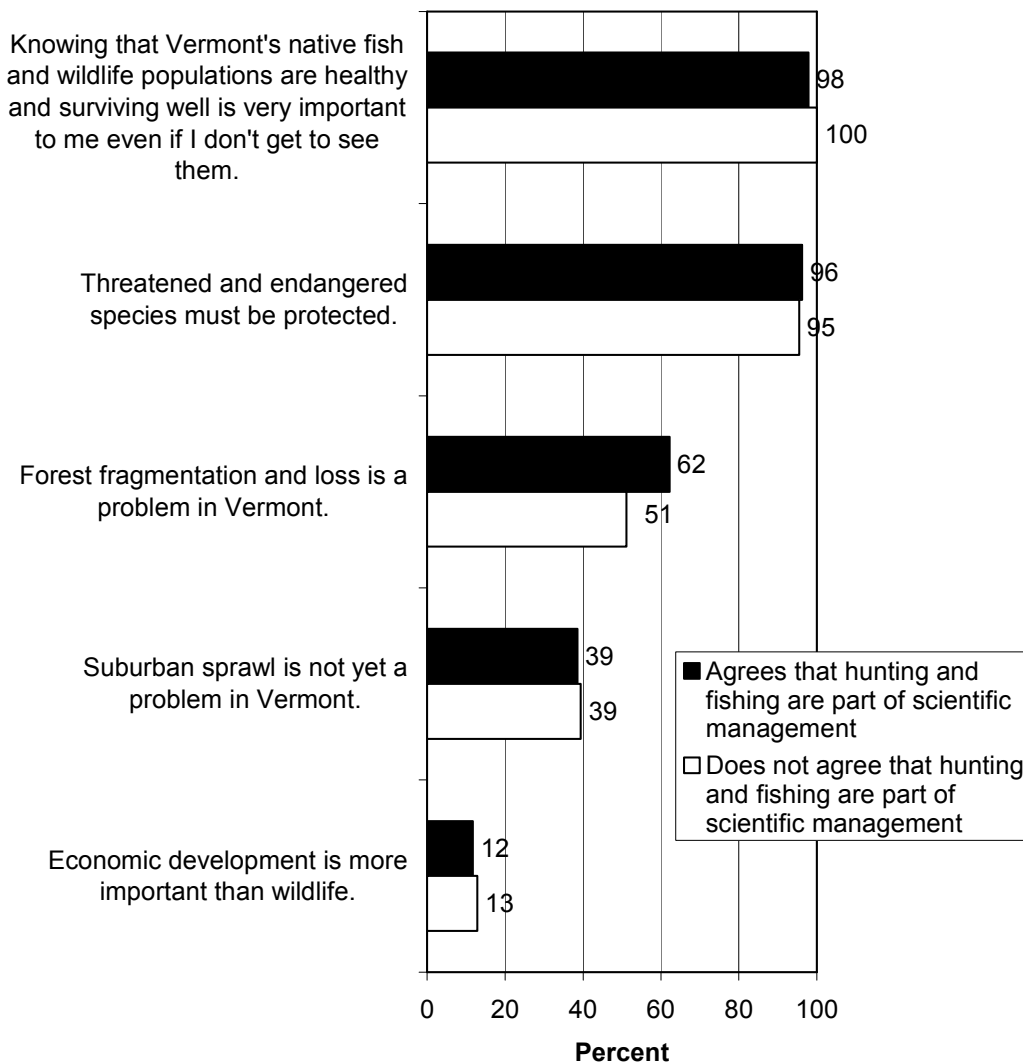
A comparison based on what respondents consider to be “a big problem” in Vermont shows several interesting differences based on support for hunting and fishing. Notably, those who support hunting and fishing say that posting of private land is a big problem at a much higher rate than those who do not support the activities. This is strongly affected by the inclusion of hunters in the support column, as 44% of those who participated in hunting consider posting to be a big problem. Interestingly, fish and wildlife habitat loss was considered to be a big problem at a much higher percentage by non-supporters of hunting and fishing than by supporters.

Percent of respondents who indicated that each of the following is "a big problem" in Vermont:



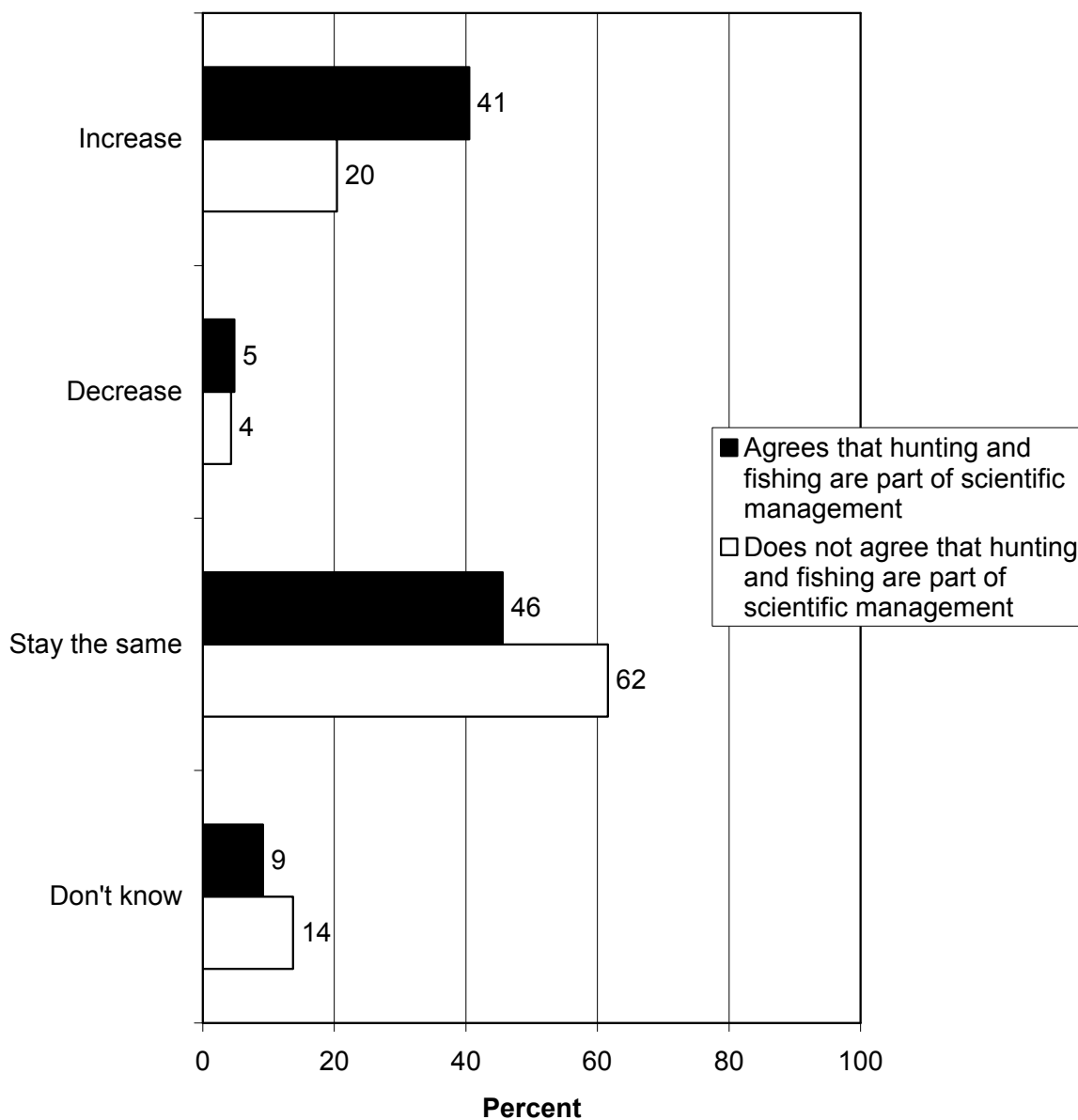
An analysis of agreement with a series of statements about the environment of Vermont is less clear. The one notable difference is agreement with the statement “Forest fragmentation and loss is a problem in Vermont.” It should be noted that an extremely similar question was posed in the problems section, and there was no notable difference between supporters and non-supporters of hunting and fishing as a scientific management option.

Percent of respondents who agree with each of the following statements:



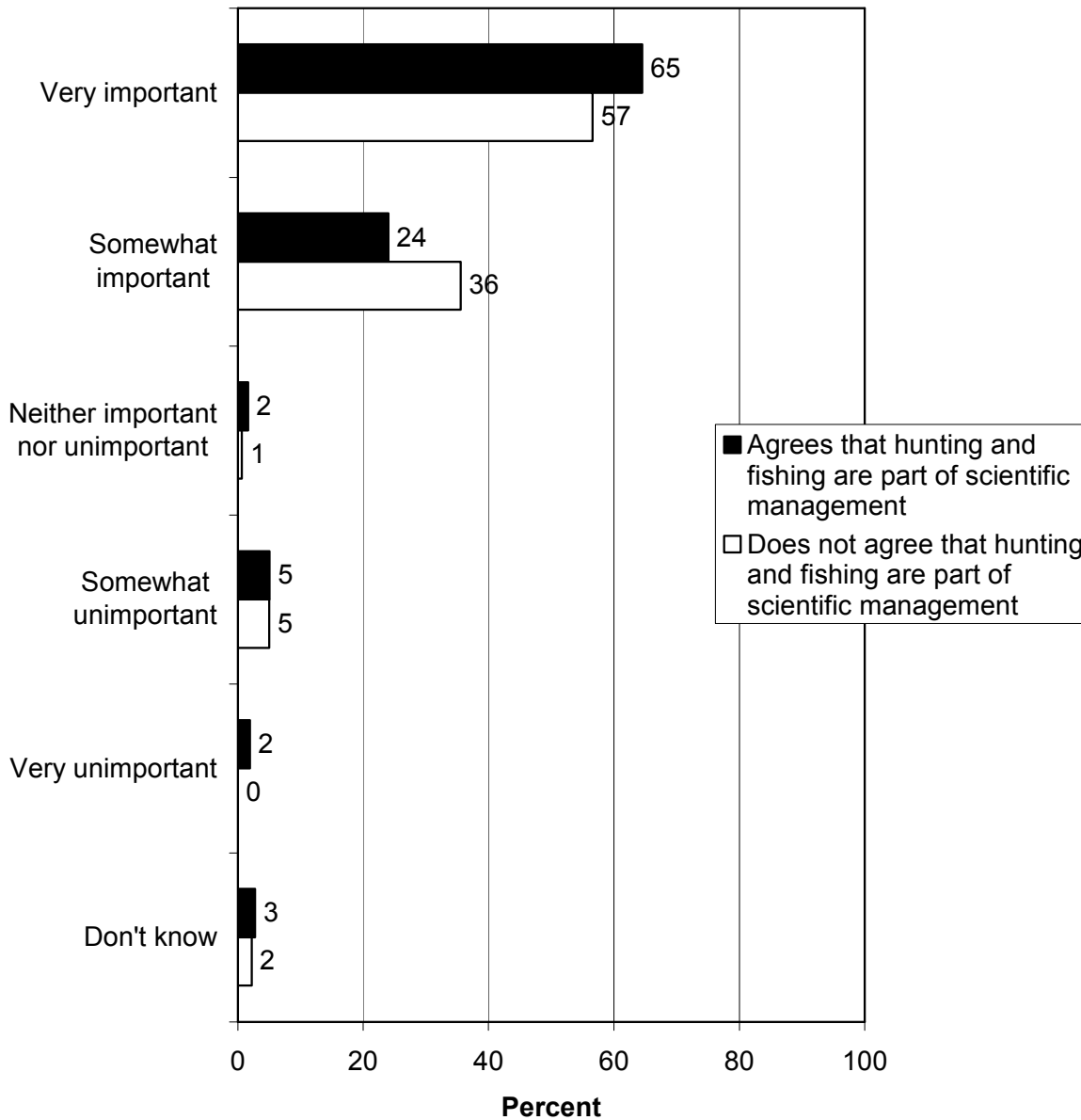
Supporters of hunting and fishing support an increase in state-owned lands at a much higher rate than non-supporters.

Q40. Next, I have some questions about your opinions on land use and management in Vermont. Do you think the percentage of state-owned land should increase, decrease, or stay the same?



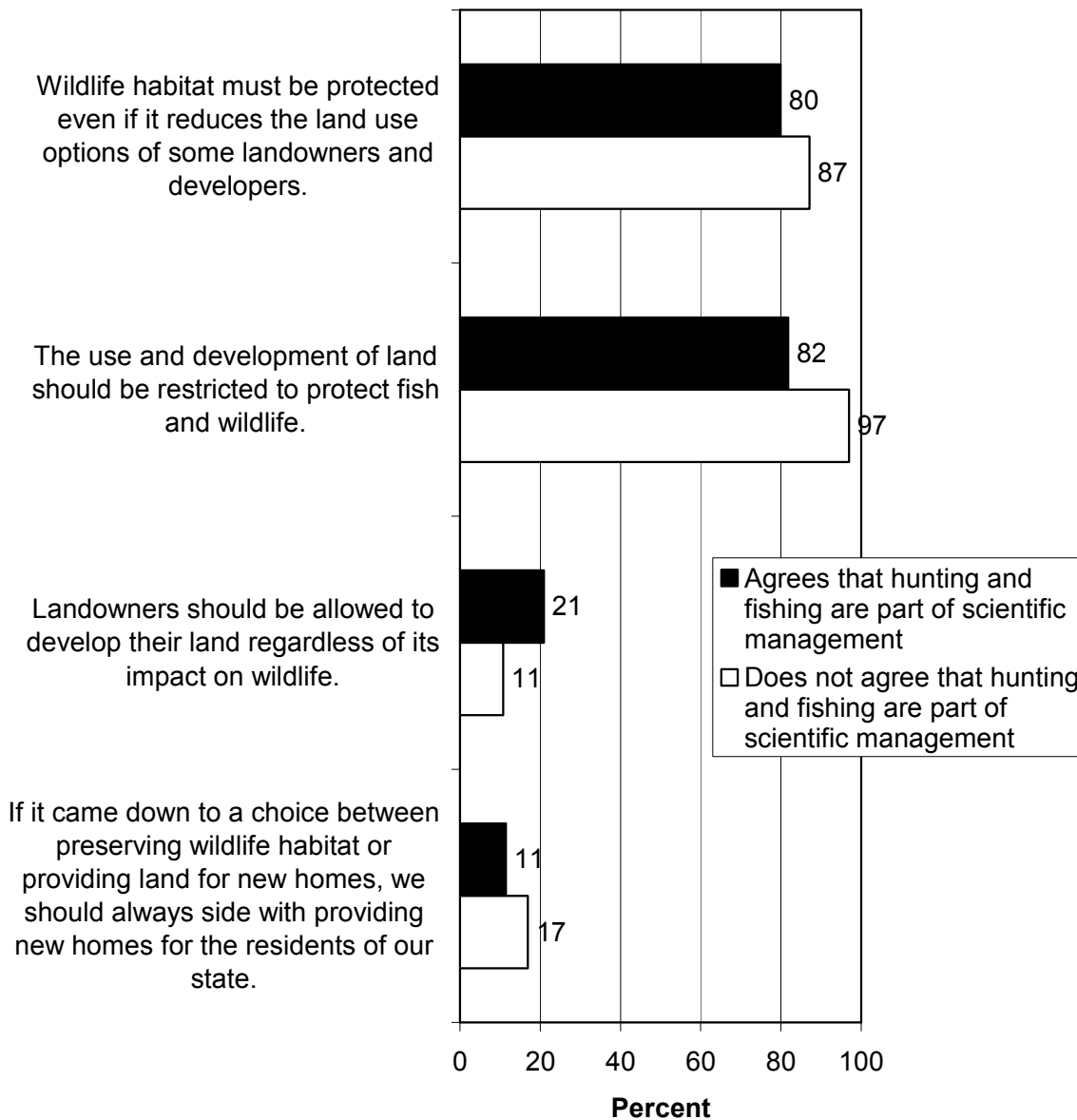
Supporters and non-supporters alike agree that state ownership of land to maintain biological diversity is important, although supporters do say “very important” at a higher rate.

Q41. Do you think state ownership of land to maintain biological diversity is important or unimportant?



A graph illustrating agreement with another series of environmental questions is displayed. A noteworthy difference is that non-supporters support restriction of development to protect fish and wildlife at a higher rate than supporters.

Percent of respondents who agree with each of the following statements:



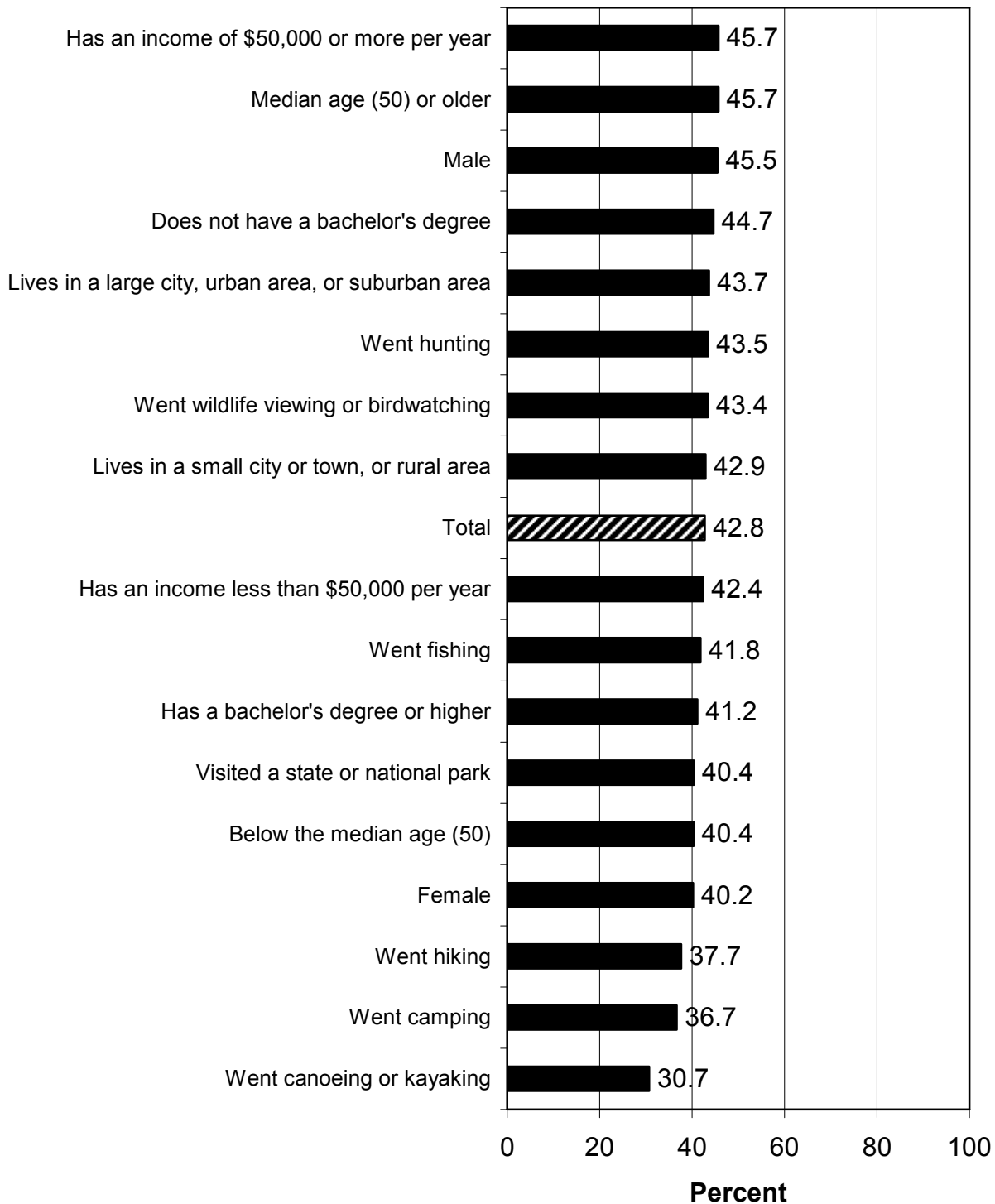
Is appeasing traditional constituents hurting us with this population?

As the reasons for dissatisfaction or non-satisfaction with the Department were not probed in-depth during the 2015 survey, this is difficult to gauge at the current time. However, as shown previously, those with at least a Bachelor's degree and those who live in an urban or suburban area are two demographic groups demonstrating little knowledge of the Department. It is possible that appeasing traditional constituents has hurt support among non-traditional constituents, but only if the traditional outreach is done to the exclusion of outreach to non-traditional constituents.

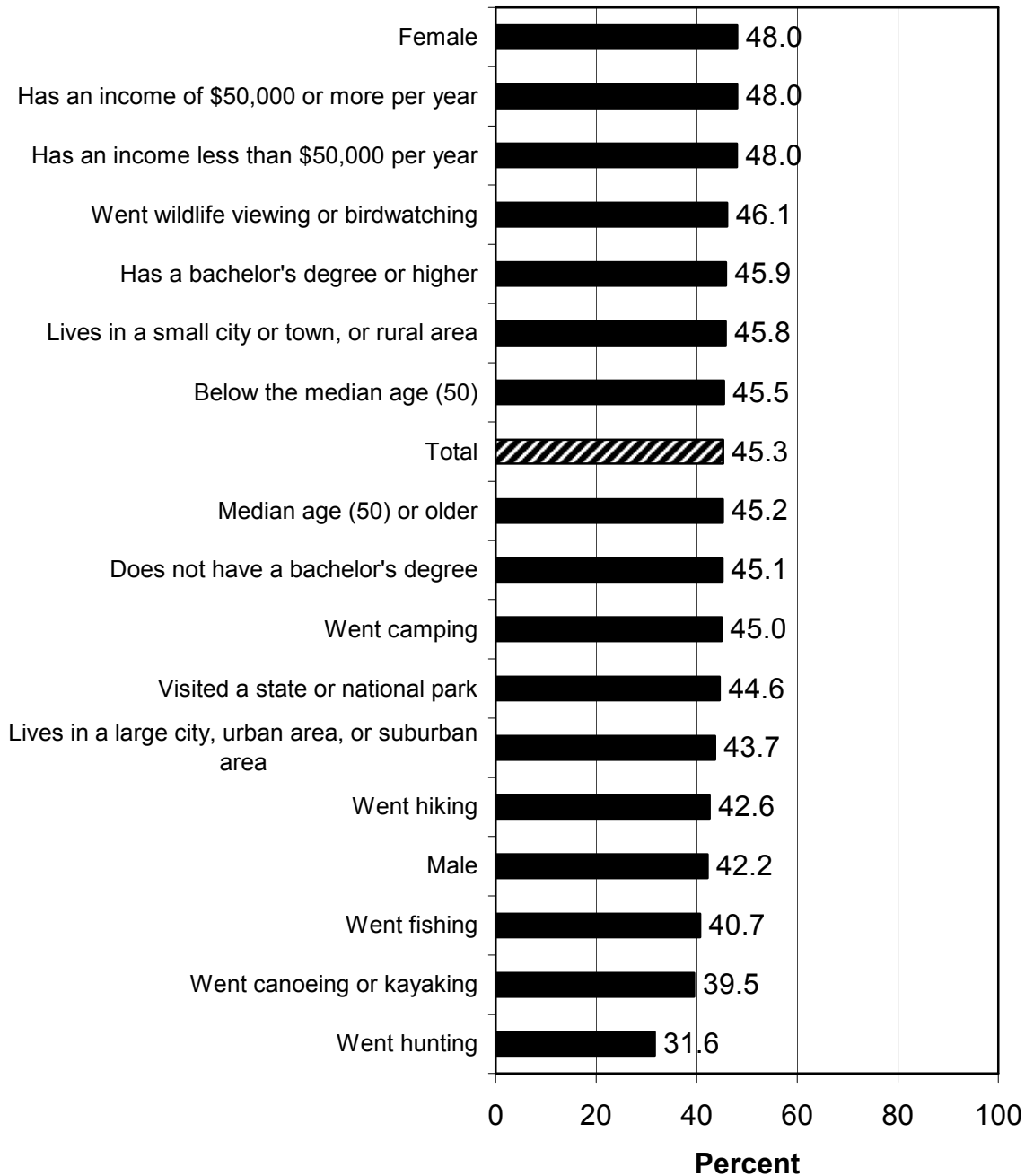
How do the alternative funding options break down among demographic groups? Who is most willing and how?

Graphs breaking down support for funding options by constituent groups are displayed. Two groups that consistently support the funding measures are those with an annual income greater than \$50,000 and those who are younger than the median age of 50. A good deal of self-interest is evident in these results – those who participated in the various outdoor activities show lower support for measures that would cost them personally – for example, those who participate in canoeing or kayaking do not support a registration fee for canoes and kayaks. With the exception of hunters, all participation groups show higher support than average for a bond for conservation, which is the one funding option that would not cost them directly. Males show less support than females for collective measures like bonds and taxes and more support for user-based measures like registration fees.

Percent of each of the following groups who support a registration fee for kayaks and canoes as a funding source for conservation:



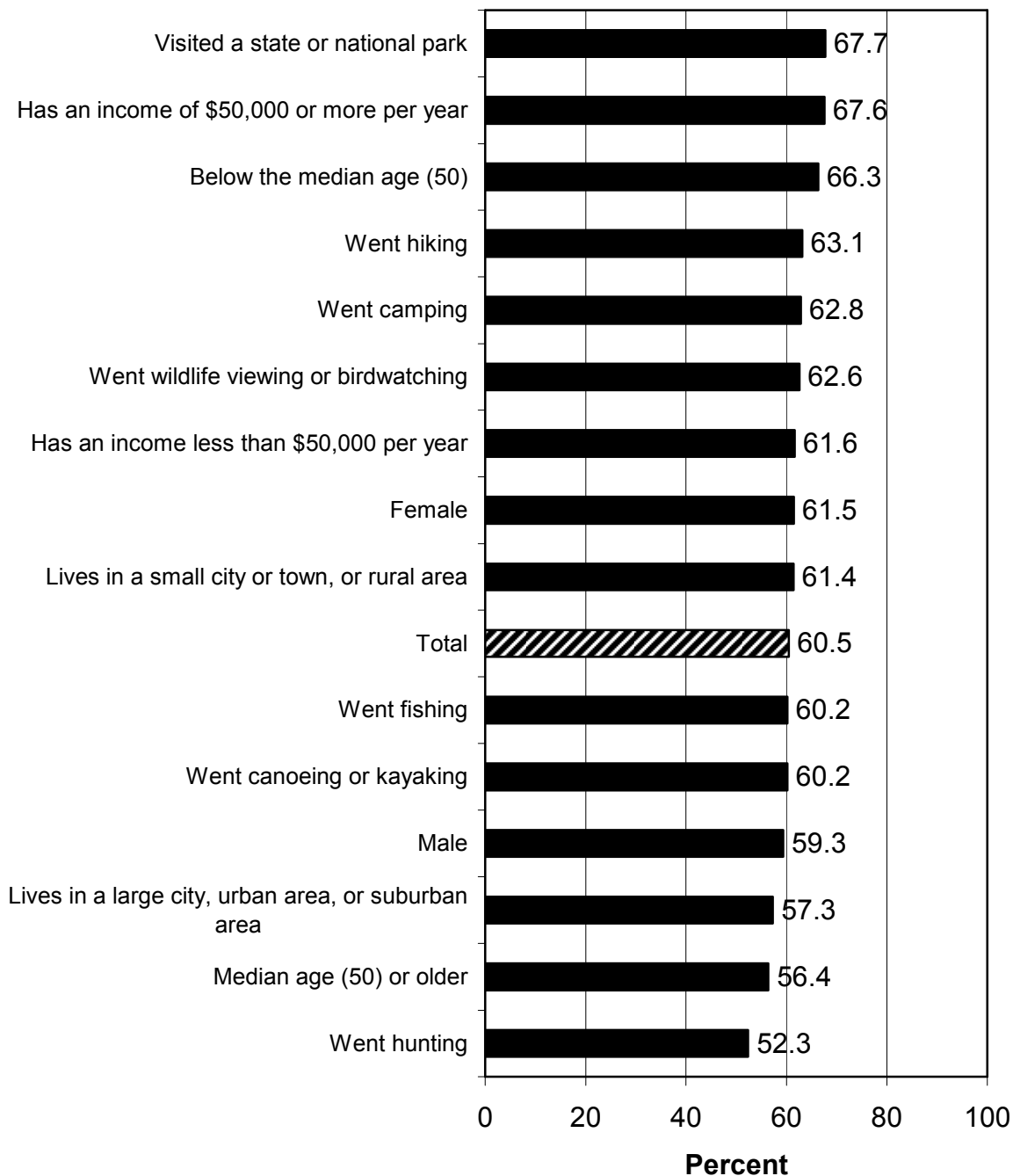
Percent of each of the following groups who support a parking fee on state lands as funding source for conservation:



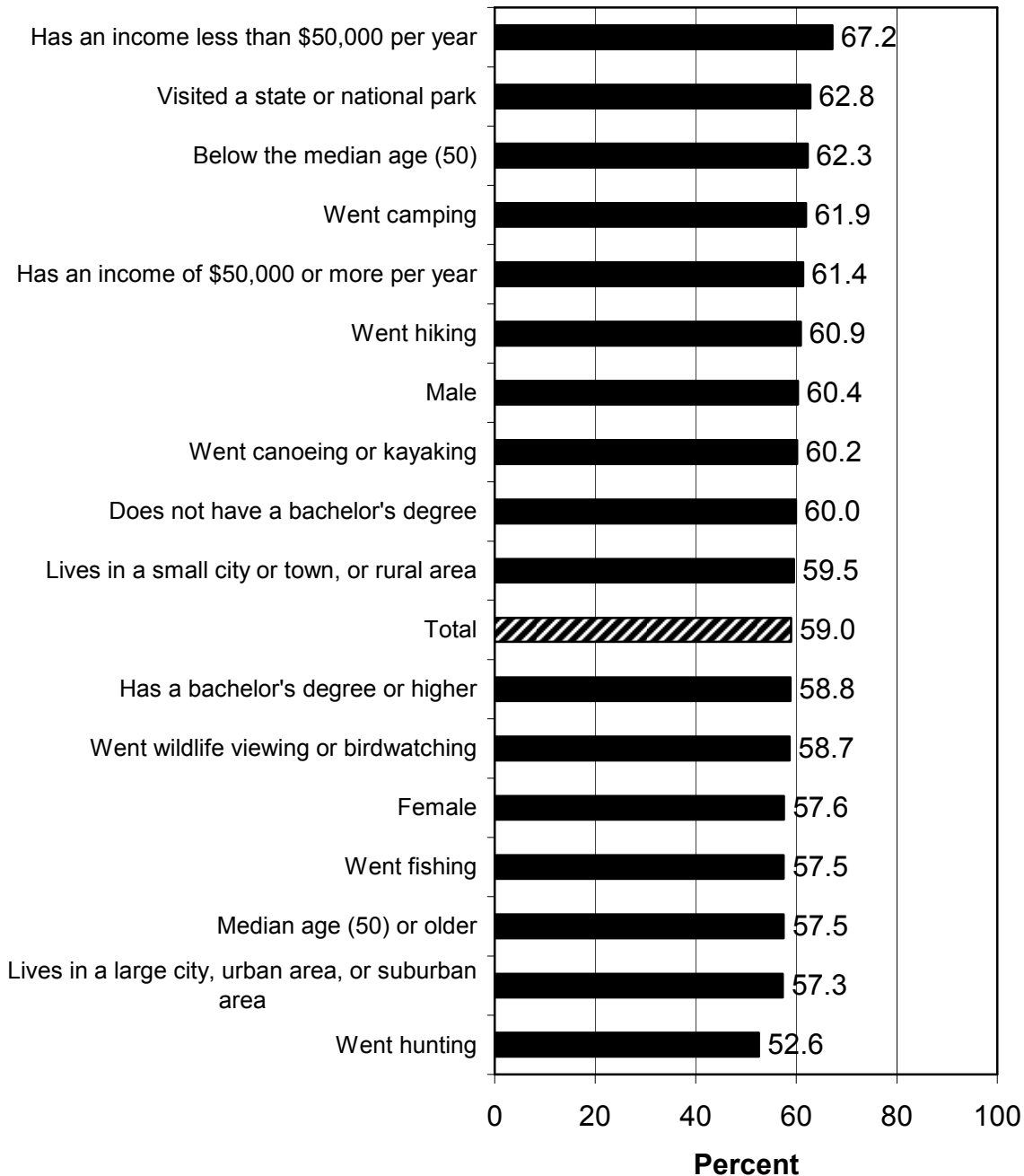
Percent of each of the following groups who support a bond to fund land acquisition as a funding source for conservation:



Percent of each of the following groups who support a one-eighth of 1% increase in the state general sales tax as a funding source for conservation:



Percent of each of the following groups who support a state tax in Vermont on sporting equipment as a funding source for conservation:



Are we missing anything given our desire to increase support?

In general, the avenue for the Department to increase support appears to be public education about the Department. This is because a majority of Vermont residents support the Department, and those who know the most about the Department are the strongest supporters. In addition, the public supports the Department's goals, with nearly 100% of respondents indicating that healthy fish and wildlife populations are important to them. It would seem that the one issue holding back Department support from being even higher is lack of knowledge about the Department, especially among those who live in urban and suburban areas.

ABOUT RESPONSIVE MANAGEMENT

Responsive Management is an internationally recognized public opinion and attitude survey research firm specializing in natural resource and outdoor recreation issues. Our mission is to help natural resource and outdoor recreation agencies and organizations better understand and work with their constituents, customers, and the public.

Utilizing our in-house, full-service telephone, mail, and web-based survey center with 50 professional interviewers, we have conducted more than 1,000 telephone surveys, mail surveys, personal interviews, and focus groups, as well as numerous marketing and communication plans, needs assessments, and program evaluations. Clients include the federal natural resource and land management agencies, most state fish and wildlife agencies, state departments of natural resources, environmental protection agencies, state park agencies, tourism boards, most of the major conservation and sportsmen's organizations, and numerous private businesses. Responsive Management also collects data for many of the nation's top universities.

Specializing in research on public attitudes toward natural resource and outdoor recreation issues, Responsive Management has completed a wide range of projects during the past 22 years, including dozens of studies of hunters, anglers, wildlife viewers, boaters, park visitors, historic site visitors, hikers, birdwatchers, campers, and rock climbers. Responsive Management has conducted studies on endangered species; waterfowl and wetlands; and the reintroduction of large predators such as wolves, grizzly bears, and the Florida panther. Responsive Management has assisted with research on numerous natural resource ballot initiatives and referenda and has helped agencies and organizations find alternative funding and increase their membership and donations. Additionally, Responsive Management has conducted major organizational and programmatic needs assessments to assist natural resource agencies and organizations in developing more effective programs based on a solid foundation of fact.

Responsive Management has conducted research on public attitudes toward natural resources and outdoor recreation in almost every state in the United States, as well as in Canada, Australia, the United Kingdom, France, Germany, and Japan. Responsive Management has also conducted focus groups and personal interviews with residents of the African countries of Algeria, Cameroon, Mauritius, Namibia, South Africa, Tanzania, Zambia, and Zimbabwe. Responsive Management routinely conducts surveys in Spanish and has conducted surveys in Chinese, Korean, Japanese and Vietnamese and has completed numerous studies with specific target audiences, including Hispanics; African-Americans; Asians; women; children; senior citizens; urban, suburban, and rural residents; large landowners; and farmers.

Responsive Management's research has been upheld in U.S. District Courts; used in peer-reviewed journals; and presented at major natural resource, fish and wildlife, and outdoor recreation conferences across the world. Company research has been featured in most of the nation's major media, including CNN, *The New York Times*, *The Wall Street Journal*, and on the front pages of *USA Today* and *The Washington Post*. Responsive Management's research has also been highlighted in *Newsweek* magazine.

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