

Responsive Management™



THE OPINIONS ON DUNGENESS CRAB FISHING REGULATIONS AMONG THOSE WHO FISH FOR DUNGENESS CRAB

Conducted for the Washington Department of Fish and Wildlife

by Responsive Management

2009

THE OPINIONS ON DUNGENESS CRAB FISHING REGULATIONS AMONG THOSE WHO FISH FOR DUNGENESS CRAB

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Responsive Management National Office

Mark Damian Duda, Executive Director
Martin Jones, Senior Research Associate
Tom Beppler, Research Associate
Steven J. Bissell, Ph.D., Qualitative Research Associate
Andrea Criscione, Research Associate
James B. Herrick, Ph.D., Research Associate
Weldon Miller, Research Associate
Joanne Nobile, Research Associate
Amanda Ritchie, Research Associate
Carol L. Schilli, Research Associate
Tim Winegord, Survey Center Manager
Alison Lanier, Business Manager

130 Franklin Street
Harrisonburg, VA 22801
Phone: 540/432-1888 Fax: 540/432-1892
E-mail: mark@responsivemanagement.com
www.responsivemanagement.com

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INTRODUCTION AND METHODOLOGY

This study was conducted for the Washington Department of Fish and Wildlife (WDFW) to determine the opinions of Dungeness crab fishermen (the latter word used in the gender-neutral sense to include both men and women who fish) regarding allowable fishing days and the Dungeness crab limit in the Puget Sound. The study entailed a telephone survey of holders of a Dungeness crab Catch Record Card. Specific aspects of the research methodology are discussed below.

For the survey, telephones were selected as the preferred sampling medium because of the almost universal ownership of telephones among the sample. Additionally, telephone surveys, relative to mail or Internet surveys, allow for more scientific sampling and data collection, provide higher quality data, obtain higher response rates, are more timely, and are more cost-effective. Telephone surveys also have fewer negative effects on the environment than do mail surveys because of reduced use of paper and reduced energy consumption for delivering and returning the questionnaires. A central polling site at the Responsive Management office allowed for rigorous quality control over the interviews and data collection. Responsive Management maintains its own in-house telephone interviewing facilities. These facilities are staffed by interviewers with experience conducting computer-assisted telephone interviews on the subjects of natural resources and outdoor recreation. The telephone survey questionnaire was developed cooperatively by Responsive Management and the WDFW. Responsive Management conducted a pre-test of the questionnaire to ensure proper wording, flow, and logic in the survey.

To ensure the integrity of the telephone survey data, Responsive Management has interviewers who have been trained according to the standards established by the Council of American Survey Research Organizations. Methods of instruction included lecture and role-playing. The Survey Center Managers and other professional staff conducted project briefings with the interviewers prior to the administration of this survey. Interviewers were instructed on type of study, study goals and objectives, handling of survey questions, interview length, termination points and qualifiers for participation, interviewer instructions within the survey instrument, reading of the survey instrument, skip patterns, and probing and clarifying techniques necessary for specific questions on the survey instrument. The Survey Center Managers and statisticians monitored the

data collection, including monitoring of the actual telephone interviews without the interviewers' knowledge, to evaluate the performance of each interviewer and ensure the integrity of the data. After the surveys were obtained by the interviewers, the Survey Center Managers and/or statisticians checked each completed survey to ensure clarity and completeness.

Interviews were conducted during the calling times of Monday through Friday from 9:00 a.m. to 9:00 p.m., Saturday from noon to 5:00 p.m., and Sunday from 5:00 p.m. to 9:00 p.m., local time. A five-callback design was used to maintain the representativeness of the sample, to avoid bias toward people easy to reach by telephone, and to provide an equal opportunity for all to participate. The survey was conducted in November 2009. Responsive Management obtained a total of 720 completed interviews.

The software used for data collection was Questionnaire Programming Language (QPL). The survey data were entered into the computer as each interview was being conducted, eliminating manual data entry after the completion of the survey and the concomitant data entry errors that may occur with manual data entry. The survey instrument was programmed so that QPL branched in the survey based on previous responses to ensure the integrity and consistency of the data collection. The analysis of data was performed using Statistical Package for the Social Sciences as well as proprietary software developed by Responsive Management.

The sample consisted of 508 respondents who had returned (or otherwise reported) their Catch Record Card and 212 respondents who had not. For the total sample, the results were weighted so that the proportions of the sample among those who returned (or otherwise reported) their Catch Record Cards and those who did not matched the distribution of the actual population who had or had not done so. In other words, the results were weighted so that 49% of the sample consisted of those who had returned the Catch Record Card, which matches the actual distribution of Dungeness crab fishermen, 49% of whom had returned their Catch Record Card.

Throughout this report, findings of the telephone survey are reported at a 95% confidence interval. For the entire sample of Dungeness crab Catch Record Card holders, the sampling error is at most plus or minus 3.65 percentage points. This means that if the survey were conducted

100 times on different samples of Dungeness crab Catch Record Card holders that were selected in the same way, the findings of 95 out of the 100 surveys would fall within plus or minus 3.65 percentage points of each other. Sampling error was calculated using the formula described below, with a sample size of 720 and a population size of 192,693 Dungeness crab Catch Record Card holders.

Sampling Error Equation

$$B = \left(\sqrt{\frac{N_p(.25)}{N_s} - .25} \right) (1.96)$$

Where: B = maximum sampling error (as decimal)
 N_p = population size (i.e., total number who could be surveyed)
 N_s = sample size (i.e., total number of respondents surveyed)

Derived from formula: p. 206 in Dillman, D. A. 2000. *Mail and Internet Surveys*. John Wiley & Sons, NY.

Note: This is a simplified version of the formula that calculates the maximum sampling error using a 50:50 split (the most conservative calculation because a 50:50 split would give maximum variation).

Note that some results may not sum to exactly 100% because of rounding. Additionally, rounding on the graphs may cause apparent discrepancies of 1 percentage point between the graphs and the reported results of combined responses (e.g., when “strongly support” and “moderately support” are summed to determine the total percentage in support).

SURVEY RESULTS

BACKGROUND INFORMATION

- The majority of Dungeness crab Catch Record Card holders (52%) fish for crab at least 1 day but no more than 5 days annually in the Puget Sound; nonetheless, some fish for more days, including 11% who fish for Dungeness crab for more than 10 days annually.
 - A crosstabulation was run of those who had returned their Catch Record Card and those who had not. The results suggest that those who had not returned their Catch Record Card, compared to those who had, are less avid: they are more likely to say that they do not typically fish for Dungeness crab, and those who did fish generally fished for crab for fewer days. The differences on this crosstabulation are statistically significant at the 95% confidence level ($p \leq 0.05$).

- Summer would be, by far, the most popular season for fishing for Dungeness crab in the Puget Sound, if the areas in which the respondent fishes for Dungeness crab were opened for crab fishing in both summer and winter: 55% would fish in summer only, while 39% would fish in both summer and winter (a sum of 94% fishing for Dungeness crab in summer); only 3% would fish in winter only.
 - The aforementioned crosstabulation by those who had returned their Catch Record Card versus those who had not found no marked differences on this question.

- Just more than three-fourths of Dungeness crab Catch Record Card holders are male (77%).
 - There is no difference among males and females with regard to returning the Catch Record Card.

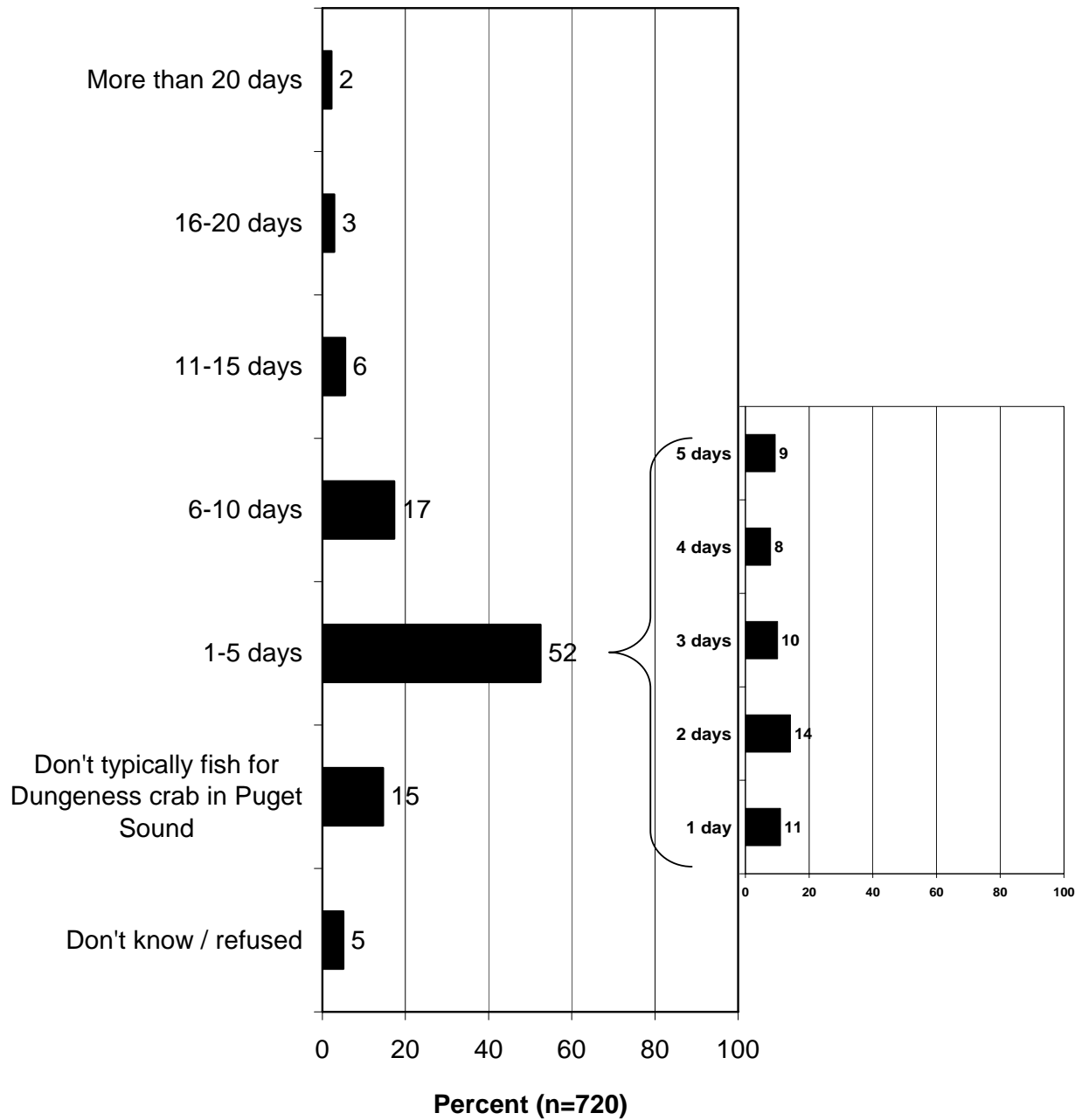
- Ages of respondents are shown; the mean is 48.8 years old.
 - Those who had *not* returned their Catch Record Card are younger than are those who had returned the Card. The differences on this crosstabulation are statistically significant at the 95% confidence level ($p \leq 0.05$).

- The years of residency are shown, ranging widely. The mean is 34.1 years.
 - “Newer” residents appear to be less likely to return their Catch Record Card when compared to more established residents. The mean number of years of residency in Washington among those who had returned their Catch Record Card is 38.6 years; the mean among those who had not returned their Card is 29.9 years. The differences on this crosstabulation are statistically significant at the 95% confidence level ($p \leq 0.05$).

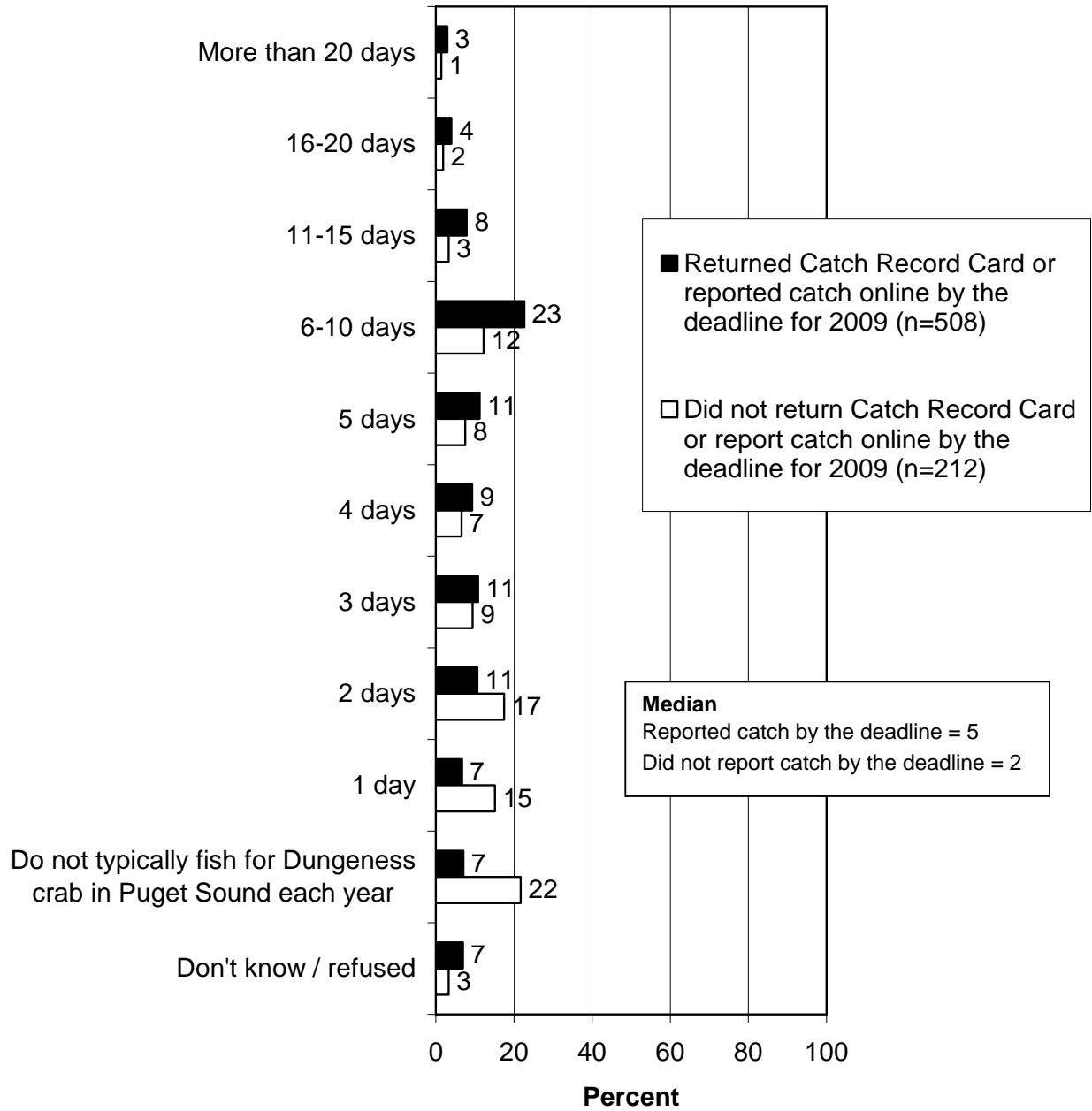
- Counties (and state/country) of residence of Dungeness crab Catch Record Card holders are shown: the leading counties are King, Skagit, Pierce, Skamania, Island, Kitsap, and Whatcom (all with more than 5% of Catch Record Card holders).
 - For this question, crosstabulations were run to determine the Catch Record Card return rate for each county (among those counties with enough respondents for the crosstabulation to be run). These are shown in pie graphs. The rate of reporting is about the same for each county (ranging from 42% to 49% who had returned their Catch Record Card) with the exception of Pierce County on the low end (in which only 34% had returned their Catch Record Cards) and Skamania and Jefferson at the high end (in which 63% and 73%, respectively, had returned their Catch Record Cards).

- Place of residence of Dungeness crab Catch Record Card holders is shown: 40% consider their place of residence to be a large city/urban area or suburban area, 29% consider it to be a small city or town, and 29% consider it to be rural.
 - Those who had *not* returned their Catch Record Card are more urban than are those who had returned the Card. The differences on this crosstabulation are statistically significant at the 95% confidence level ($p \leq 0.05$).

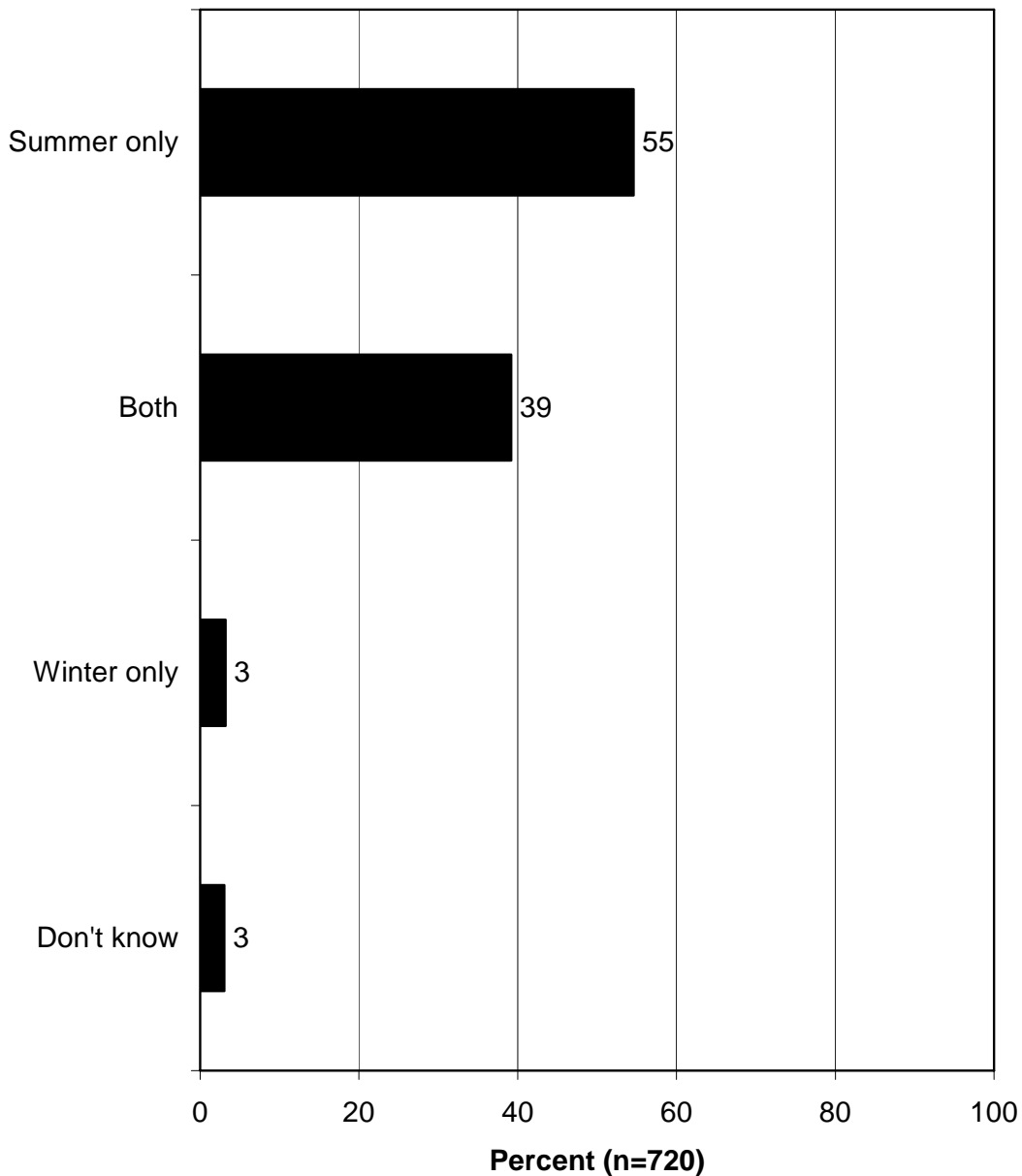
Q12. How many days do you typically fish for Dungeness crab in Puget Sound each year?



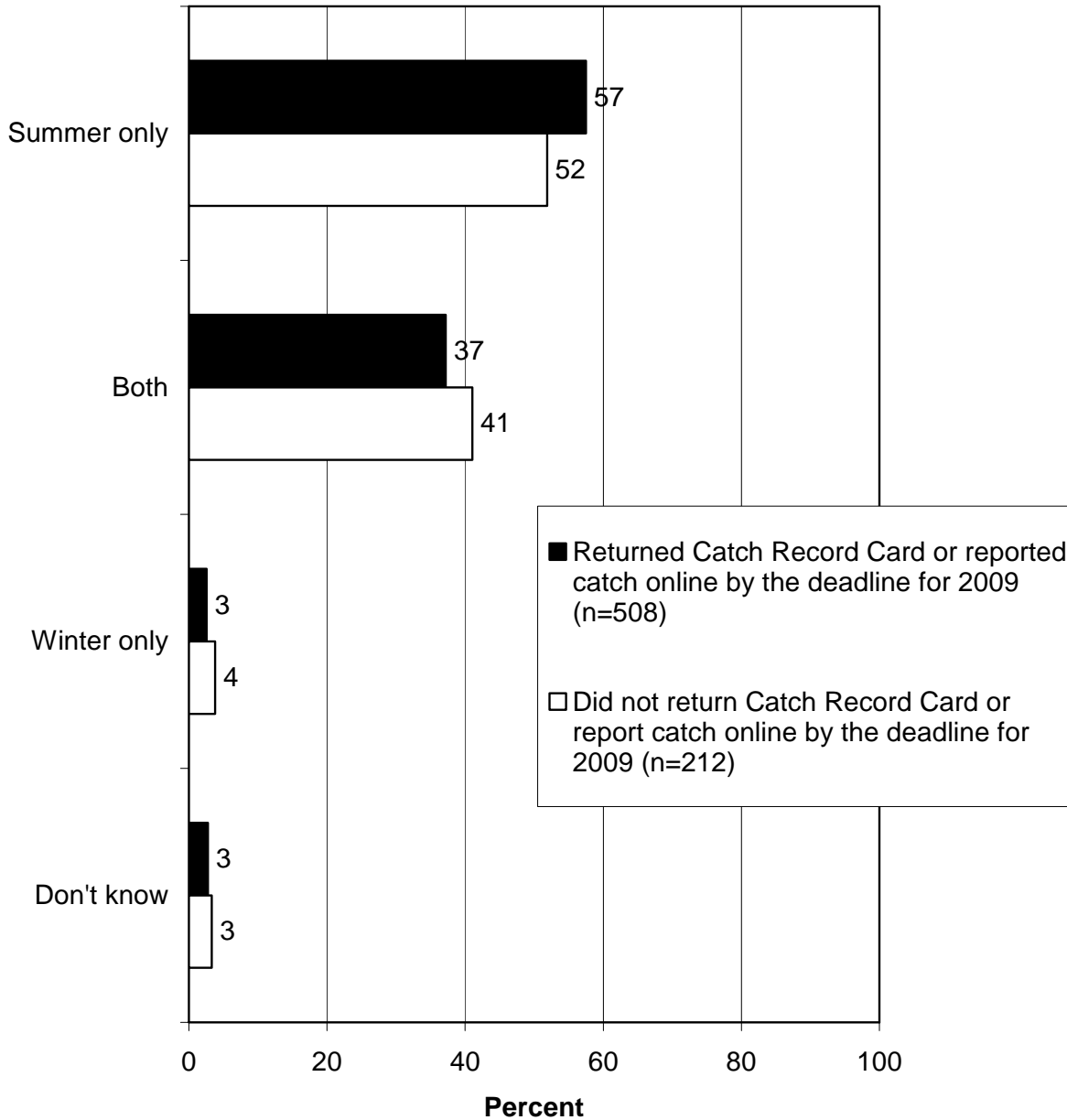
Q12. How many days do you typically fish for Dungeness crab in Puget Sound each year?



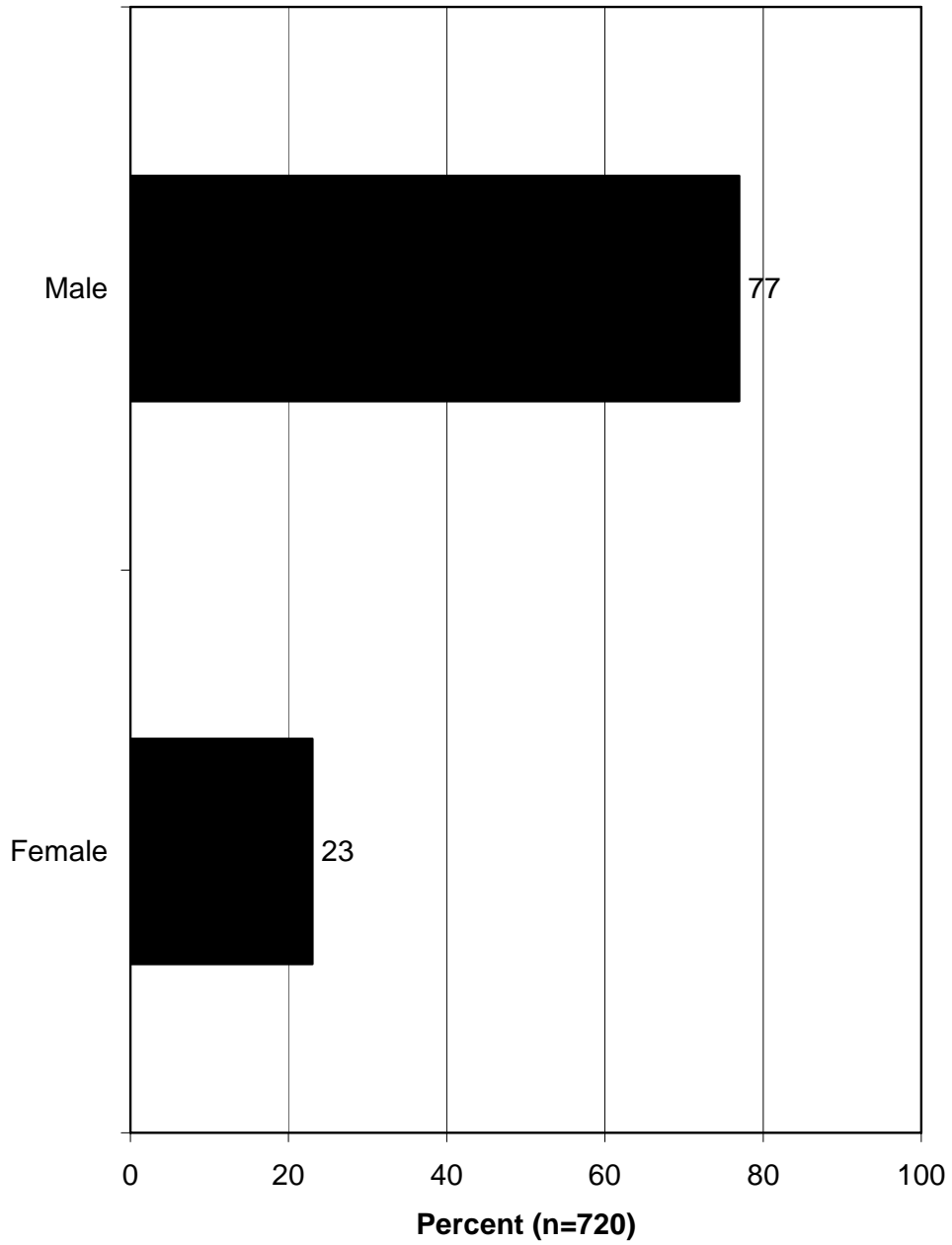
Q14. If the Marine Area or Areas where you typically fish for Dungeness crab in Puget Sound are opened for crab fishing during both the summer and winter portions of the season, will you most likely fish for crab in Puget Sound during the summer only, during the winter only, or both?



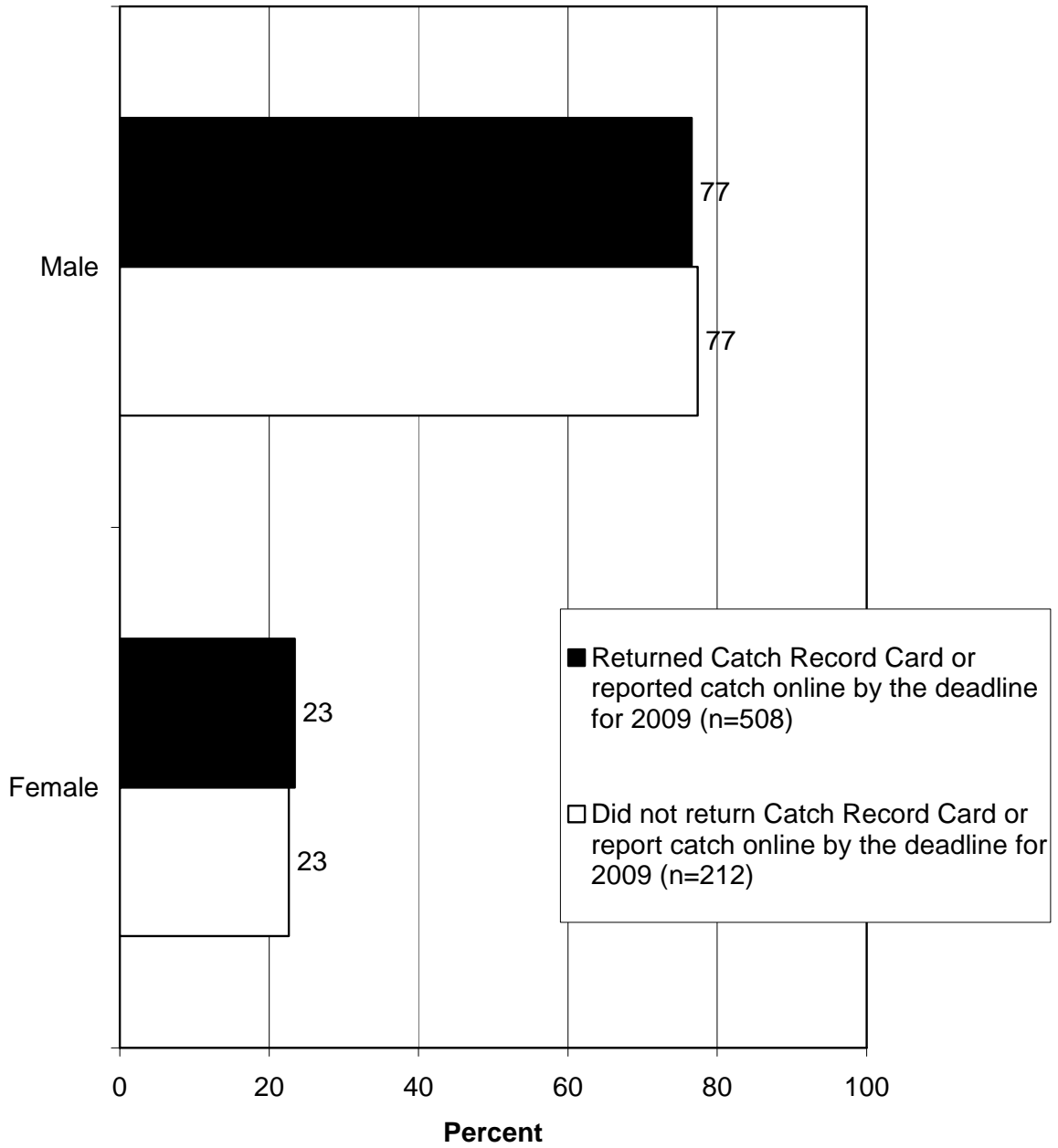
Q14. If the Marine Area or Areas where you typically fish for Dungeness crab in Puget Sound are opened for crab fishing during both the summer and winter portions of the season, will you most likely fish for crab in Puget Sound during the summer only, during the winter only, or both?

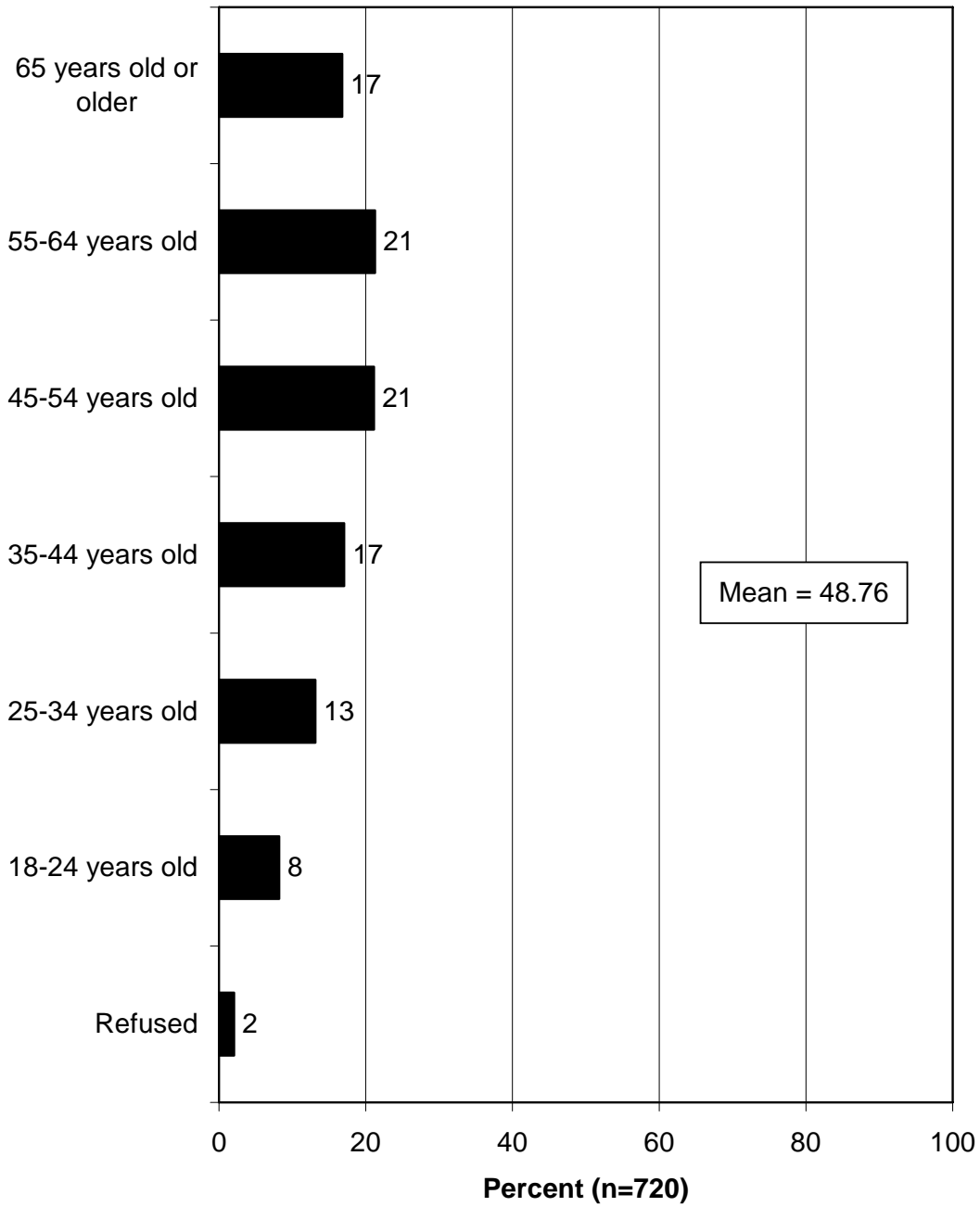


Q34. Respondent's gender (observed, not asked, by interviewer).

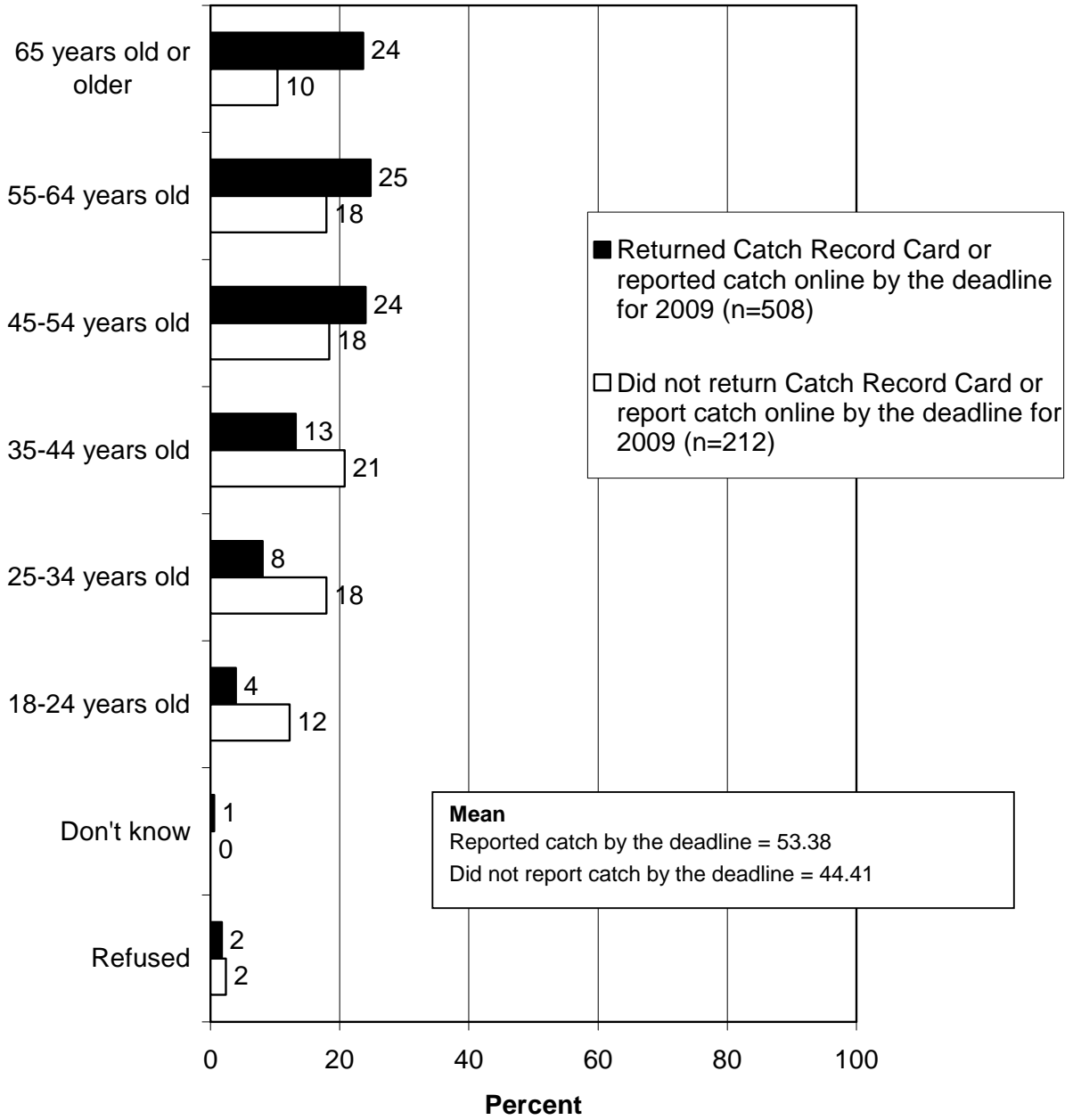


Q34. Respondent's gender (observed, not asked, by interviewer).

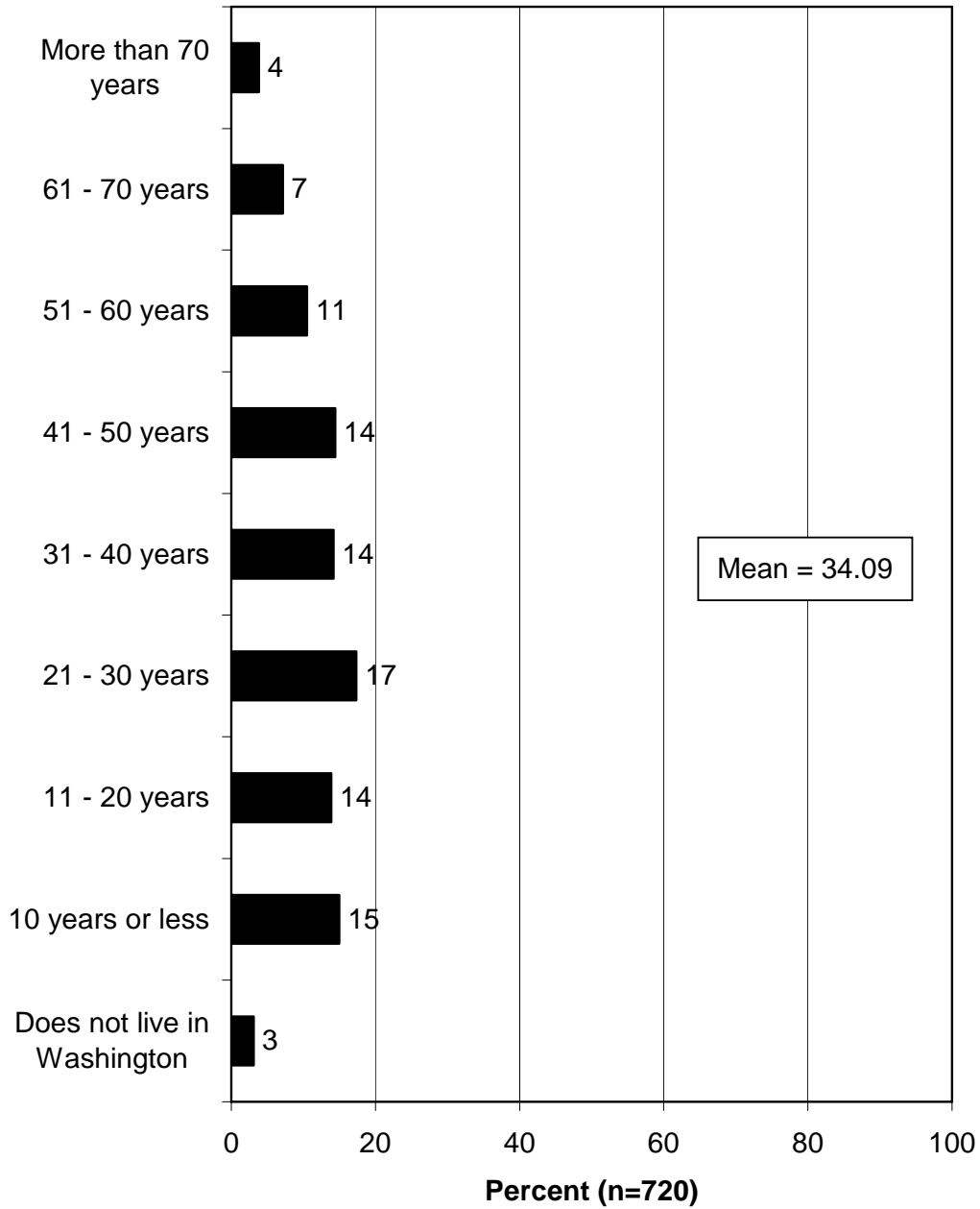


Q28. Respondent's age.

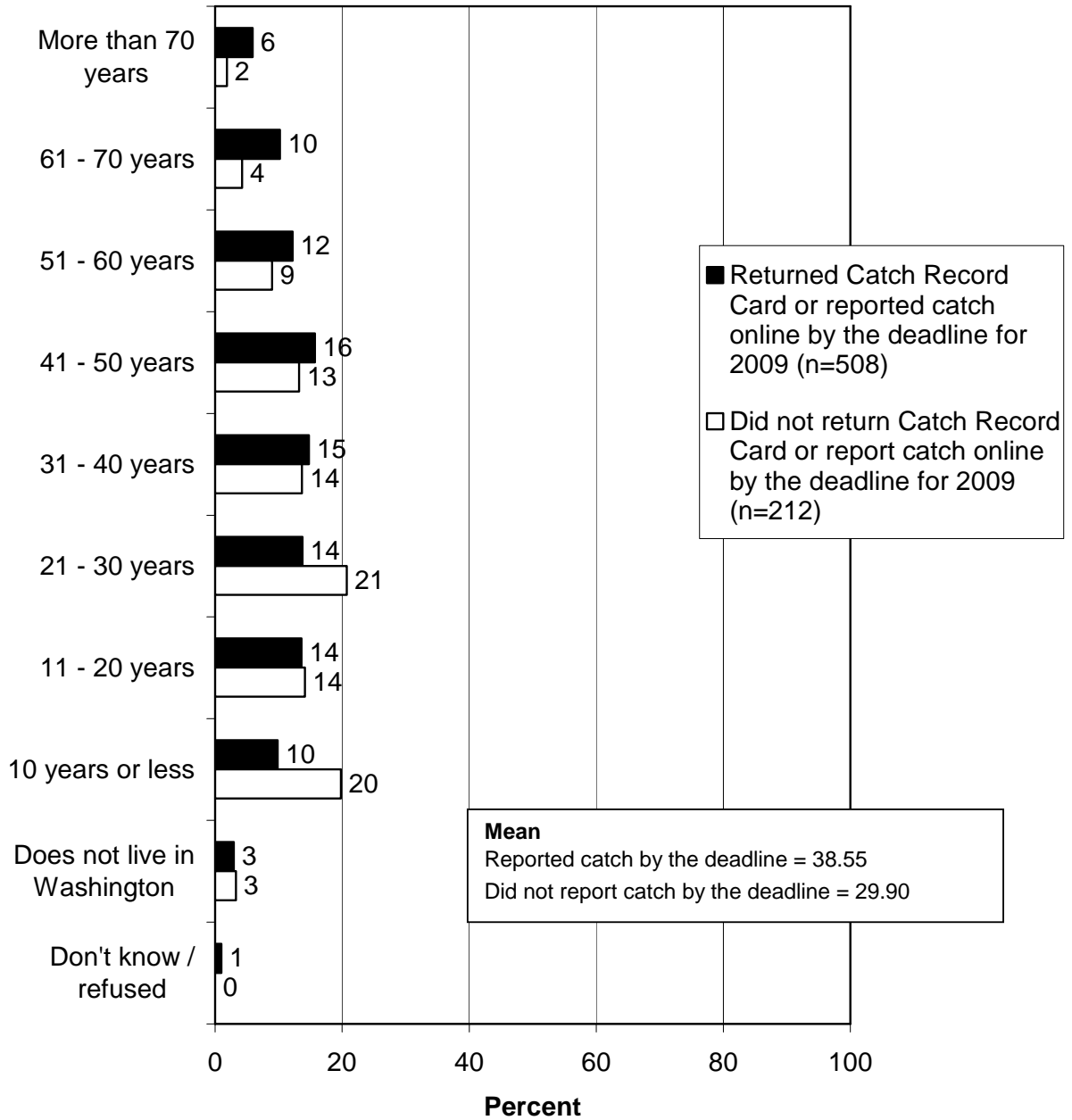
Q28. Respondent's age.



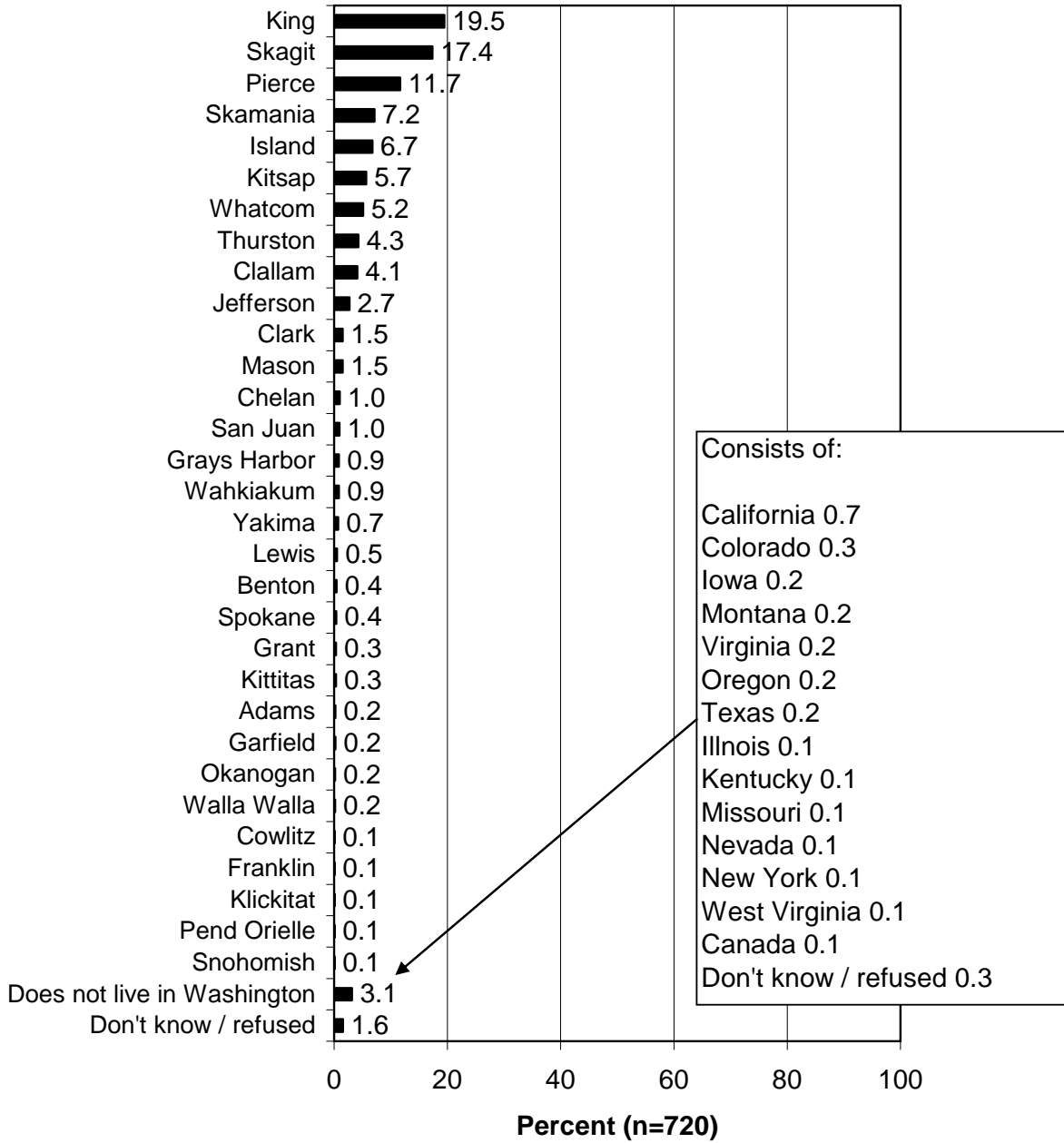
Q22. How many years have you lived in Washington?

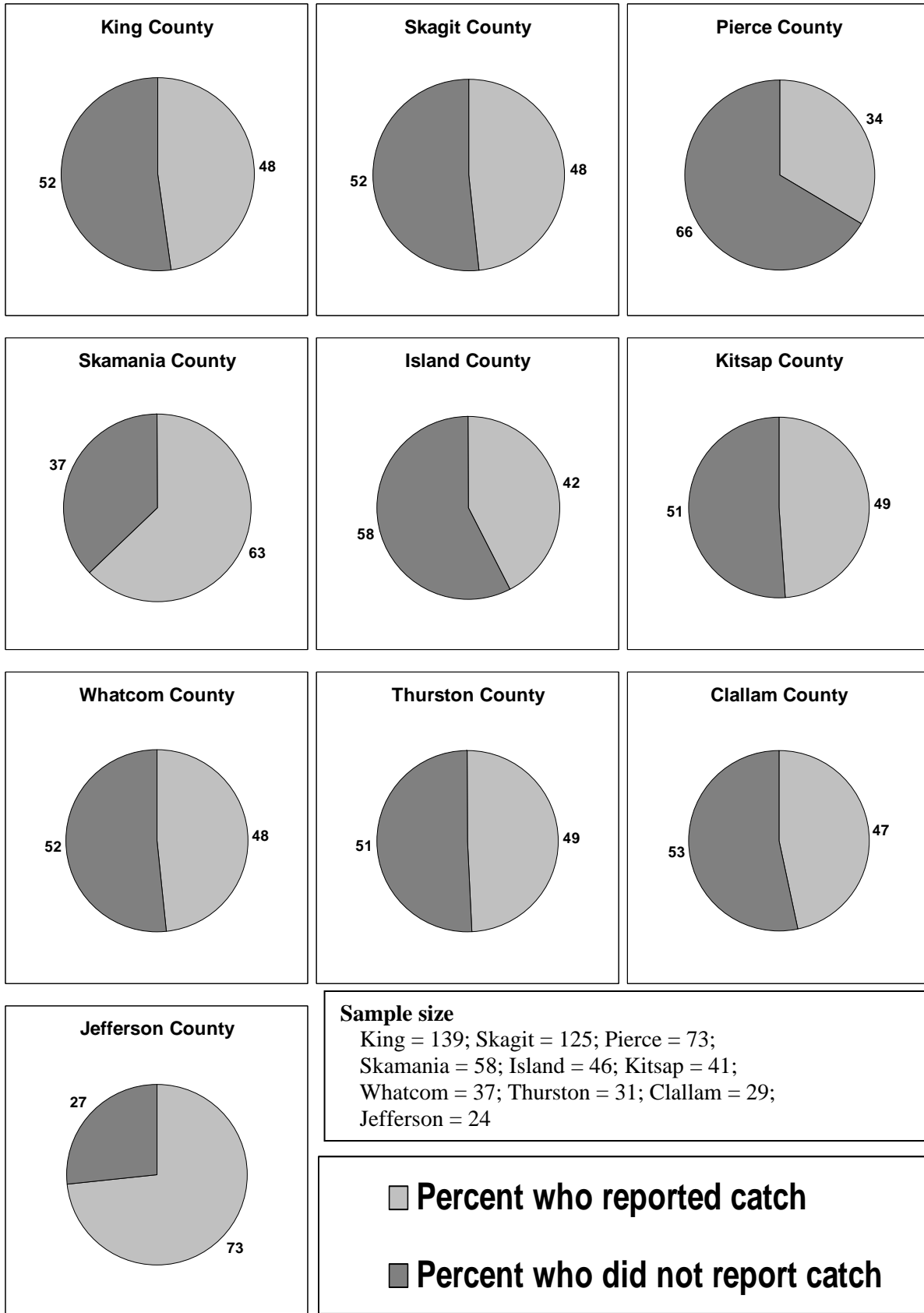


Q22. How many years have you lived in Washington?

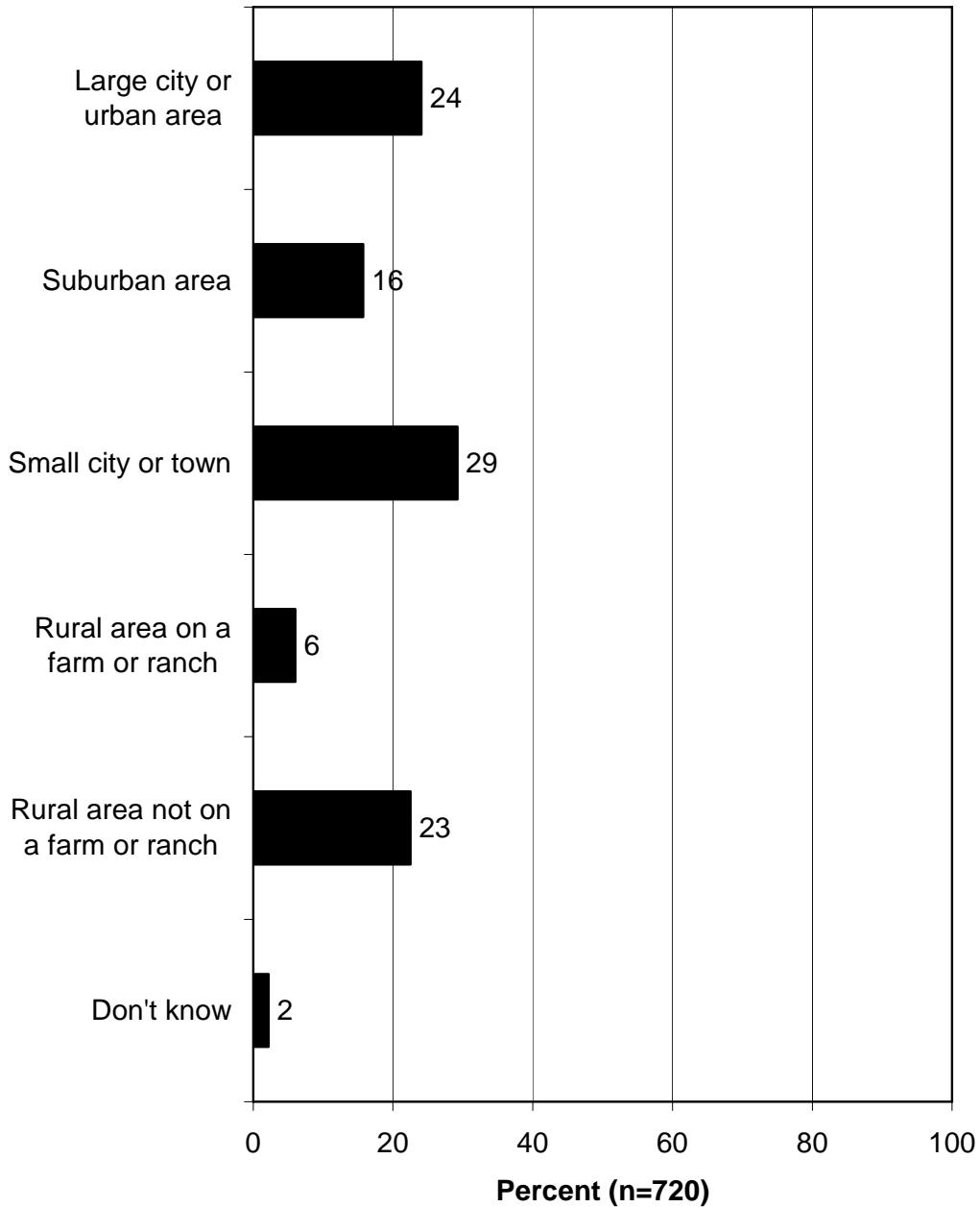


Q24. What county do you live in?

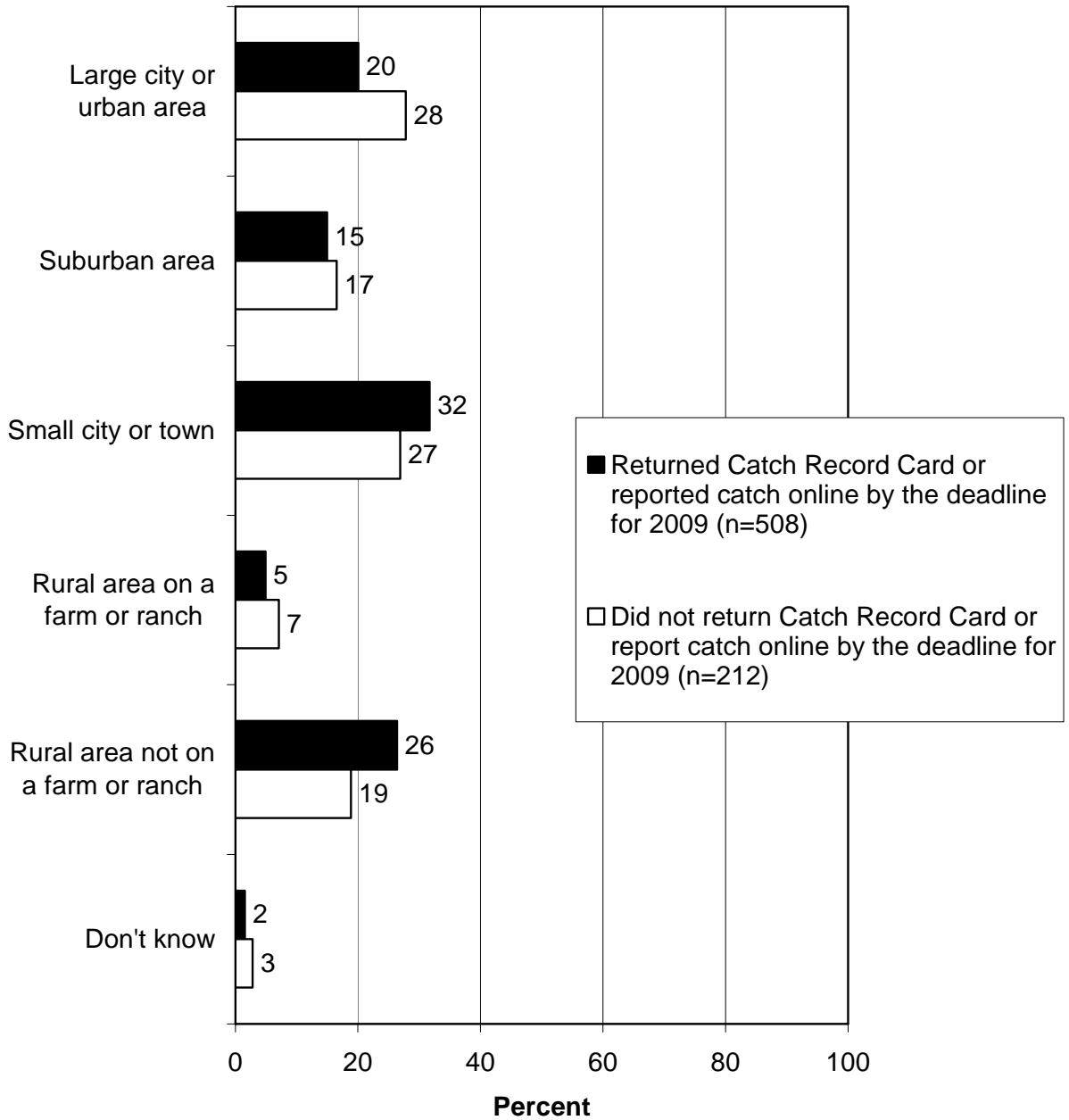




Q27. Do you consider your place of residence to be a large city or urban area, a suburban area, a small city or town, a rural area on a farm or ranch, or a rural area not on a farm or ranch?



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OPINION ON REGULATIONS

- In the first opinion question, a majority of Dungeness crab Catch Record Card holders (59%) support changing crab fishing regulations to allow fishing for crab only Friday through Monday in most Puget Sound Marine Areas during the summer; 25% oppose. Note that prior to this question, respondents were read the information in the text box below. (For convenience, this graph is also shown with *strongly* support and *moderately* support combined into the total in support, and *strongly* oppose and *moderately* oppose combined into the total in opposition.)
- In the crosstabulation of those who had returned their Catch Record Card versus those who had not, the differences are *not* statistically significant at the 95% confidence level. Nonetheless, the graphs are shown.
 - This question was also crosstabulated by various demographic variables. The crosstabulations were by days the respondents fish for crab each year (more than 7 days, 4-7 days, 1-3 days, and those who do not typically fish for Dungeness crab in Puget Sound), age of respondents (55 years old or older, 35-54 years old, and 34 years old and younger), and gender of respondents. This produces nine groups shown on each graph. Each graph shows one of the four answer types: those who had returned the Card and support the change in regulations, those who had not returned the Card and support the change in regulations, those who had returned the Card and oppose the change in regulations, those who had not returned the Card and oppose the change in regulations. In these graphs, the results are sorted from the highest percentage to the lowest.
 - The graphs are also shown unsorted, following the sorted graphs.

Statements read to respondents prior to Question 17 (discussed above)

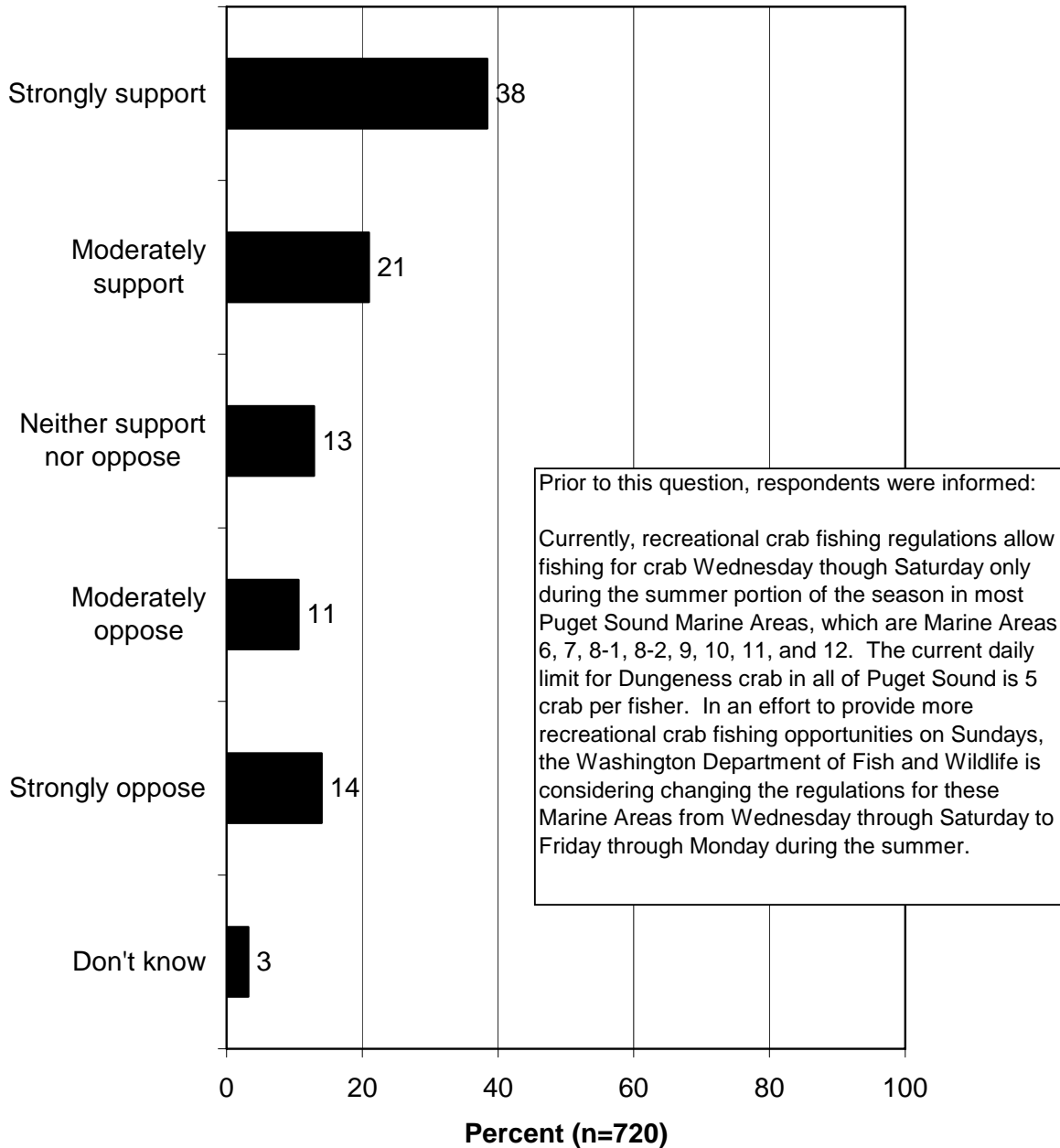
Currently, recreational crab fishing regulations allow fishing for crab Wednesday through Saturday only during the summer portion of the season in most Puget Sound Marine Areas, which are Marine Areas 6, 7, 8-1, 8-2, 9, 10, 11, and 12. The current daily limit for Dungeness crab in all of Puget Sound is 5 crab per fisher. In an effort to provide more recreational crab fishing opportunities on Sundays, the Washington Department of Fish and Wildlife is considering changing the regulations for these Marine Areas from Wednesday through Saturday to Friday through Monday during the summer.

- Those who supported changing the crab fishing regulations, as discussed in the previous question, were asked if they support or oppose changing the daily limit to 4 Dungeness crab per fisherman per day in Puget Sound. Support (62%) far exceeds opposition (35%) among this group. Note that prior to this question, respondents were read the information in the text box below. (For convenience, this graph is also shown with *strongly* support and *moderately* support combined into the total in support, and *strongly* oppose and *moderately* oppose combined into the total in opposition.)
 - On this question, the crosstabulation of those who had returned their Catch Record Card versus those who had not found *no* statistically significant differences at the 95% confidence level. Nonetheless, the graphs are shown.

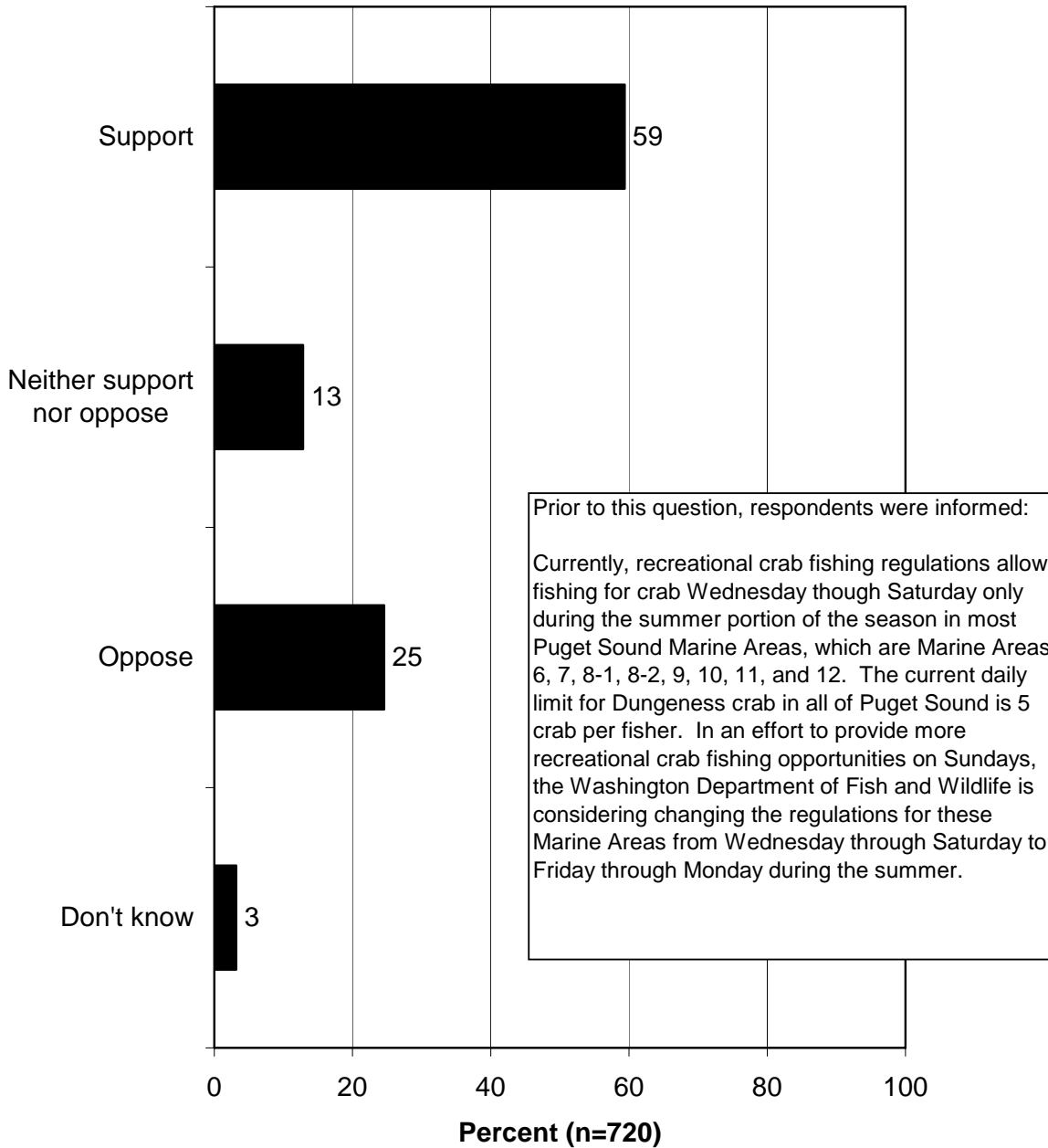
Statements read to respondents prior to Question 20 (discussed above)

The Department believes that changing the crab fishing regulations for these Marine Areas to Friday through Monday during the summer will result in an increase in participation in fishing for crab on Sundays and, therefore, an increase in the total number of Dungeness crab caught and kept. To accommodate the increase in the total number of crab kept, the Department believes it will need to reduce the daily limit for Dungeness crab in Puget Sound. The Department can only allow fishing for crab Friday through Monday during the summer in most Puget Sound Marine Areas if it also changes the daily limit from the current limit of 5 crab to 4 crab per fisher per day in Puget Sound.

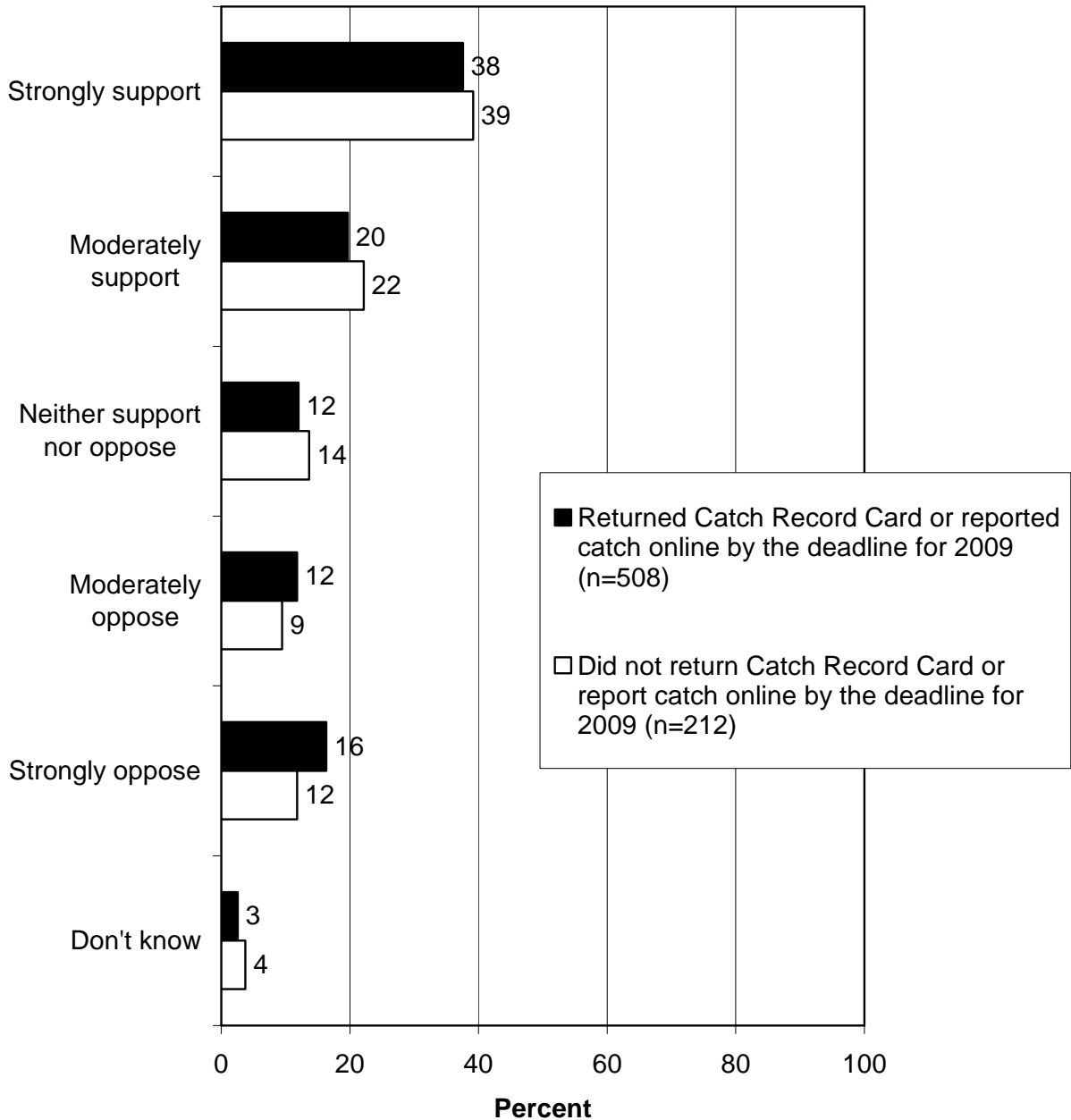
Q17. Do you support or oppose changing crab fishing regulations to allow fishing for crab Friday through Monday only in most Puget Sound Marine Areas during the summer?



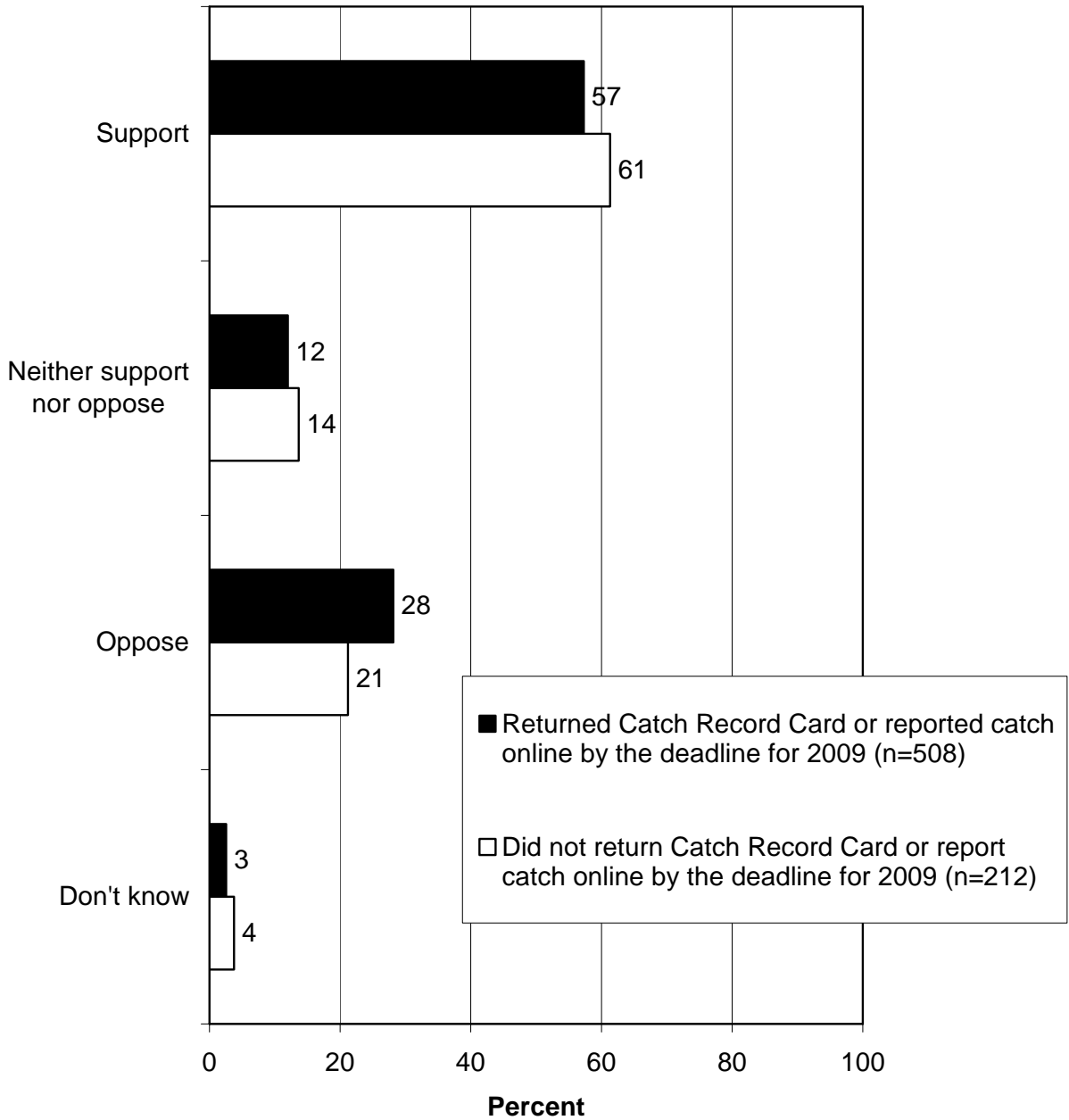
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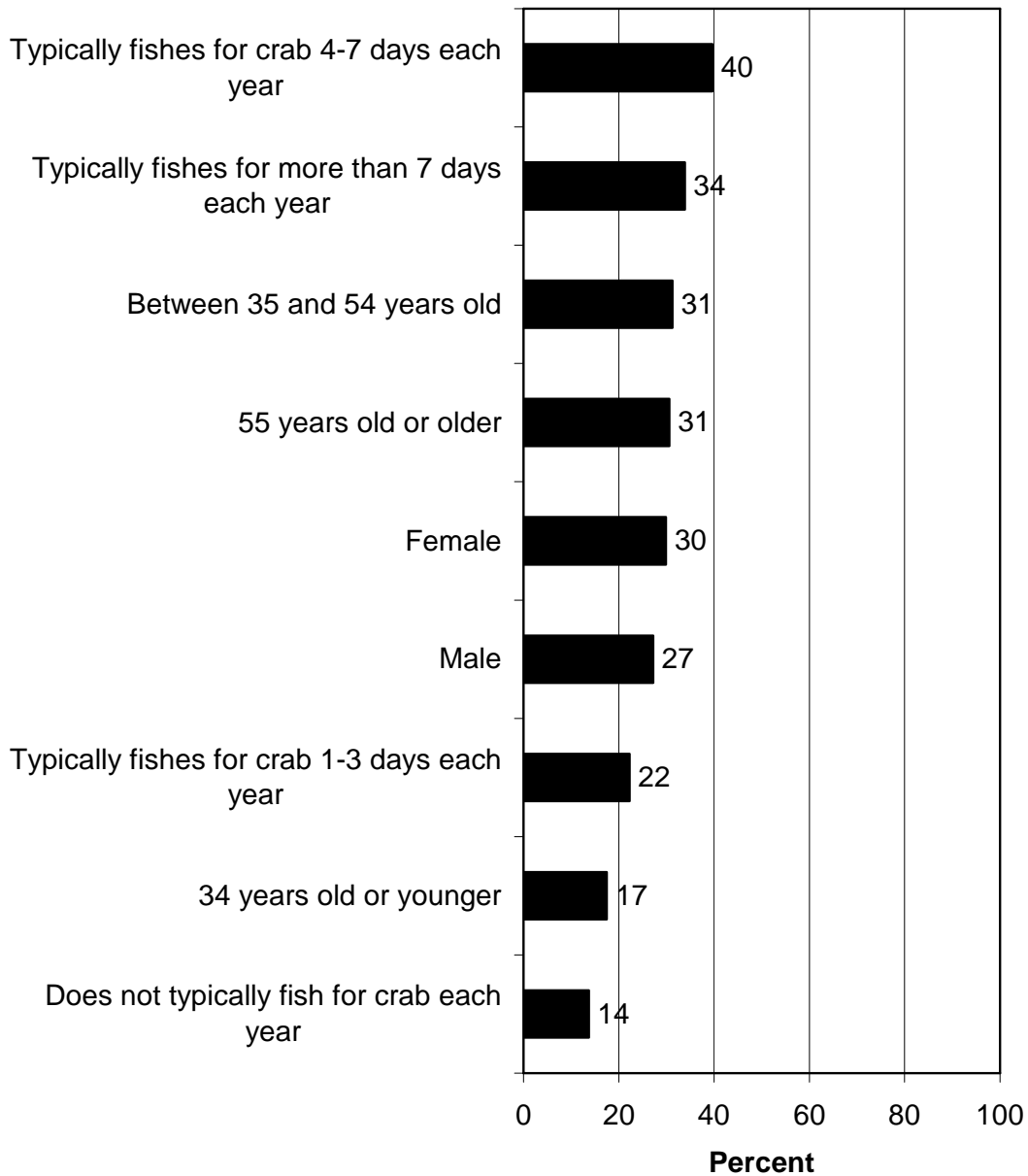
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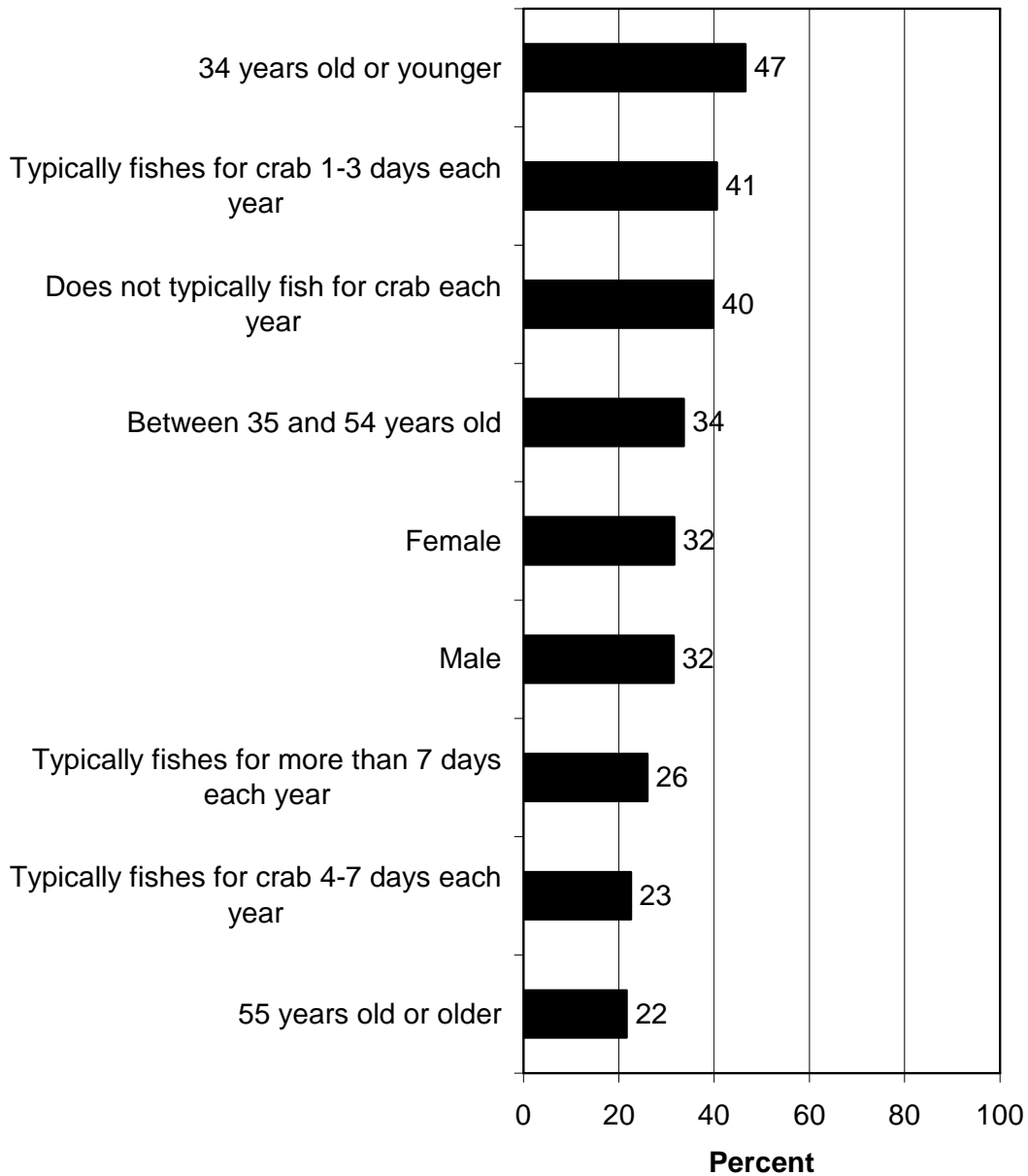
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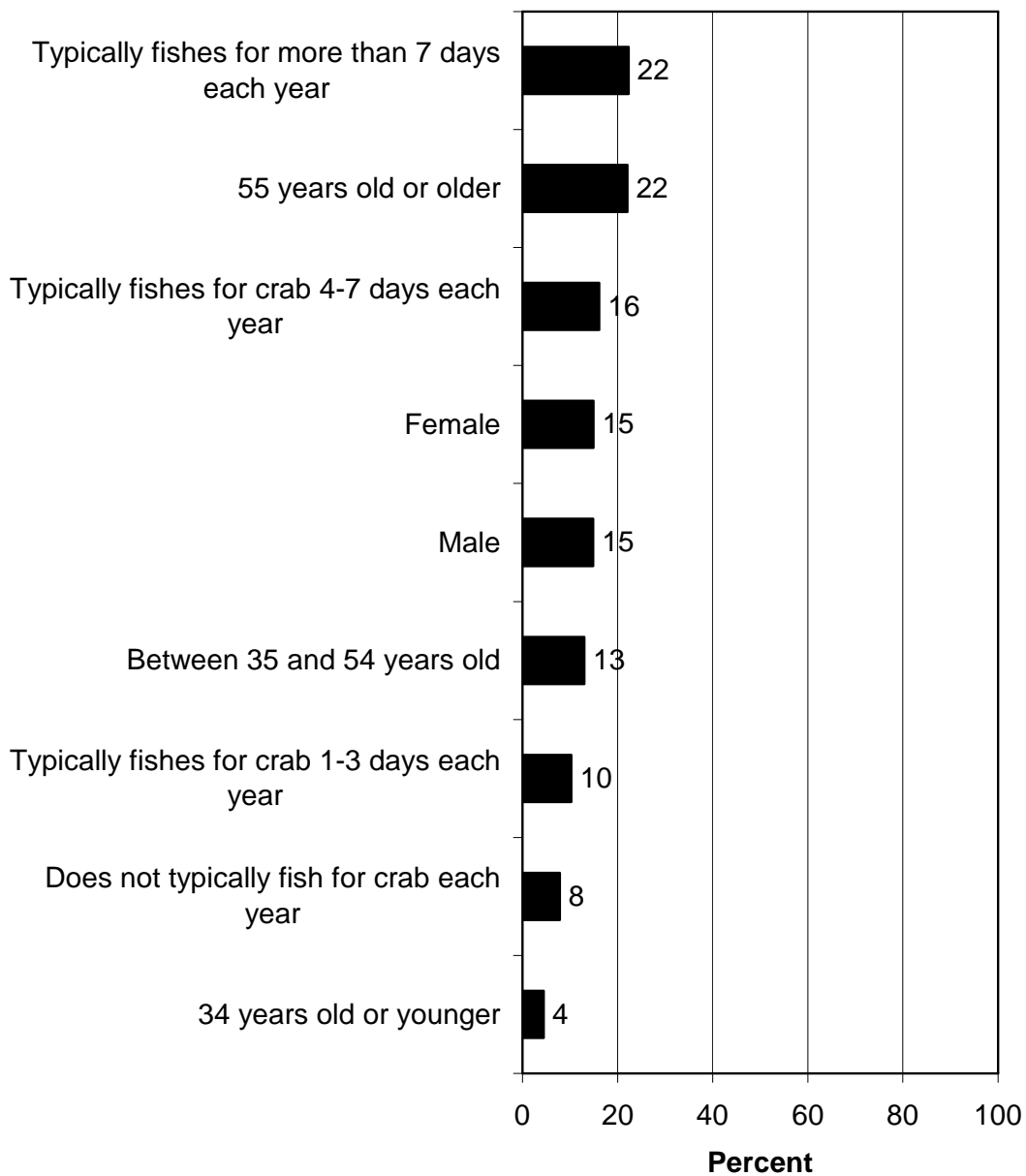
Percent of the given demographic group who returned their Catch Record Card or reported their catch online by the deadline for 2009, and support changing crab fishing regulations to allow fishing for crab Friday through Monday during the summer.



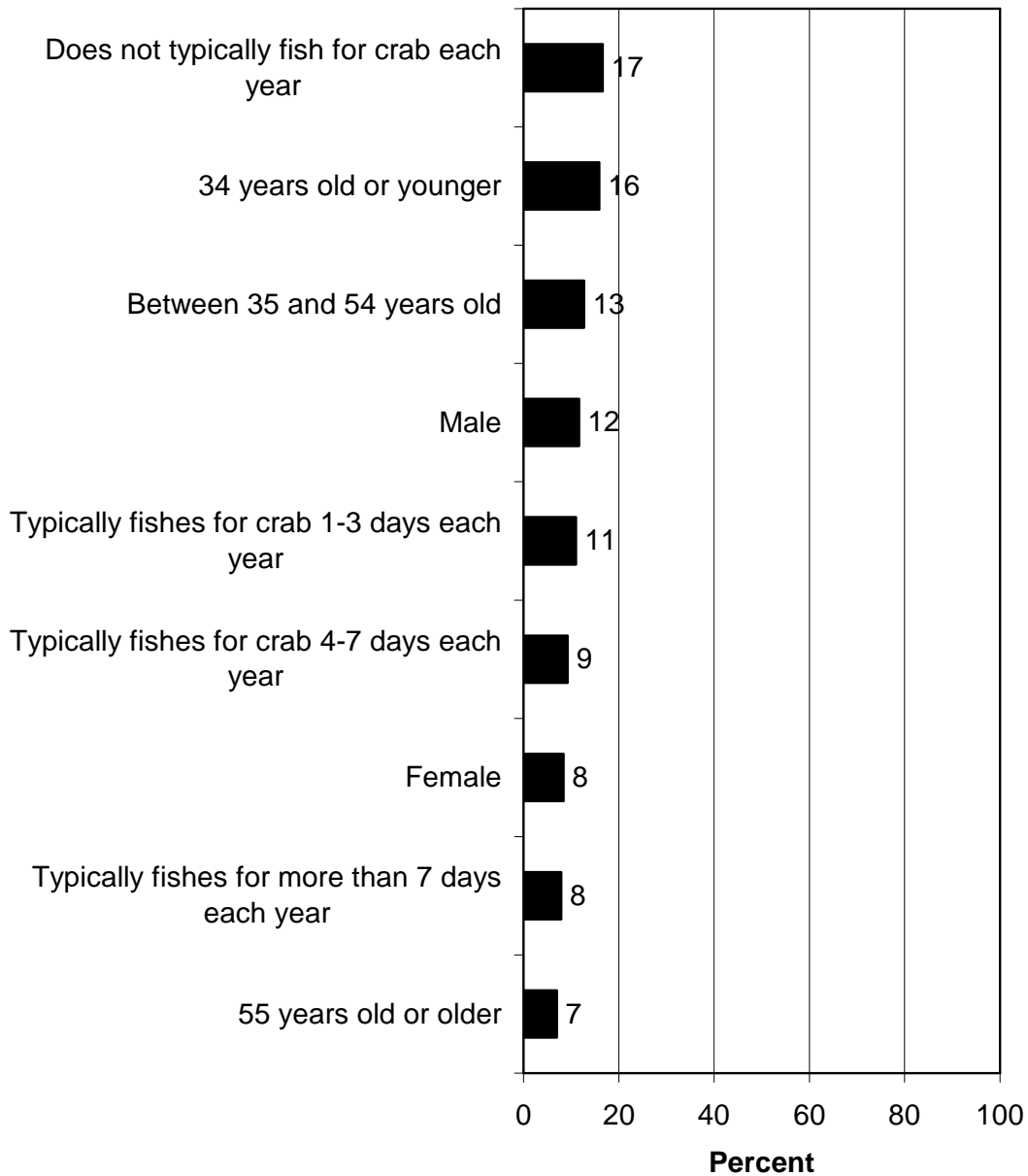
Percent of the given demographic group who did not return their Catch Record Card or report their catch online by the deadline for 2009, and support changing crab fishing regulations to allow fishing for crab Friday through Monday during the summer.



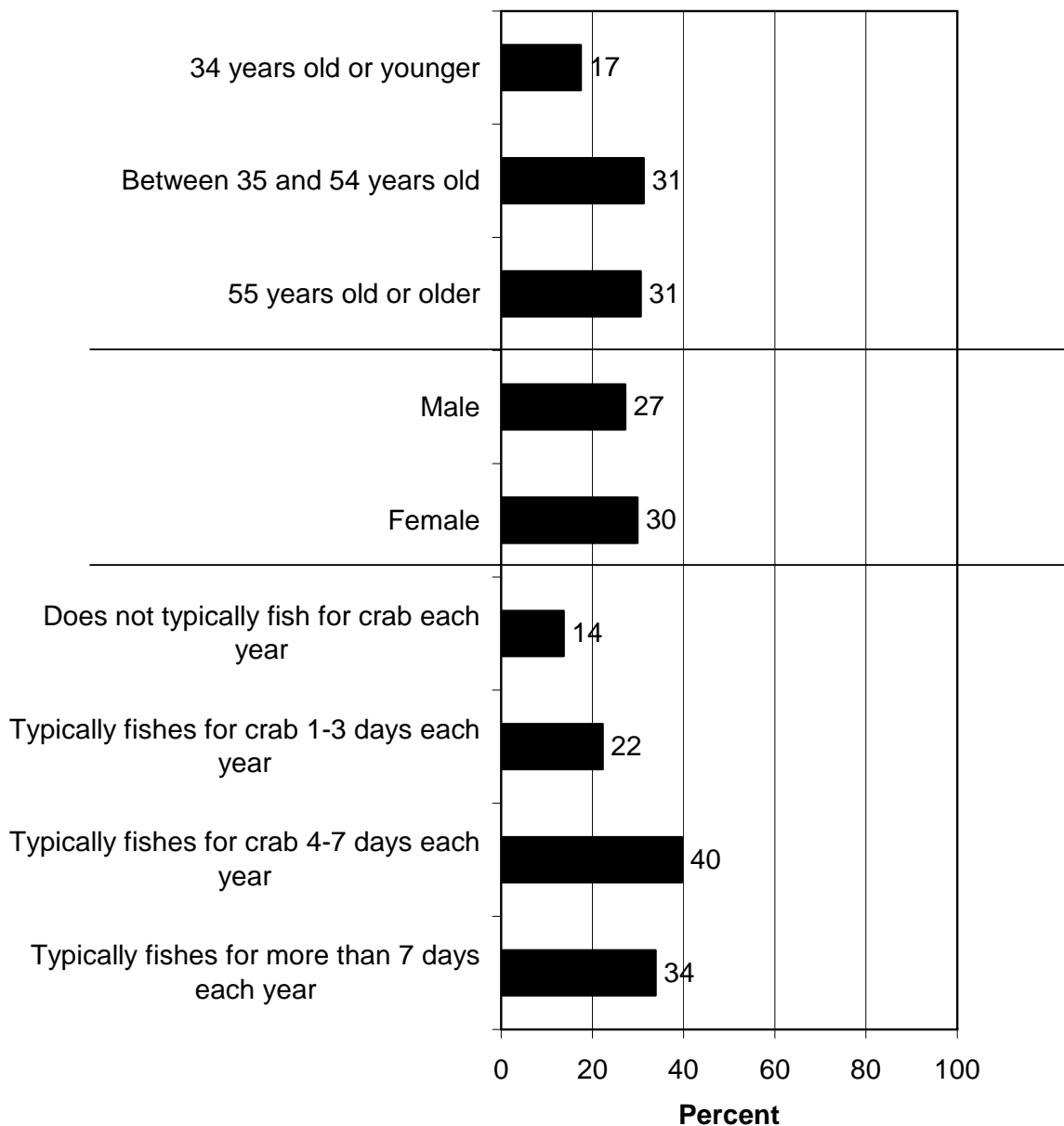
Percent of the given demographic group who returned their Catch Record Card or reported their catch online by the deadline for 2009, and oppose changing crab fishing regulations to allow fishing for crab Friday through Monday during the summer.



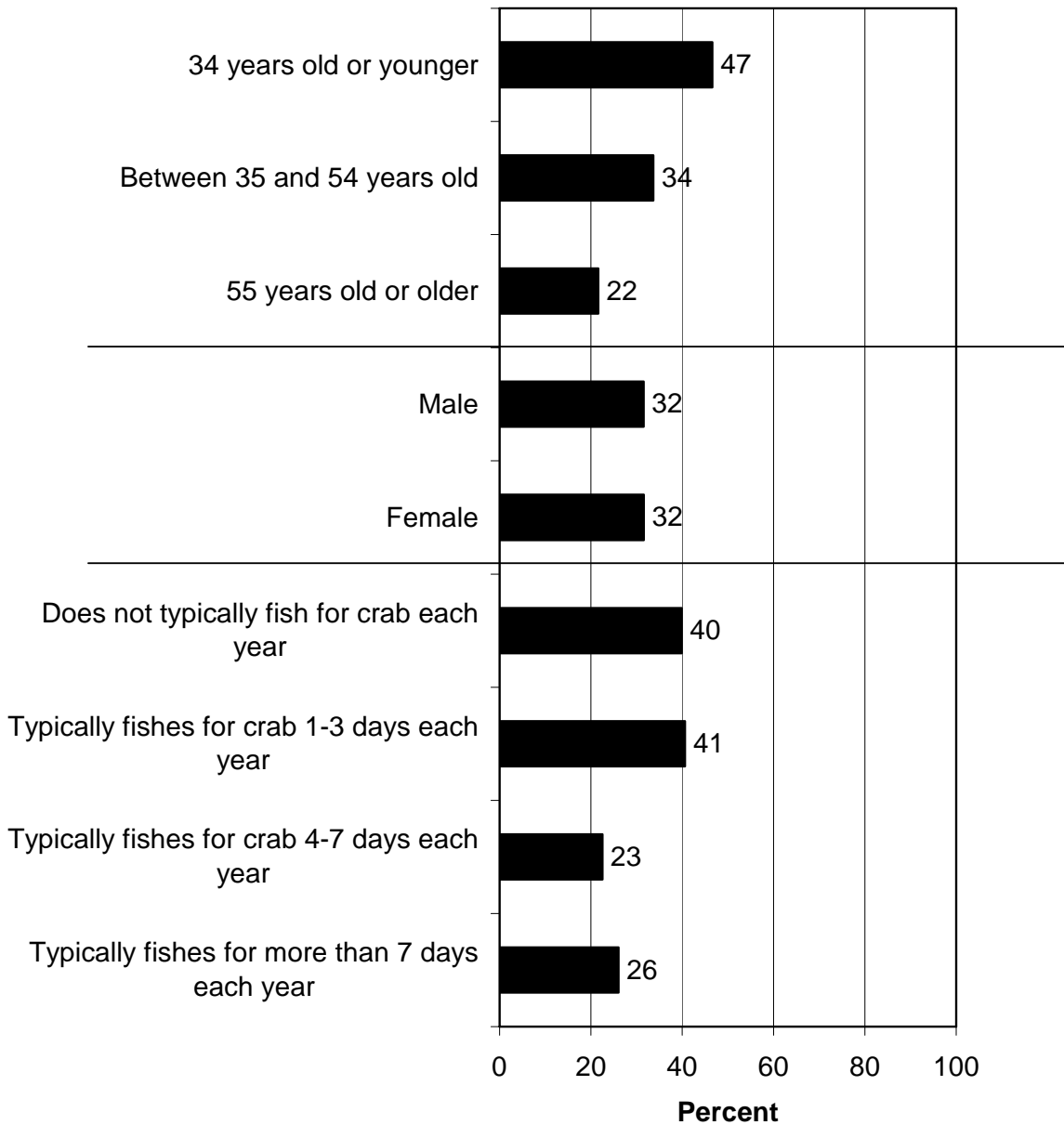
Percent of the given demographic group who did not return their Catch Record Card or report their catch online by the deadline for 2009, and oppose changing crab fishing regulations to allow fishing for crab Friday through Monday during the summer.



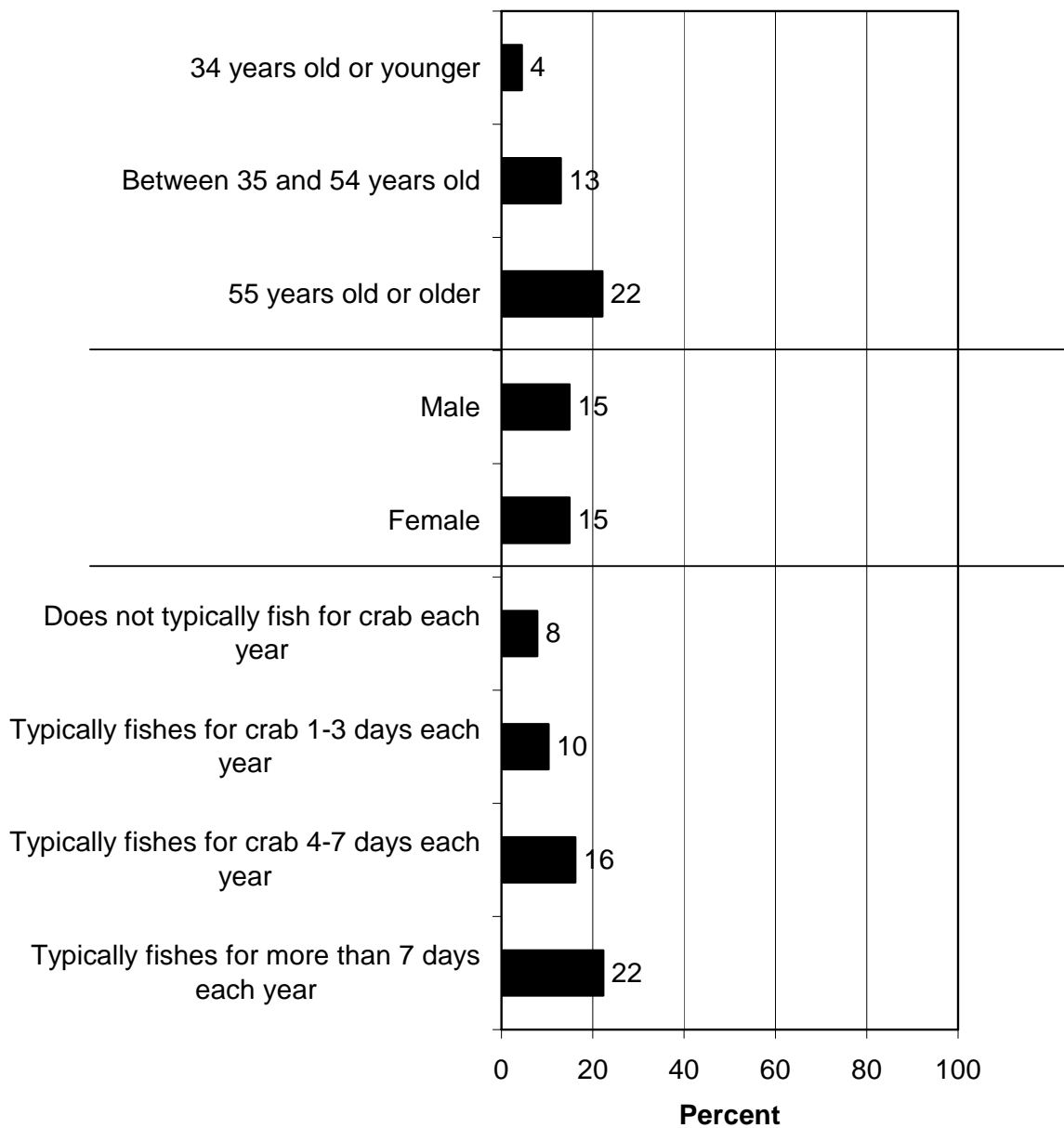
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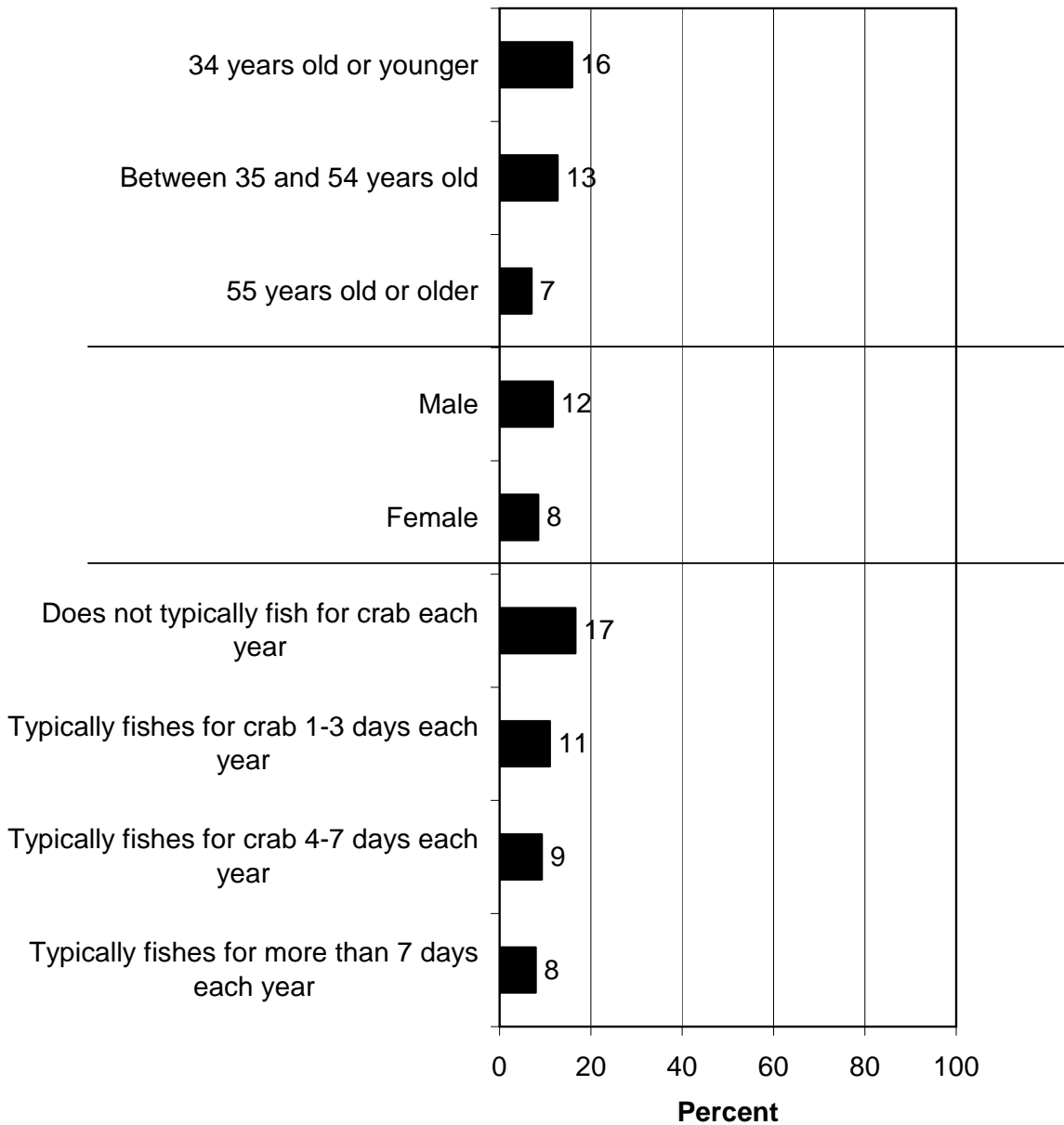
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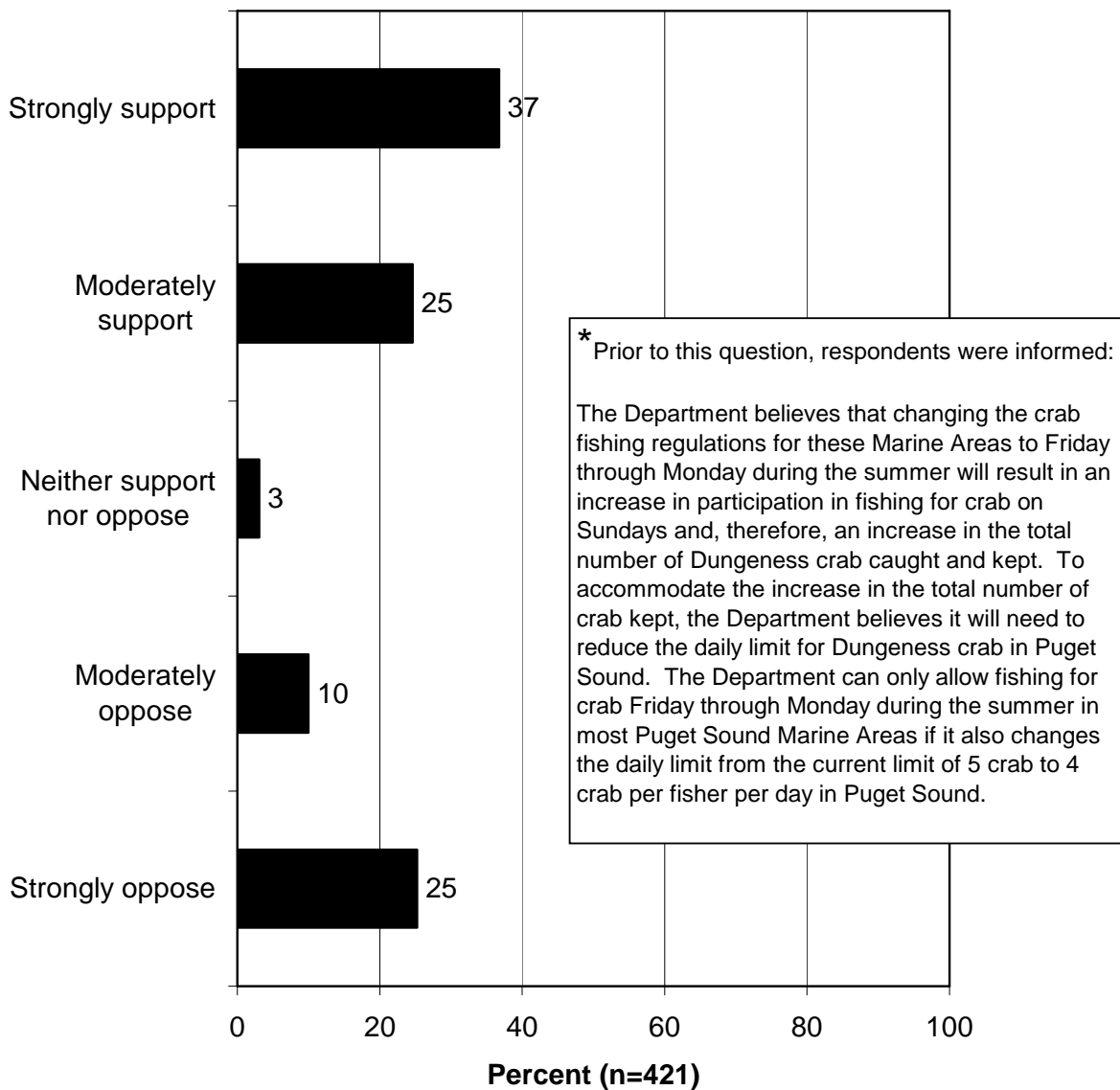
Percent of the given demographic group who returned their Catch Record Card or reported their catch online by the deadline for 2009, and oppose changing crab fishing regulations to allow fishing for crab Friday through Monday during the summer.



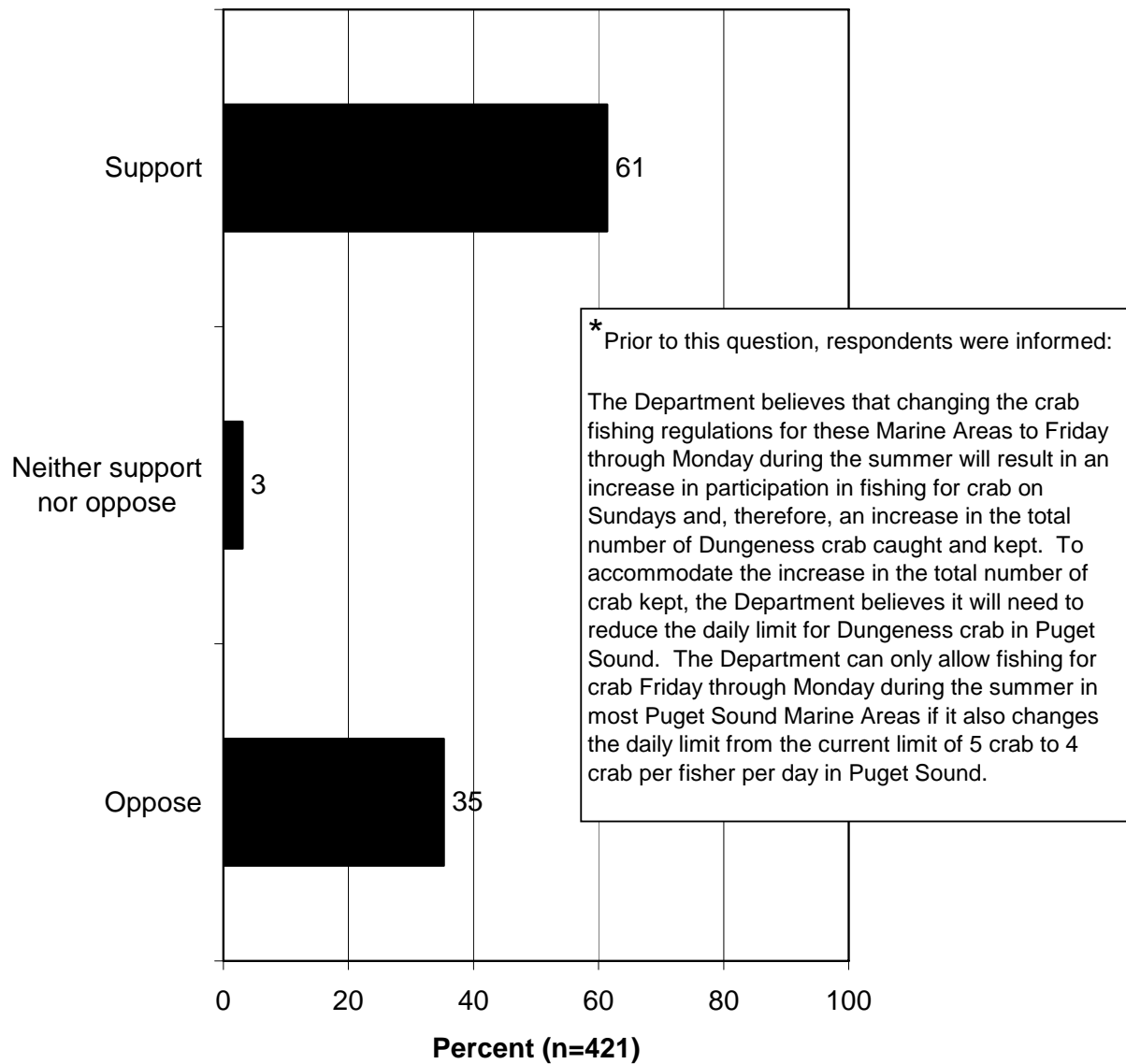
Percent of the given demographic group who did not return their Catch Record Card or report their catch online by the deadline for 2009, and oppose changing crab fishing regulations to allow fishing for crab Friday through Monday during the summer.



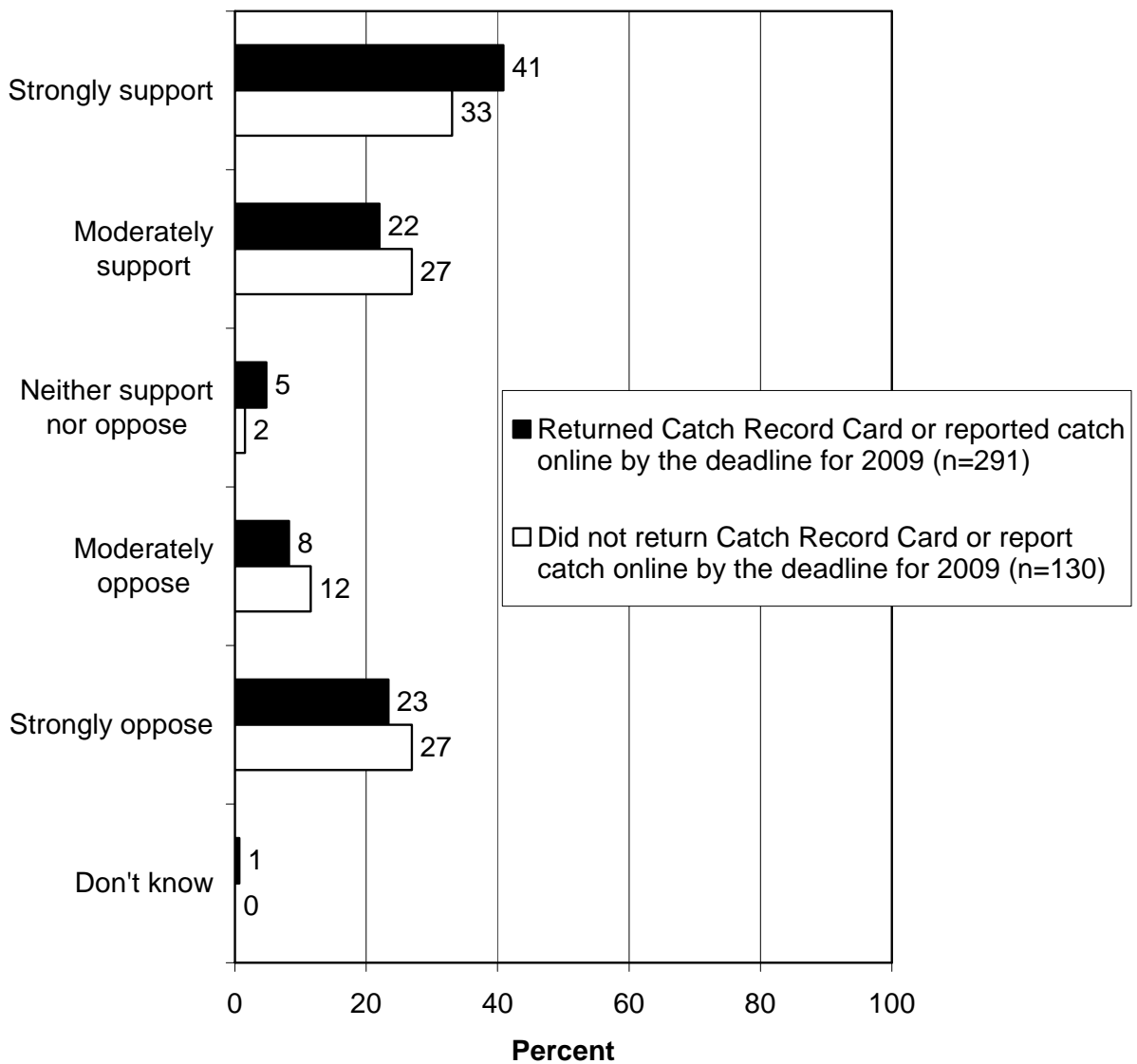
Q20. Knowing this,* do you support or oppose changing the daily limit to 4 Dungeness crab per fisher per day in Puget Sound? (Asked of those who support changing crab fishing regulations to allow fishing for crab Friday through Monday only in most Puget Sound Marine Areas during the summer.)



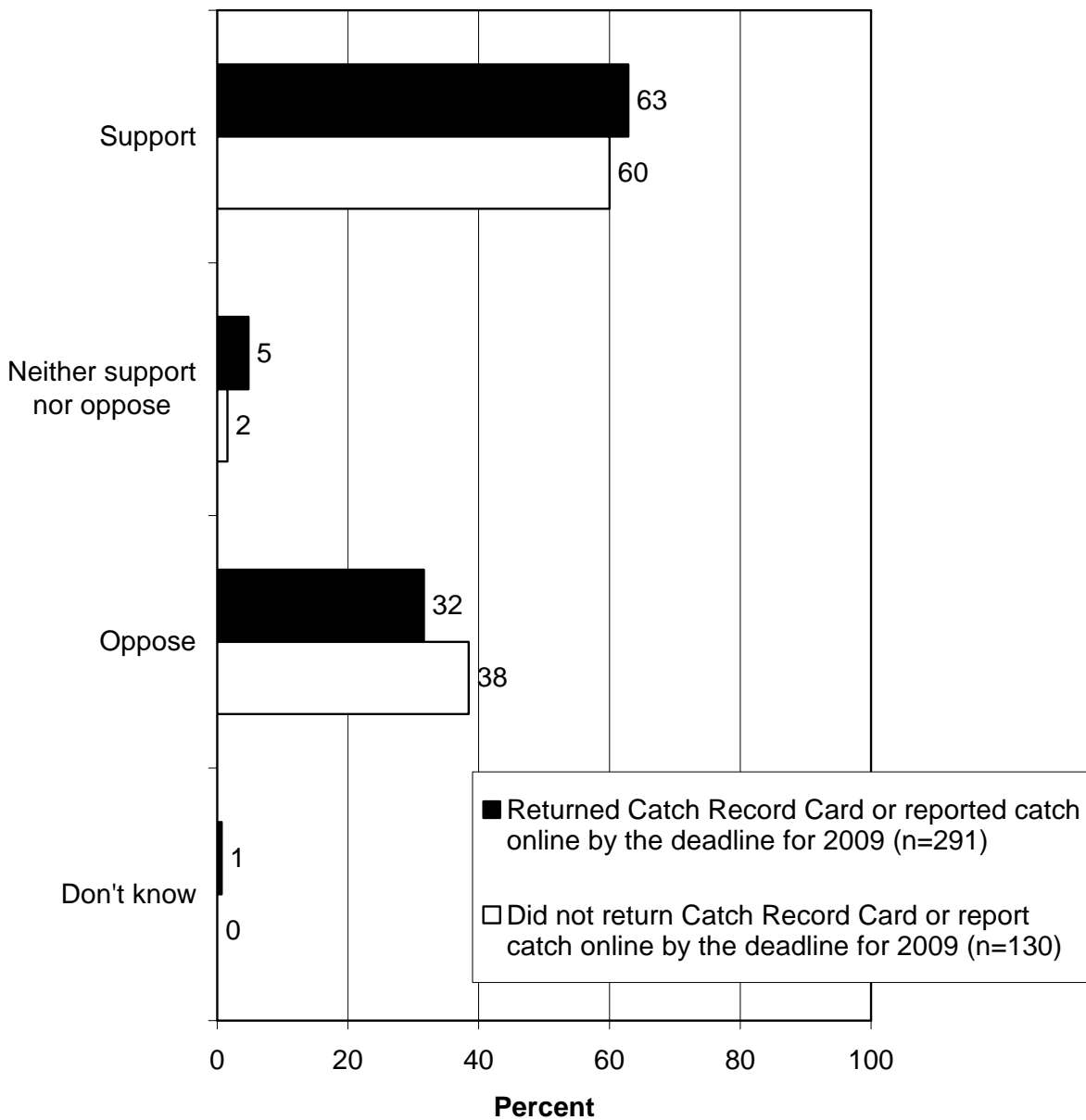
Q20. Knowing this,* do you support or oppose changing the daily limit to 4 Dungeness crab per fisher per day in Puget Sound? (Asked of those who support changing crab fishing regulations to allow fishing for crab Friday through Monday only in most Puget Sound Marine Areas during the summer.)



Q20. Knowing this, do you support or oppose changing the daily limit to 4 Dungeness crab per fisher per day in Puget Sound? (Asked of those who support changing crab fishing regulations to allow fishing for crab Friday through Monday only in most Puget Sound Marine Areas during the summer.)



Q20. Knowing this, do you support or oppose changing the daily limit to 4 Dungeness crab per fisher per day in Puget Sound? (Asked of those who support changing crab fishing regulations to allow fishing for crab Friday through Monday only in most Puget Sound Marine Areas during the summer.)



ABOUT RESPONSIVE MANAGEMENT

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

Utilizing its in-house, full-service, computer-assisted telephone and mail survey center with 45 professional interviewers, Responsive Management has conducted more than 1,000 telephone surveys, mail surveys, personal interviews, and focus groups, as well as numerous marketing and communications plans, need assessments, and program evaluations on natural resource and outdoor recreation issues.

Clients include most of the federal and state natural resource, outdoor recreation, and environmental agencies, and most of the top conservation organizations. Responsive Management also collects attitude and opinion data for many of the nation's top universities, including the University of Southern California, Virginia Tech, Colorado State University, Auburn, Texas Tech, the University of California—Davis, Michigan State University, the University of Florida, North Carolina State University, Penn State, West Virginia University, and others.

Among the wide range of work Responsive Management has completed during the past 20 years are studies on how the general population values natural resources and outdoor recreation, and their opinions on and attitudes toward an array of natural resource-related issues. Responsive Management has conducted dozens of studies of selected groups of outdoor recreationists, including anglers, boaters, hunters, wildlife watchers, birdwatchers, park visitors, historic site visitors, hikers, and campers, as well as selected groups within the general population, such as landowners, farmers, urban and rural residents, women, senior citizens, children, Hispanics, Asians, and African-Americans. Responsive Management has conducted studies on environmental education, endangered species, waterfowl, wetlands, water quality, and the reintroduction of numerous species such as wolves, grizzly bears, the California condor, and the Florida panther.

Responsive Management has conducted research on numerous natural resource ballot initiatives and referenda and helped agencies and organizations find alternative funding and increase their memberships and donations. Responsive Management has conducted major agency and organizational program needs assessments and helped develop more effective programs based upon a solid foundation of fact. Responsive Management has developed websites for natural resource organizations, conducted training workshops on the human dimensions of natural resources, and presented numerous studies each year in presentations and as keynote speakers at major natural resource, outdoor recreation, conservation, and environmental conferences and meetings.

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 routinely conducts surveys in Spanish and has also conducted surveys and focus groups in Chinese, Korean, Japanese, and Vietnamese.

Responsive Management's research has been featured in most of the nation's major media, including CNN, ESPN, *The Washington Times*, *The New York Times*, *Newsweek*, *The Wall Street Journal*, and on the front pages of *The Washington Post* and *USA Today*.

Visit the Responsive Management website at:

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