

# Responsive Management™



## **DELAWARE RESIDENTS' OPINIONS ON CLIMATE CHANGE AND SEA LEVEL RISE**

**Conducted for the State of Delaware and the  
Delaware Sea Grant College Program**

**by Responsive Management**

**2014**



# **DELAWARE RESIDENTS' OPINIONS ON CLIMATE CHANGE AND SEA LEVEL RISE**

**2014**

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## **EXECUTIVE SUMMARY**

### **INTRODUCTION AND METHODOLOGY**

This study was conducted for the State of Delaware and the Delaware Sea Grant College Program to determine residents' opinions on climate change and sea level rise, whether residents believe they are happening, the perceived threats posed by them, and opinions on the potential mitigative actions that could be taken. The study entailed a telephone survey of Delaware residents 18 years old and older. 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 Delaware residents (both landlines and cell phones were called in their proper proportions). 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.

The telephone survey questionnaire was developed cooperatively by Responsive Management and Delaware research team. Responsive Management conducted pre-tests of the questionnaire to ensure proper wording, flow, and logic in the survey. The sample of Delaware residents was obtained from SSI and DatabaseUSA, companies that specialize in providing scientifically valid samples for surveys. Telephone surveying times are 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. The survey was conducted in August 2014. The software used for data collection was Questionnaire Programming Language. Responsive Management obtained a total of 1,508 completed interviews. The analysis of data was performed using Statistical Package for the Social Sciences as well as proprietary software developed by Responsive Management.

In general, the trends analysis shows that fluctuations in responses from 2009 to 2014 were not dramatic and often only slight, even when statistically significant. Overall, it seems that Delaware residents have become slightly more supportive of or agreeable to the concept of and

actions related to climate change and, to a lesser degree, sea level rise and may be slightly more likely to consider them threats, but concern for both has not increased substantially. Self-reported knowledge levels about climate change and sea level rise have also not experienced increases, even though *strong* agreement that we should take immediate action to reduce the impacts related to each showed substantial and statistically significant increases: 35% strongly agreed we should take immediate action to reduce the impacts of climate change in 2009 compared to 54% in 2014, and 35% strongly agreed we should take immediate action to reduce the impacts of sea level rise in 2009 compared to 49% in 2014.

It is worth noting that many of the increases and decreases that were seen in the trends analysis are in the extreme categories, such the responses that are qualified with *strongly* or *very*, suggesting the changes in attitudes could be more a shift in degree, that is, perhaps some who were previously only slightly or moderately of an opinion have now progressed to a more solidified or stronger opinion. Nonetheless, there are also some small yet encouraging decreases in responses that suggest a denial or misinformed stance on climate change and sea level rise.

## PERCEPTIONS OF IMPORTANT ENVIRONMENTAL ISSUES

- To test where climate change and sea level rise rank in the concerns that Delaware residents have, the survey presented a list of seven areas of possible concern and asked residents to indicate if they were *very* concerned, *somewhat* concerned, or *not at all* concerned about each. Both climate change and sea level rise are the lowest ranked of the items. While a majority of residents are *very* concerned about the economy (72% are *very* concerned), public education (69%), health care (67%), crime rates (62%), and the environment (60%), less than a majority are *very* concerned about climate change (41%) and sea level rise (25%).
  
- Similar to the above question, the survey presented a list of nine possible environmental concerns and asked residents to rate their concern (*very*, *somewhat*, or *not at all*). Again, climate change (the 7th ranked) and sea level rise (the 9th ranked) are low on the ranking by *very* concerned. A majority of residents are *very* concerned about water pollution (71%), toxic waste (68%), air quality (61%), loss of forest habitat (54%), and declining fish and

wildlife populations (52%). This compares to 43% being *very* concerned about climate change and 36% being *very* concerned about sea level rise.

### **KNOWLEDGE AND AWARENESS OF CLIMATE CHANGE AND SEA LEVEL RISE**

- Two questions asked residents to rate their knowledge about climate change and sea level rise. They claim to know a bit more about climate change than sea level rise.
  - Most Delaware residents say that they know at least a moderate amount about climate change: 62% say that they know either a *great deal* (14%) or a *moderate amount* (48%). At the other end, 32% claim to know a *little*, and only 5% say that they know *nothing*.
  - In looking at knowledge of sea level rise, 41% of residents say that they know a *great deal* or *moderate amount*; meanwhile, 58% say that they know a *little* or *nothing*.

### **OPINION ON CLIMATE CHANGE AND SEA LEVEL RISE AND WHETHER THEY ARE HAPPENING**

- Residents fall into three camps: deniers/the misinformed (making up about a quarter of residents), those on the fence, so to speak (making up about a third), and those who think that climate change and sea level rise are happening (making up just under half).
  - The deniers/misinformed are the 20% who are *not so* or *not at all* convinced that climate change is happening, and the 26% who are *not so* or *not at all* convinced that sea level rise is happening. They include all of the 3% who say that *most scientists think climate change is not happening*, and a portion of the 31% who say that *there is a lot of disagreement among scientists about whether it is happening*.
  - The middle ground consists of those who are convinced that climate change and sea level rise are happening but are only *mostly* convinced (rather than *completely* convinced). This group consists of the 32% who are *mostly* convinced about climate change and the 31% who are mostly convinced about sea level rise. Some of this group say that *there is a lot of disagreement among scientists about whether it is happening*, while some know that *most scientists think climate change is happening*.
  - The final group are those who think that climate change and sea level rise are happening. This group consists of those who are completely convinced that climate change (46%)

and sea level rise (39%) are happening and the 49% who say that most scientists think climate change is happening.

- The survey questions that made up this section summary are discussed below.
- In basic questions, the survey directly asked residents about their opinions on whether climate change and sea level rise are happening.
- Regarding climate change, 20% of Delaware residents say that they are *not so convinced* or *not at all convinced* that climate change is happening. At the other end, 79% are *completely* or *mostly* convinced; however, a substantial portion of that consists of residents who are only *mostly* convinced (46% are *completely* and 32% are *mostly* convinced—rounding on the graph causes the apparent discrepancy in the sum, which is 79% when calculated on unrounded numbers).
  - Likewise, 26% of residents are *not so convinced* or *not at all convinced* that sea levels are rising; 70% are *completely* or *mostly* convinced, the latter split between *completely* convinced (39%) and *mostly* convinced (31%).
    - The survey included another way to assess opinion on whether climate change is happening. The survey asked residents if they agree or disagree that “Scientists are right that climate change is occurring”: while the majority of residents agree (83%), a substantial percentage (11%) disagree.
    - Another question asked residents to say, regardless of their personal views, whether or not most *scientists* think climate change is happening. Misinformation is rampant, as 31% say that there is a lot of disagreement among scientists about whether it is happening or not, and another 3% say that most scientists think climate change is not happening. Only 49% of residents correctly say that most scientists think that climate change is happening.
    - A follow-up question asked residents to say whether climate change, if it is indeed happening, is caused mostly by human activities, mostly by natural changes in the environment, or both about equally. Most commonly, residents say it is caused mostly by human activities (41%), while 24% say mostly natural causes, and 29% say both about equally.



- Another question asked if residents agree or disagree that “Climate change is contributing to the rise in sea levels.” The majority (79%) agree, but 11% disagree.
- The survey delved into personal experiences with climate change and sea level rise, asking residents if they agree or disagree that they have personally experienced the impacts of climate change and sea level rise.
  - A slight majority agree that they have “personally experienced or observed local impacts of climate change” (53%), but 40% disagree.
  - Just over a quarter agree that they have “personally experienced the impacts of sea level rise” (28%), but the majority disagree (66%).

### **PERCEPTIONS OF CLIMATE CHANGE AND SEA LEVEL RISE AS A THREAT**

- About a fifth of Delaware residents (19%) are complacent about climate change, saying that climate change as a threat is *not very serious* or *not at all serious*. At the other end of the scale, 34% say it is a *somewhat serious* threat, and 45% say it is a *very serious* threat.
- A question asked about level of worry about sea level rise: 31% of residents are *not at all* worried about sea level rise. Moving up the scale, 24% are *only a little* worried, 31% are worried *a moderate amount*, and 13% are worried *a great deal*.
- The survey presented ten items and asked respondents to rate how much of a threat climate change was to each. The items fall into four tiers:
  - The top tier consists of *people's health* and *Delaware's agriculture*: 45% and 44%, respectively, say that climate change is a *very serious* threat to the items.
  - The next tier consists of *people's safety* and the *natural resources of Delaware*: 38% and 34% say it is a *very serious* threat to them.
  - The third tier is made up of *Delaware's economy*, *Delaware's infrastructure*, and *outdoor recreation in Delaware*: 30%, 29%, and 28%, respectively, say climate change is a *very serious* threat to these.
  - The bottom tier consists of *national security*, the *local community*, and *people's homes*: less than 25% think climate change is a *very serious* threat to these.

- Similar to the above series, another series presented 15 items to residents and asked them to say how much of a threat sea level rise is to each. In looking at the percentages who think that sea level rise is a *very serious threat*, three tiers emerge:
  - Two items are at the top substantially ahead of the rest of the items: *Delaware's beaches* and *ocean-front cities and towns in Delaware*. On these, 57% and 56%, respectively, think sea level rise is a *very serious threat*.
  - A middle tier consists of 9 of the 15 items, with a quarter to just under half saying sea level rise is a *very serious threat*: these include *marsh and wetlands areas* and *riverfront cities and towns in Delaware*, as well as Delaware's *public works systems*, its *wildlife populations*, its *economy*, and *outdoor recreation* in Delaware.
  - The bottom tier is people's *local community*, *themselves*, their *property*, and their *families*. Each of these has less than 25% saying that sea level rise is a *very serious threat* to it.
  
- Two questions examined perceptions of the timing of climate change and sea level rise.
  - Residents were asked when they think climate change will have an impact on their area. The most common response is that it is having impacts *now* (41% give this response). Another 33% give a time of 25 years or less. However, 18% consist of those saying 50 or 100 years or saying never (i.e., climate change is not happening).
  - Regarding sea level rise, 20% say *now*, 40% give a time of 25 years or less, and 29% saying 50 or 100 years or never.

#### **PERCEPTIONS OF EFFICACY OF TAKING ACTION TO MITIGATE CLIMATE CHANGE**

- A majority of Delaware residents (72%) agree that the *impacts of climate change can be reduced by human efforts*; on the other hand, 21% disagree. Likewise, 59% agree that sea level rise can be reduced by human efforts, while 29% disagree.
  - Similarly, 65% agree that they can *personally take actions that will help reduce climate change*; meanwhile, 28% disagree.

- Two questions delved into the amount of action that can be taken to reduce climate change, both asking about agreement or disagreement with statements. The first statement says that “*There is limited action that can be taken to reduce climate change,*” and the second statement says that “*There are many actions that can be taken to reduce climate change.*” A greater percentage agree that there are *many actions* that can be taken than agree that there is *limited action* that can be taken.
  - For limited action, 49% of residents agree that *there is limited action that can be taken to reduce climate change*. However, 42% disagree with this statement.
  - For many actions, 70% of residents agree that *there are many actions that can be taken to reduce climate change*, while only 19% disagree.

## MANAGEMENT STRATEGIES PERTAINING TO CLIMATE CHANGE

- Regardless of their opinions on climate change and sea level rise, the large majority of residents say that action should be taken to address or reduce the impacts of sea level rise in their area *before impacts occur* (74% say this) rather than *as impacts begin* (8%) or *after impacts cause problems* (3%). Note that 8% said never because sea levels are not rising.
- Two questions looked at whether action should be taken now or whether more study should be done.
  - A large majority of Delaware residents (76%) agree that *we should take immediate action to reduce the impacts of climate change*; on the other hand, 18% disagree.
  - This compares to 63% who agree that *we should conduct more research before taking any action to address climate change* and 32% who disagree.
  - A similar pairing of questions asked the same thing about sea level rise. A large majority of Delaware residents (72%) agree that *we should take immediate action to reduce the impacts of sea level rise*, while 21% disagree. Meanwhile, 64% agree that *we should conduct more research before taking any action to address sea level rise*, and 30% disagree.
- A large majority of residents (74%) agree that the state of Delaware needs to conduct more research to identify the impacts of sea level rise in the state; 18% disagree.

- The survey presented ten actions that could be taken to address sea level rise in Delaware. For each action, residents were asked if they would support or oppose it.
  - Two actions are in a top tier: *change building codes and regulations to reduce risk in flood prone areas* and *avoid building new structures in areas at risk from sea level rise*: 63% and 62%, respectively, *strongly* support those actions.
  - The next tier consists of those actions with well more than a third to a half in *strong* support: *increasing funding for research* (50%); *elevating buildings in areas of risk using private funding* (46%); *allowing beaches and wetlands to naturally migrate inland* (41%); *building dikes, seawalls, and bulkheads to keep water back* (38%); and *elevating the land surface in areas of risk* (38%).
  - The bottom tier are those that explicitly entail using government funds: *elevating buildings in areas at risk from sea level rise using government funds* (34%), *purchasing or acquiring land and open space at risk from sea level rise from willing land sellers using government funds* (29%), and *purchasing or buying out frequently flooded properties using government funds* (24%).
  
- The large majority of Delaware residents (70%) support having their local and state governments spend more money on public construction projects if it means that the structures could withstand or accommodate sea level rise; however, 20% oppose.

## RESPONSIBILITY FOR TAKING ACTION

- The survey presented five entities and asked whether each should be doing more to address or reduce the impacts of sea level rise in Delaware. In looking at the percentages who say that the entities should be doing *much* more, there is little separation between the top four entities: business and industry (43% say that they should do *much* more), the federal government (41%), the state government (40%), and the local/county government (38%). At the bottom are Delaware's residents (34% of residents say that Delaware's residents should be doing *much* more).

## **PERSONAL ACTIONS TAKEN RELATED TO CLIMATE CHANGE AND SEA LEVEL RISE**

- About 2 in 5 Delaware residents (41% of them) say that they have personally taken action within the past 2 years to try to reduce climate change.
  
- The survey presented six things that people could have done pertaining to addressing sea level rise or learning more about sea level rise. The majority of residents have read a newspaper or magazine article about sea level rise (53%), and nearly half have had a conversation with a friend or family member about sea level rise (45%). Lesser percentages have read about sea level rise on social media (29%), have visited a website for sea level rise information (24%), have read a brochure or handout about sea level rise (17%), or have attended a public meeting or workshop about sea level rise (7%).

## **SOURCES OF INFORMATION ABOUT CLIMATE CHANGE AND SEA LEVEL RISE**

- The most popular sources of information about environmental issues in Delaware are television (47% get environmental information this way), newspapers (44%), and the Internet (42%). No other source was named by more than 15% of residents.
  
- The topics about climate change and sea level rise most in demand include the impacts of climate change and sea level rise, the impacts specifically on the Delaware Bay and the state's beaches, actions that can be taken to mitigate climate change and sea level rise, impacts on specific resources or groups, how to protect property, how climate change and sea level rise correlate, and funding needs to address the impacts.
  
- Residents are split on whether there is enough available information about sea level rise: 46% agree that there is, but 44% disagree.

## TABLE OF CONTENTS

Introduction and Methodology .....	1
Use of Telephones for the Survey .....	1
Questionnaire Design .....	1
Survey Sample.....	1
Telephone Interviewing Facilities .....	2
Interviewing Dates and Times.....	2
Telephone Survey Data Collection and Quality Control.....	2
Data Analysis.....	3
Sampling Error .....	3
Additional Information About the Presentation of Results in the Report .....	4
Perceptions of Important Environmental Issues .....	6
Knowledge and Awareness of Climate Change and Sea Level Rise.....	52
Opinion on Climate Change and Sea Level Rise and Whether They Are Happening .....	64
Perceptions of Climate Change and Sea Level Rise as a Threat .....	108
Potential Actions Perceived to Affect Climate Change.....	182
Perceptions of Efficacy of Taking Action to Mitigate Climate Change .....	182
Management Strategies Pertaining to Climate Change .....	210
Responsibility for Taking Action .....	292
Personal Actions Taken Related to Climate Change and Sea Level Rise.....	307
Sources of Information About Climate Change and Sea Level Rise.....	316
Demographic Data .....	332
About Responsive Management .....	380

## **INTRODUCTION AND METHODOLOGY**

This study was conducted for the State of Delaware and the Delaware Sea Grant College Program to determine residents' opinions on climate change and sea level rise, whether residents believe they are happening, the perceived threats posed by them, and opinions on the potential mitigative actions that could be taken. The study entailed a telephone survey of Delaware residents 18 years old and older. Specific aspects of the research methodology are discussed below.

### **USE OF TELEPHONES FOR THE SURVEY**

For the survey, telephones were selected as the preferred sampling medium because of the almost universal ownership of telephones among Delaware residents (both landlines and cell phones were called in their proper proportions). 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.

### **QUESTIONNAIRE DESIGN**

The telephone survey questionnaire was developed cooperatively by Responsive Management and Delaware research team, based in part on a similar survey administered in 2009. Responsive Management conducted pre-tests of the questionnaire to ensure proper wording, flow, and logic in the survey.

### **SURVEY SAMPLE**

The sample of Delaware residents was obtained from SSI and DatabaseUSA, companies that specialize in providing scientifically valid samples for surveys. The sample was stratified in two ways: by county, with a goal of 500 completed interviews per county, and by cell phone/landline, with these being sampled proportionally in each county so that cell phones and landlines would be in their proper proportions. For statewide results, the sample was weighted to be representative of all residents across the state 18 years old and older.

## **TELEPHONE INTERVIEWING FACILITIES**

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 outdoor recreation and natural resources.

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 a project briefing 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 questionnaire, reading of the survey questions, skip patterns, and probing and clarifying techniques necessary for specific questions on the survey questionnaire.

## **INTERVIEWING DATES AND TIMES**

Telephone surveying times are 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. When a respondent could not be reached on the first call, subsequent calls were placed on different days of the week and at different times of the day. The survey was conducted in August 2014.

## **TELEPHONE SURVEY DATA COLLECTION AND QUALITY CONTROL**

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 questionnaire was programmed so that QPL



branched, coded, and substituted phrases in the survey based on previous responses to ensure the integrity and consistency of the data collection.

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. The survey questionnaire itself contains error checkers and computation statements to ensure quality and consistent 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. Responsive Management obtained a total of 1,508 completed interviews.

## **DATA ANALYSIS**

The analysis of data was performed using Statistical Package for the Social Sciences as well as proprietary software developed by Responsive Management. The results were weighted by demographic and geographic characteristics in each county and then by county population for statewide results, so that the sample was representative of residents of Delaware as a whole.

Crosstabulations were run on many questions by county of residence and by coastal/non-coastal residency. For each question, these graphs are in the body of the report following the main graph of the question. Additionally, trends based on the aforementioned 2009 survey are included on some questions.

## **SAMPLING ERROR**

Throughout this report, findings of the telephone survey are reported at a 95% confidence interval. The sampling errors for all residents and the various subsamples are shown in the tabulation that follows. Sampling error was calculated using the formula described after the tabulation.

### Sample Sizes and Sampling Errors

Sample	Number in Sample	Population	Sampling Error
Overall (all State Residents)	1,508	692,169	2.52
Half the Sample*	754	692,169	3.57
New Castle County	506	413,400	4.35
Kent County	500	121,931	4.37
Sussex County	502	156,838	4.37
Coastal Residents**	309	141,895	5.57
Non-Coastal Residents**	1,199	550,274	2.83

\*Because the survey was long, in some places the sample was randomly split, with half the sample getting some questions and the other half getting other questions. This shows the sampling error on a random half of the sample.

\*\*This categorization was based on the subjective opinion of the respondent, who was asked if he/she lived in a coastal or non-coastal area. Based on the proportions who say that they are coastal/non-coastal, an estimated population was calculated and then the sampling error was determined.

### 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).

### ADDITIONAL INFORMATION ABOUT THE PRESENTATION OF RESULTS IN THE REPORT

In examining the results, it is important to be aware that the questionnaire included several types of questions:

- Open-ended questions are those in which no answer set is read to the respondents; rather, they can respond with anything that comes to mind from the question.
- Closed-ended questions have an answer set from which to choose.
- Single or multiple response questions: Some questions allow only a single response, while other questions allow respondents to give more than one response or choose all that apply. Those that allow more than a single response are indicated on the graphs with the label, "Multiple Responses Allowed."
- Scaled questions: Many closed-ended questions (but not all) are in a scale, such as excellent-good-fair-poor.

- Series questions: Many questions are part of a series, and the results are primarily intended to be examined relative to the other questions in that series (although results of the questions individually can also be valuable). Typically, results of all questions in a series are shown together.

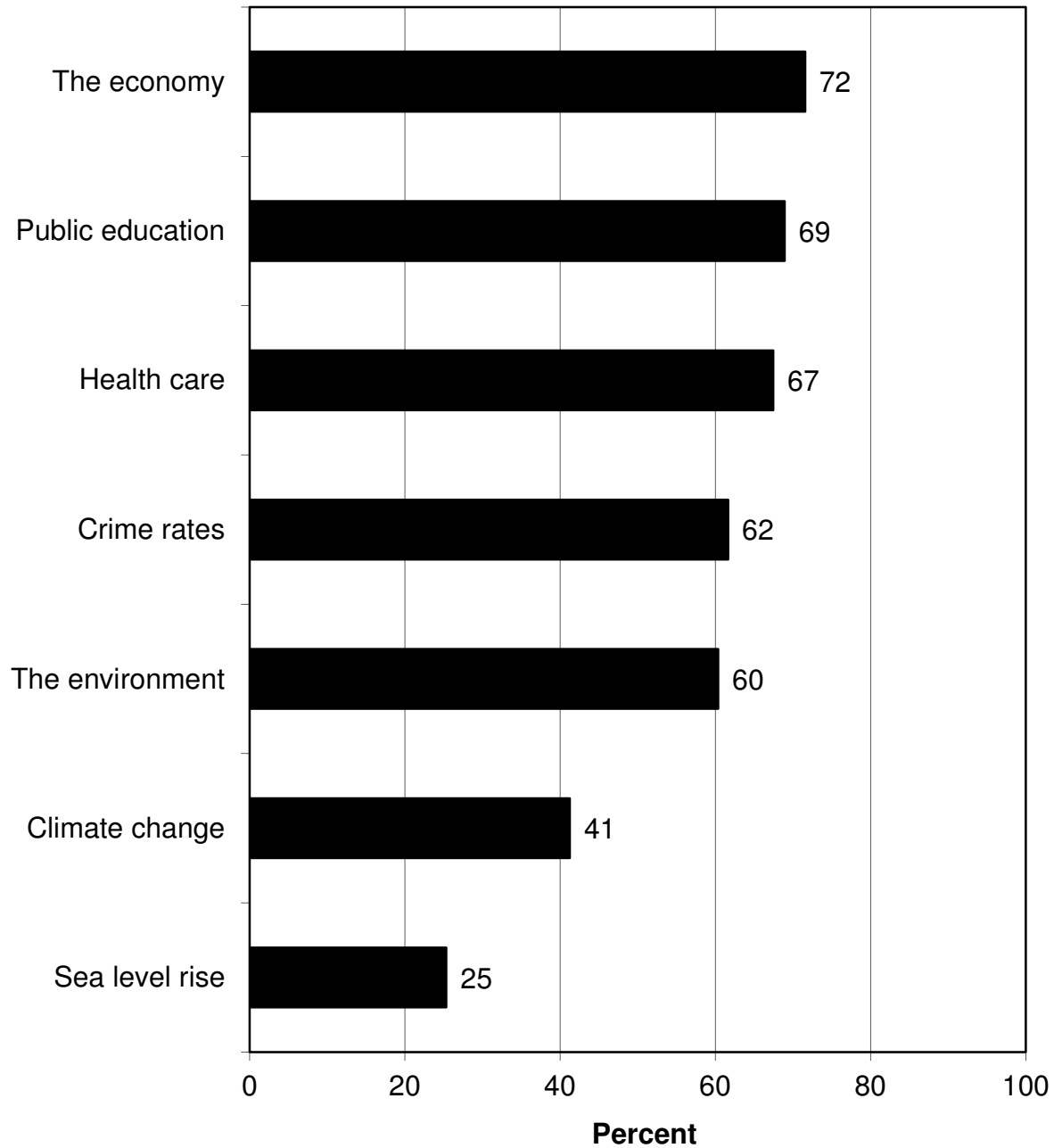
Most graphs show results rounded to the nearest integer; however, all data are stored in decimal format, and all calculations are performed on unrounded numbers. For this reason, some results may not sum to exactly 100% because of this rounding on the graphs. Additionally, rounding may cause apparent 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).

## PERCEPTIONS OF IMPORTANT ENVIRONMENTAL ISSUES

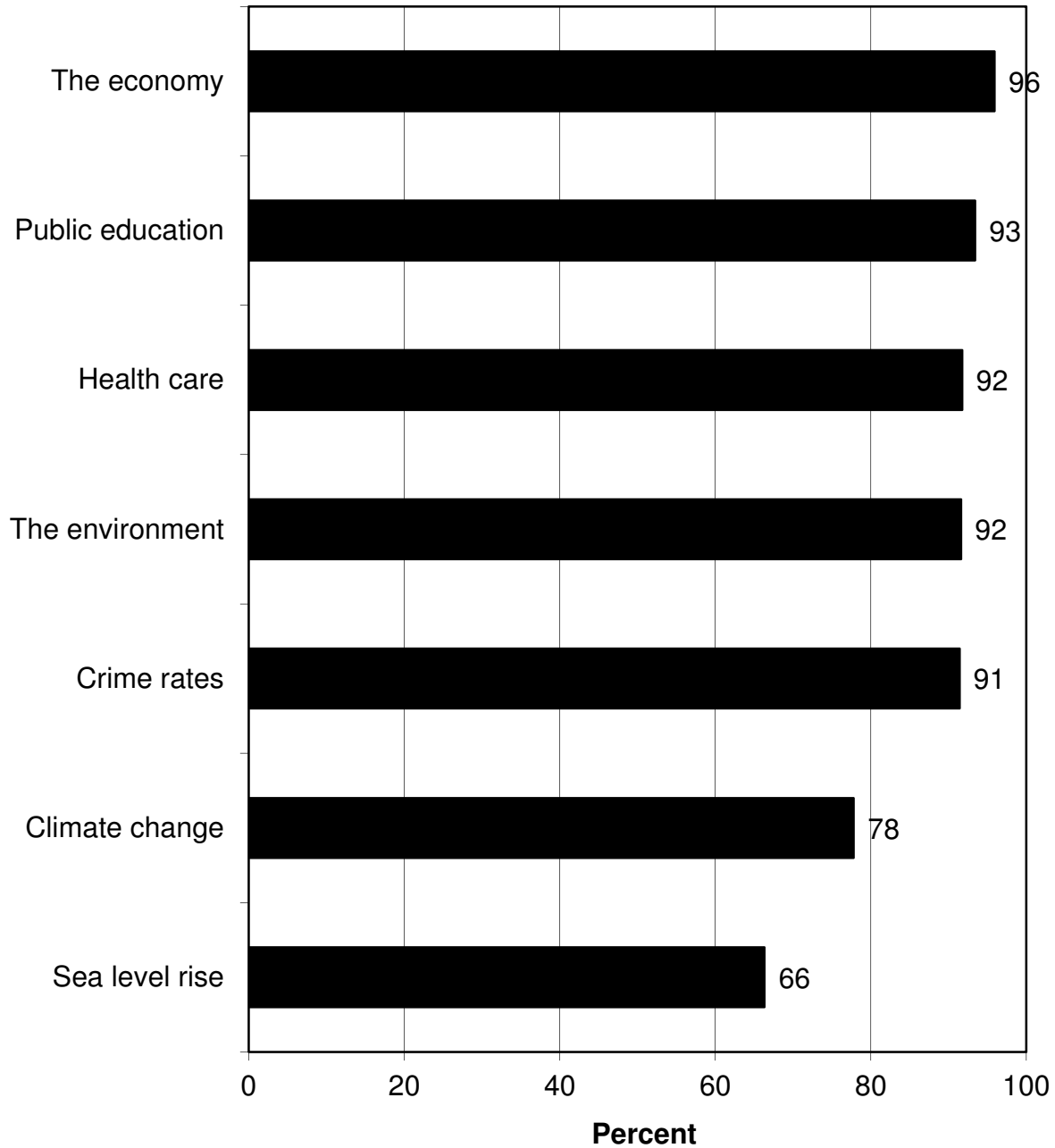
- To test where climate change and sea level rise rank in the concerns that Delaware residents have, the survey presented a list of seven areas of possible concern and asked residents to indicate if they were *very* concerned, *somewhat* concerned, or *not at all* concerned about each. Both climate change and sea level rise are the lowest ranked of the items. While a majority of residents are *very* concerned about the economy (72% are *very* concerned), public education (69%), health care (67%), crime rates (62%), and the environment (60%), less than a majority are *very* concerned about climate change (41%) and sea level rise (25%).
  - Two other graphs of statewide results are included along with the percentages who are very concerned: the percentages who are very or somewhat concerned, and the percentages who are not at all concerned. The “not at all” graph shows that about a fifth to a quarter of Delaware residents are not at all concerned about climate change or sea level rise.
  - In the trends analysis, the percentage of Delaware residents who are *very* concerned about sea level rise decreased (from 30% in 2009 to 25% in 2014), and this change is statistically significant at  $p \leq 0.05$ , meaning the correlation would happen by chance only 5 out of 100 times. Although the percentage of those *very* concerned about climate change increased (36% to 41%), this change is *not* statistically significant. For the other items on the list, the percentage of those who are *very* concerned decreased for health care and the economy and increased for public education, crime rates, and the environment.
    - This list was presented to a random half of the sample; the other half received the list discussed below.
- Similar to the above question, the survey presented a list of nine possible environmental concerns and asked residents to rate their concern (*very*, *somewhat*, or *not at all*). Again, climate change (the 7th ranked) and sea level rise (the 9th ranked) are low on the ranking by *very* concerned. A majority of residents are *very* concerned about water pollution (71%), toxic waste (68%), air quality (61%), loss of forest habitat (54%), and declining fish and wildlife populations (52%). This compares to 43% being *very* concerned about climate change and 36% being *very* concerned about sea level rise.

- Two other graphs of statewide results are included along with the percentages who are very concerned: the percentages who are very or somewhat concerned, and the percentages who are not at all concerned. The “not at all” graph shows that about a quarter of Delaware residents are not at all concerned about climate change or sea level rise.
- In the trends analysis, the percentage of Delaware residents who are *very* concerned increased for both sea level rise (32% in 2009 to 36% in 2014) and climate change (from 36% to 43%) while decreasing for each other item on the list with the exception of the loss of marsh or wetlands, which remained approximately the same. It is important to note that the increases in the percentage of those who are *very* concerned about sea level rise and climate change are *not* statistically significant. While the percentage of those who are *very* concerned increased for both, note that overall concern (very and somewhat concerned combined) did not change substantially for sea level rise, climate change, nor any other item on the list.
  - This list was presented to a random half of the sample; the other half received the list discussed above.

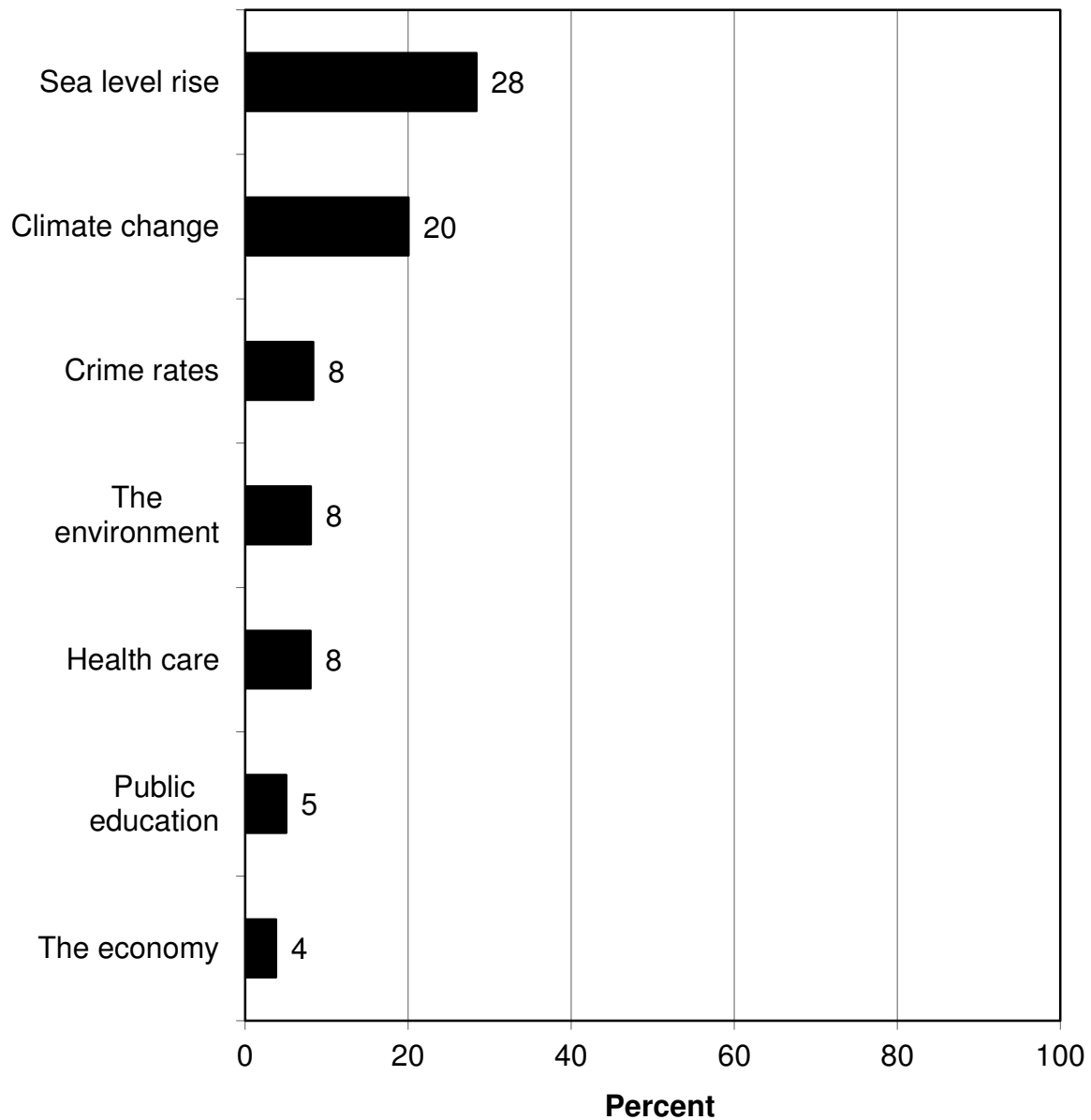
**Q14-Q20. Percent of respondents who are very concerned about each of the following in the U.S.**



**Q14-Q20. Percent of respondents who are very or somewhat concerned about each of the following in the U.S.**

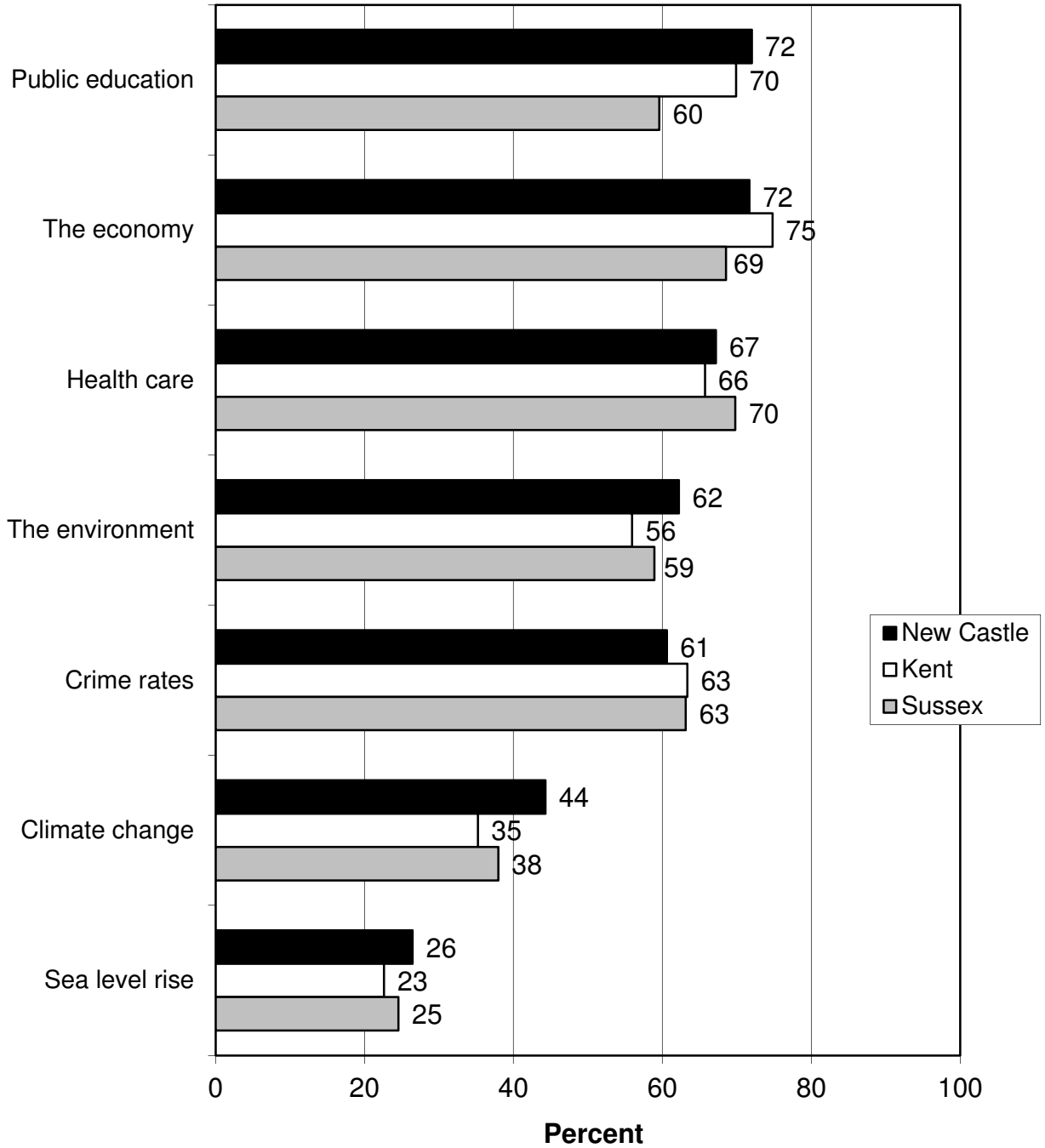


**Q14-Q20. Percent of respondents who are not at all concerned about each of the following in the U.S.**

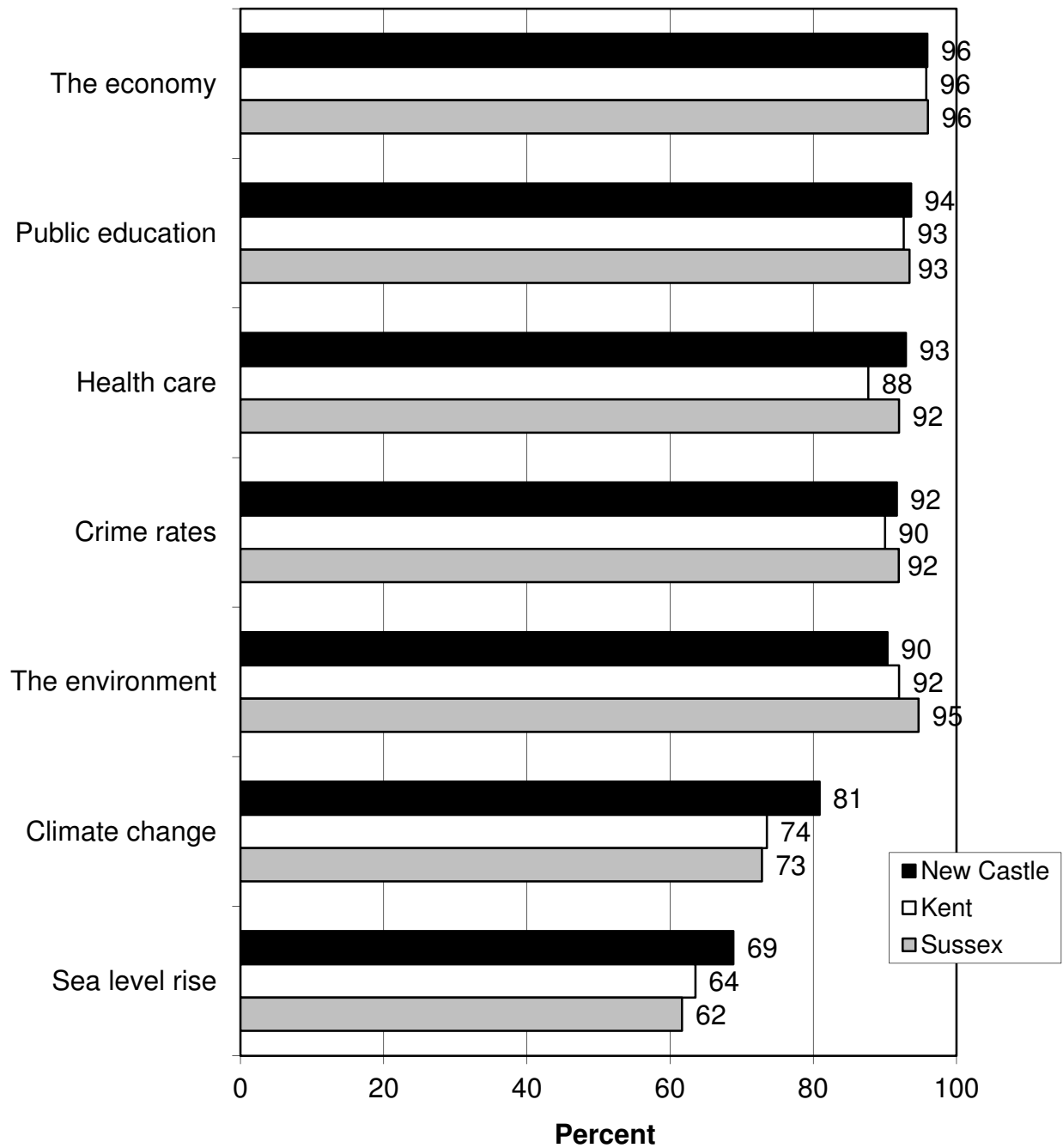




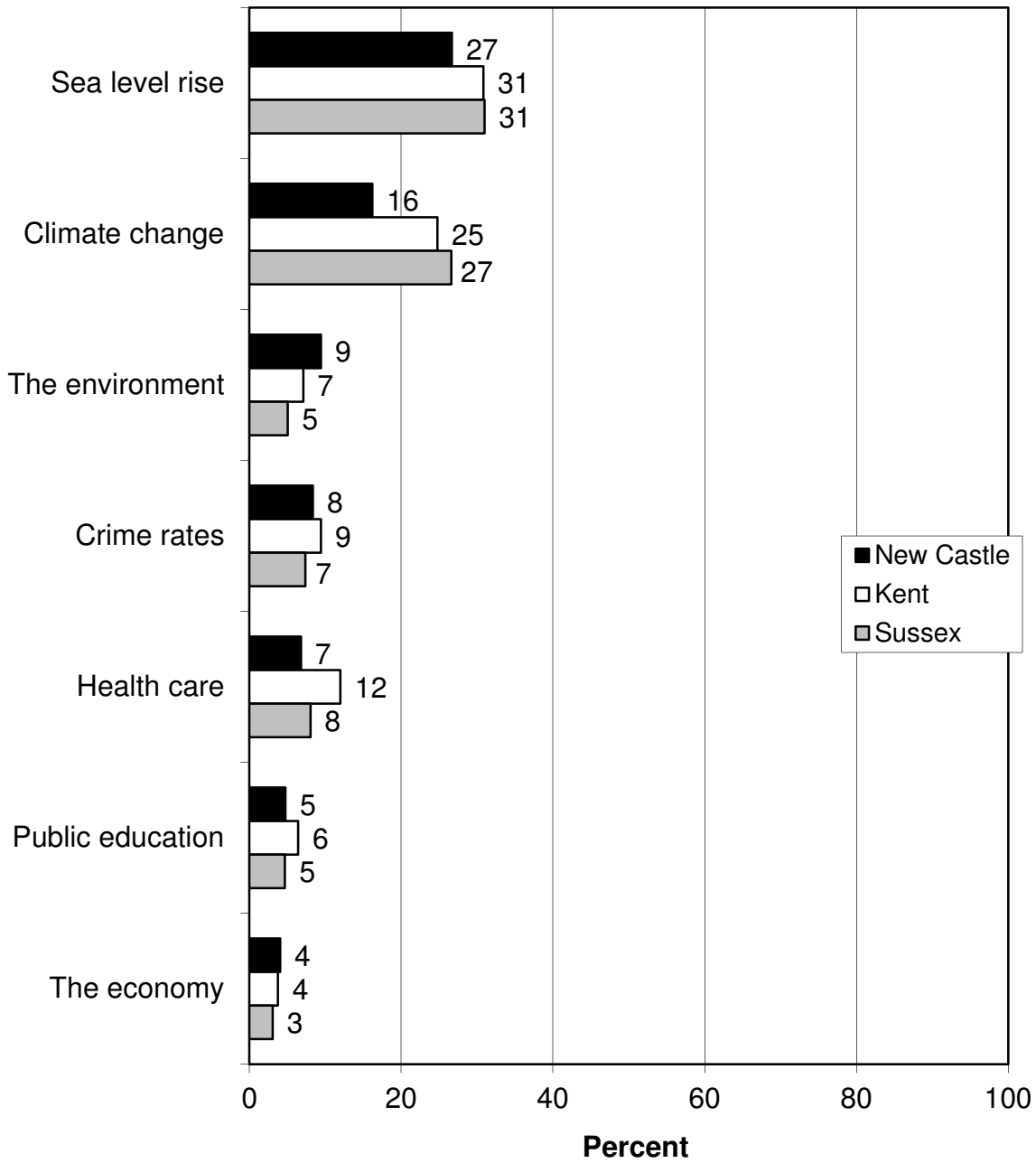
### Q14-Q20. Percent of respondents who are very concerned about each of the following in the U.S.



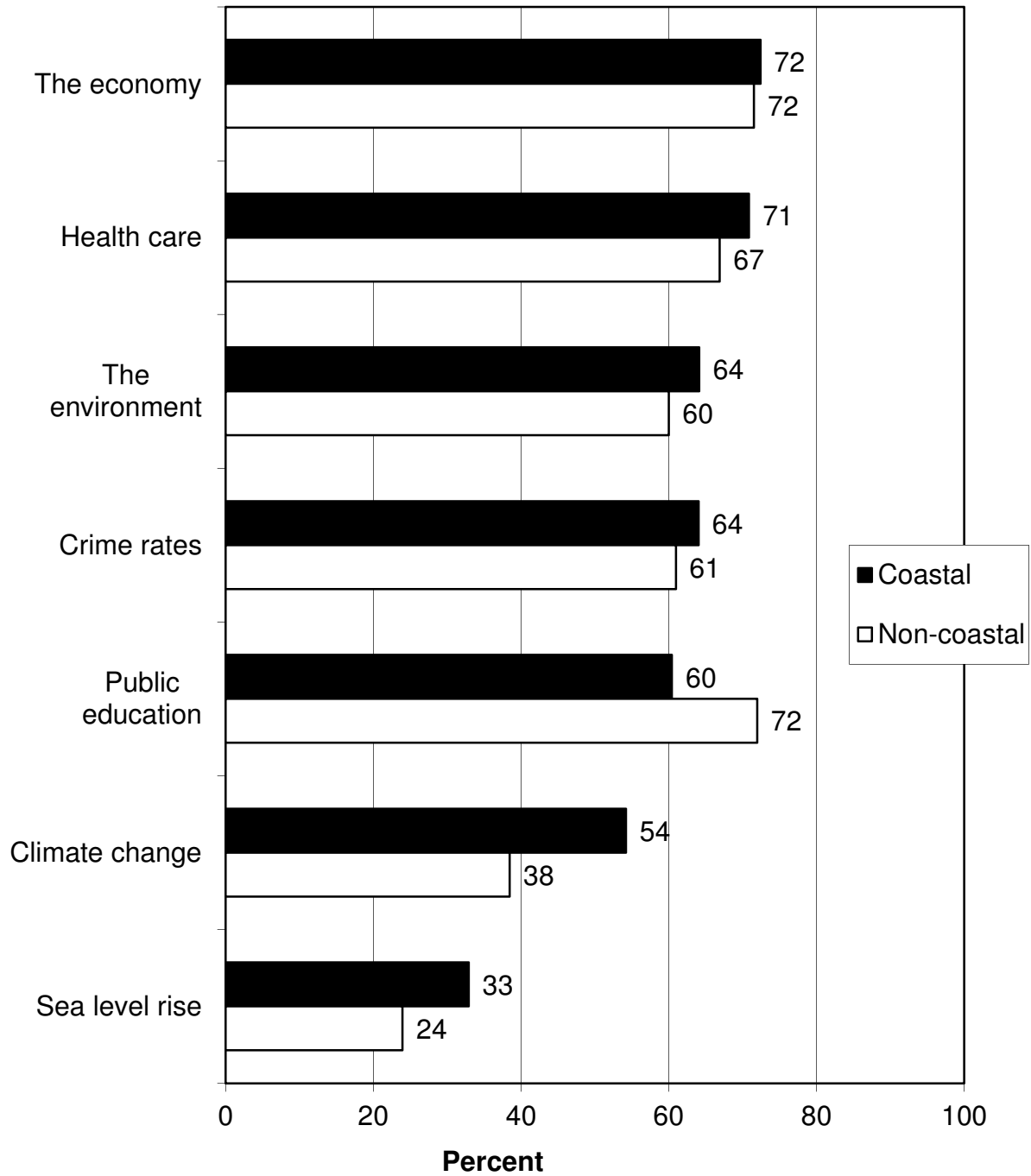
**Q14-Q20. Percent of respondents who are very or somewhat concerned about each of the following in the U.S.**



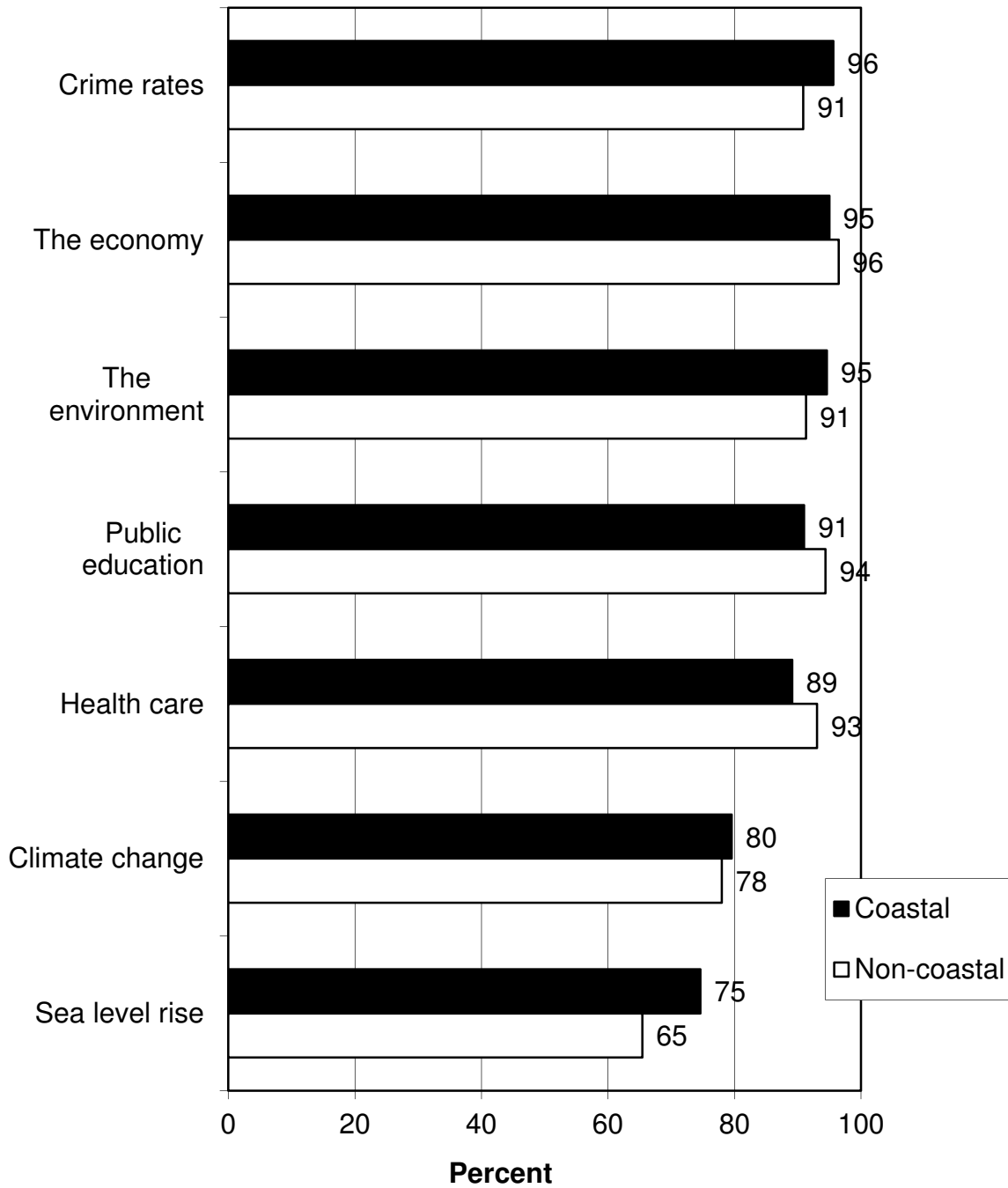
**Q14-Q20. Percent of respondents who are not at all concerned about each of the following in the U.S.**



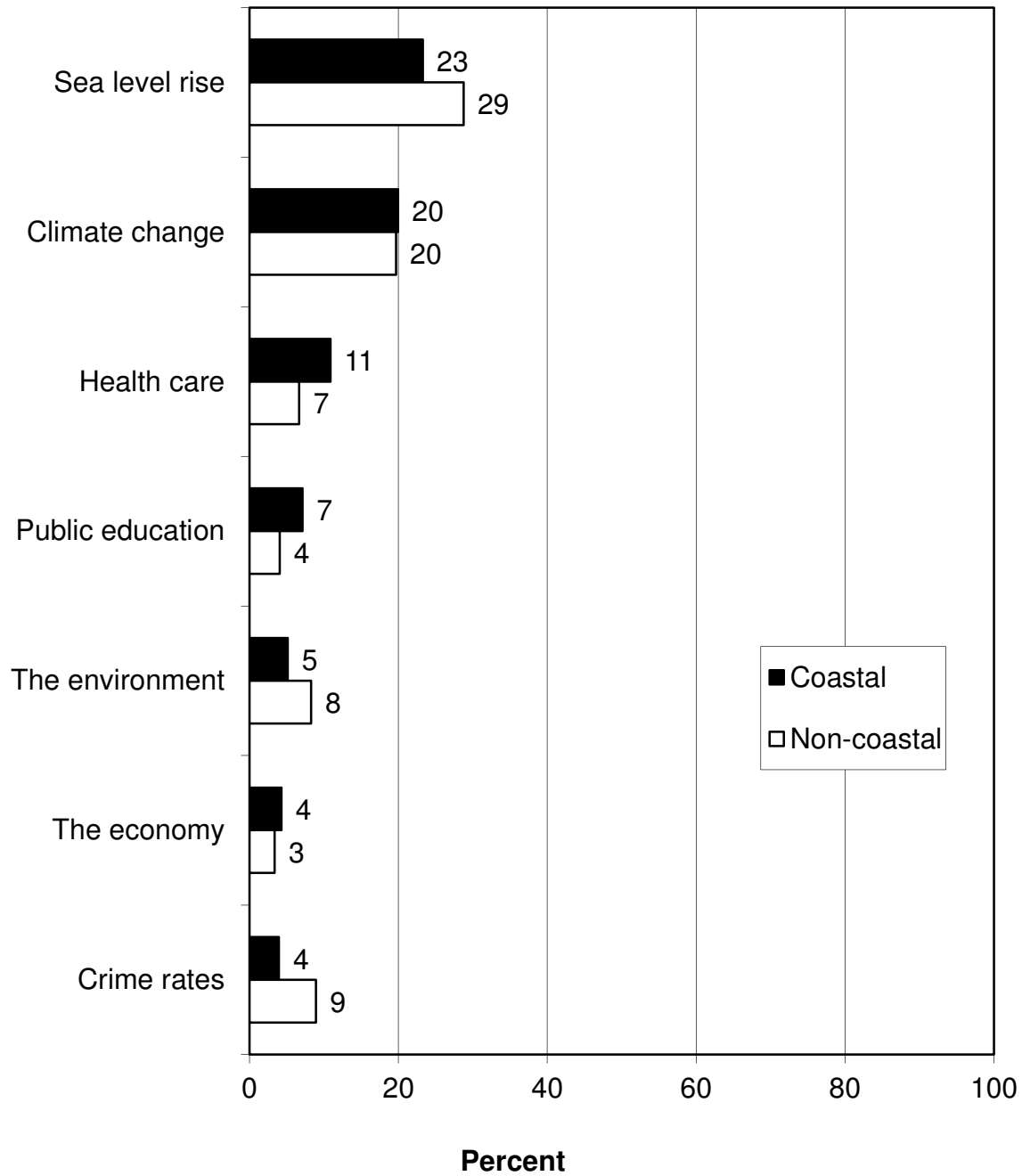
**Q14-Q20. Percent of respondents who are very concerned about each of the following in the U.S.**



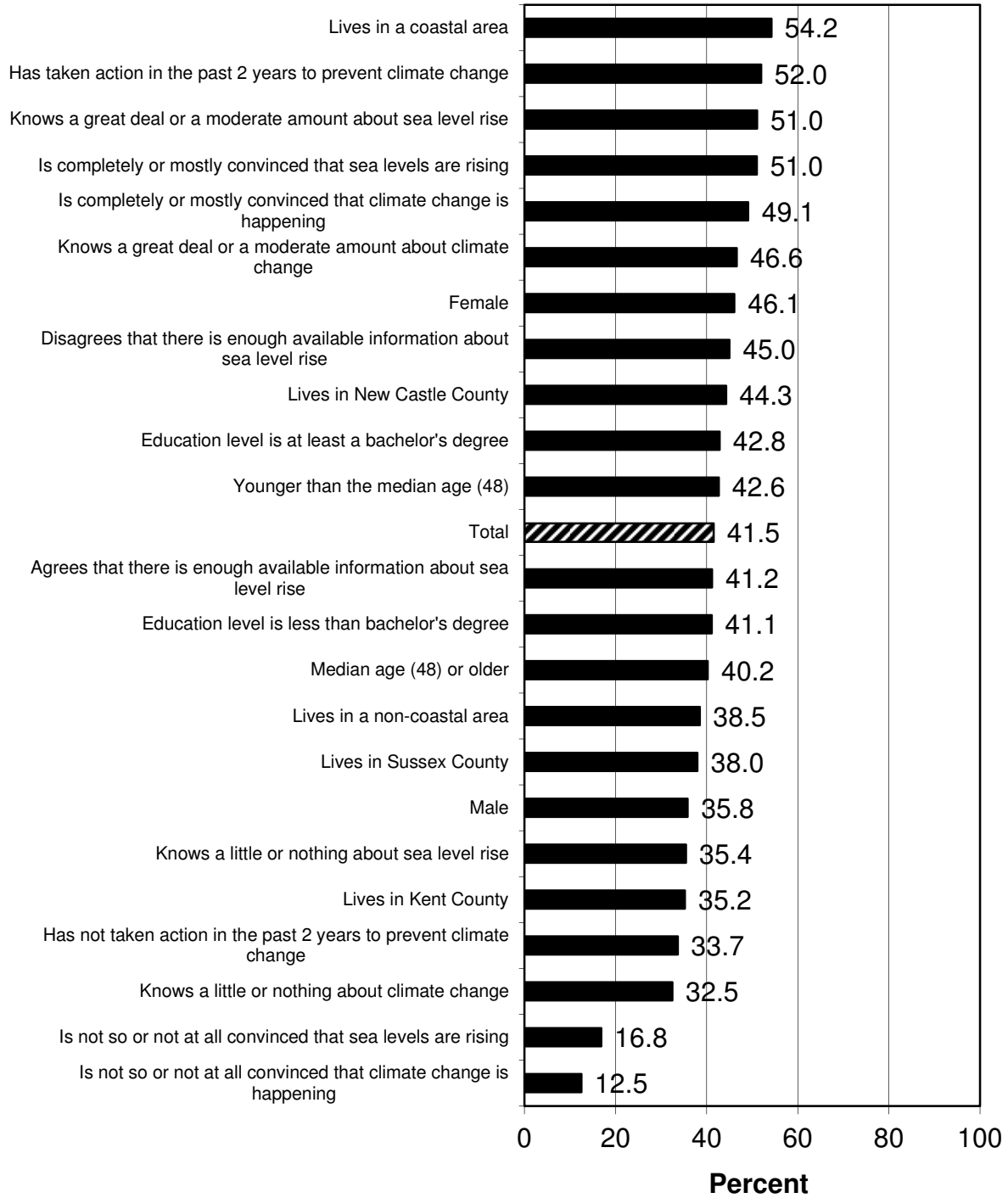
**Q14-Q20. Percent of respondents who are very or somewhat concerned about each of the following in the U.S.**



**Q14-Q20. Percent of respondents who are not at all concerned about each of the following in the U.S.**



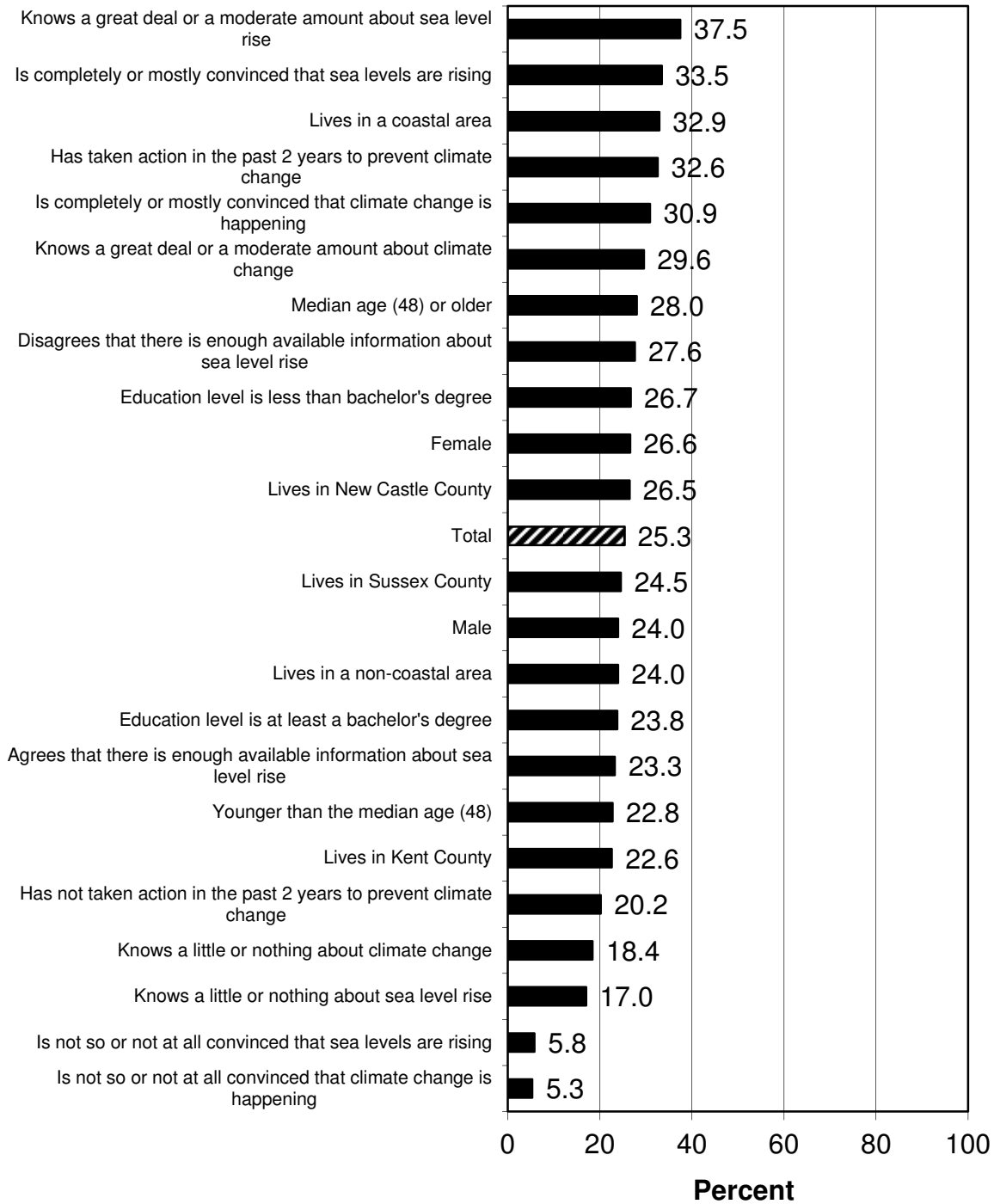
### Percent who are very concerned about climate change as a national issue:



The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) concerned about climate change as a national issue relative to residents as a whole. Overall, 41.5% of Delaware residents are very concerned about climate change as a national issue (striped bar). Those groups more inclined to be very concerned are above that bar (for instance, 54.2% of those who live in a coastal area are very concerned); those groups less inclined to be very concerned are below that bar (for instance, only 35.2% of Kent County residents are very concerned).

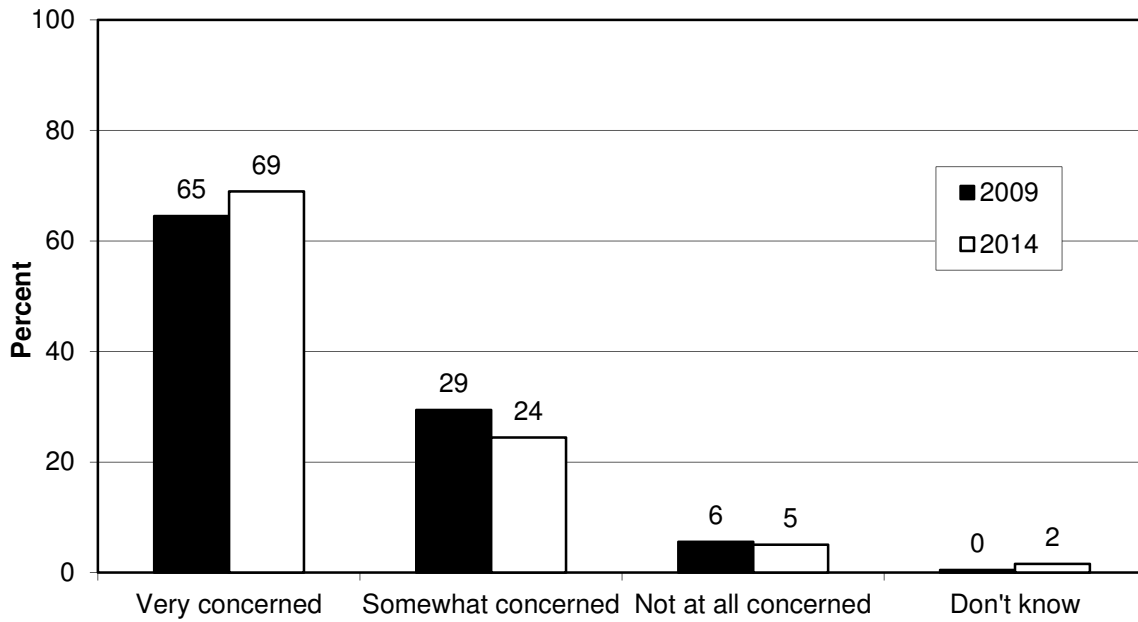


### Percent who are very concerned about sea level rise as a national issue:

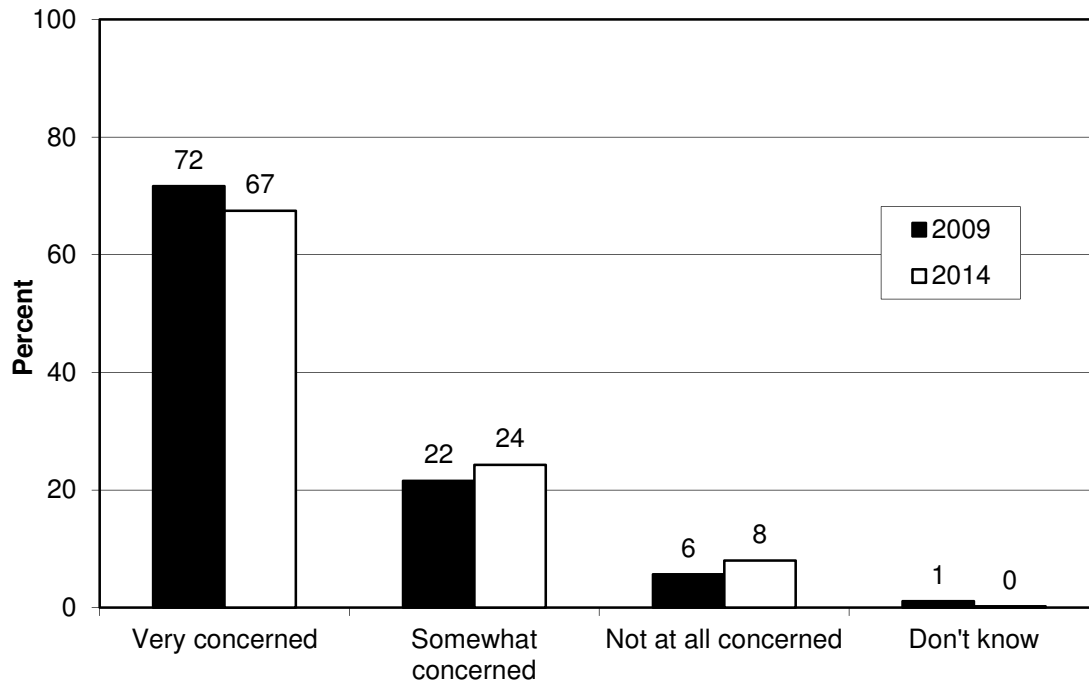


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) concerned about sea level rise as a national issue relative to residents as a whole. Overall, 25.3% of Delaware residents are very concerned about sea level rise as a national issue (striped bar). Those groups more inclined to be very concerned are above that bar (for instance, 32.9% of those who live in a coastal area are very concerned); those groups less inclined to be very concerned are below that bar (for instance, only 22.6% of Kent County residents are very concerned).

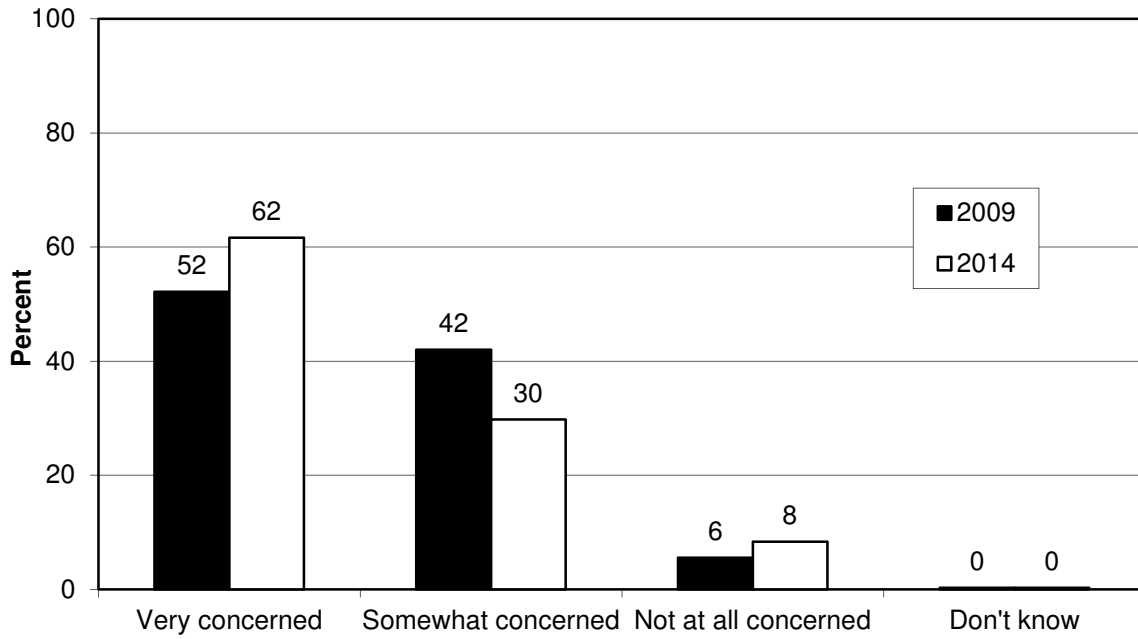
**Q14. Thinking about issues that the country faces, how concerned are you about public education in the U.S.?**



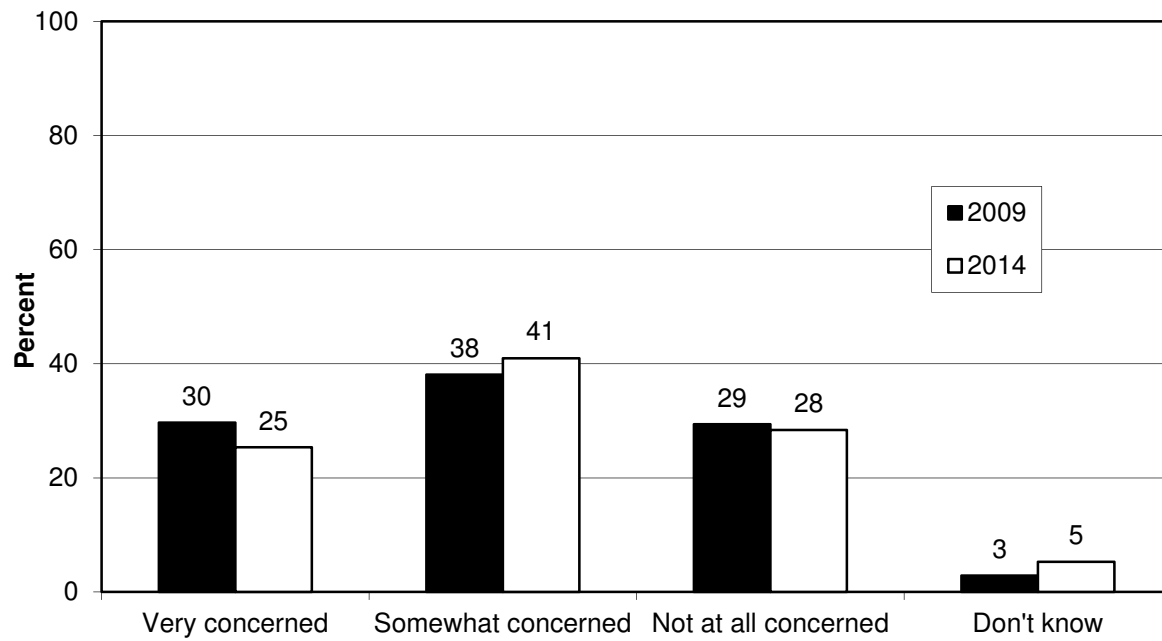
**Q15. Thinking about issues that the country faces, how concerned are you about health care in the U.S.?**



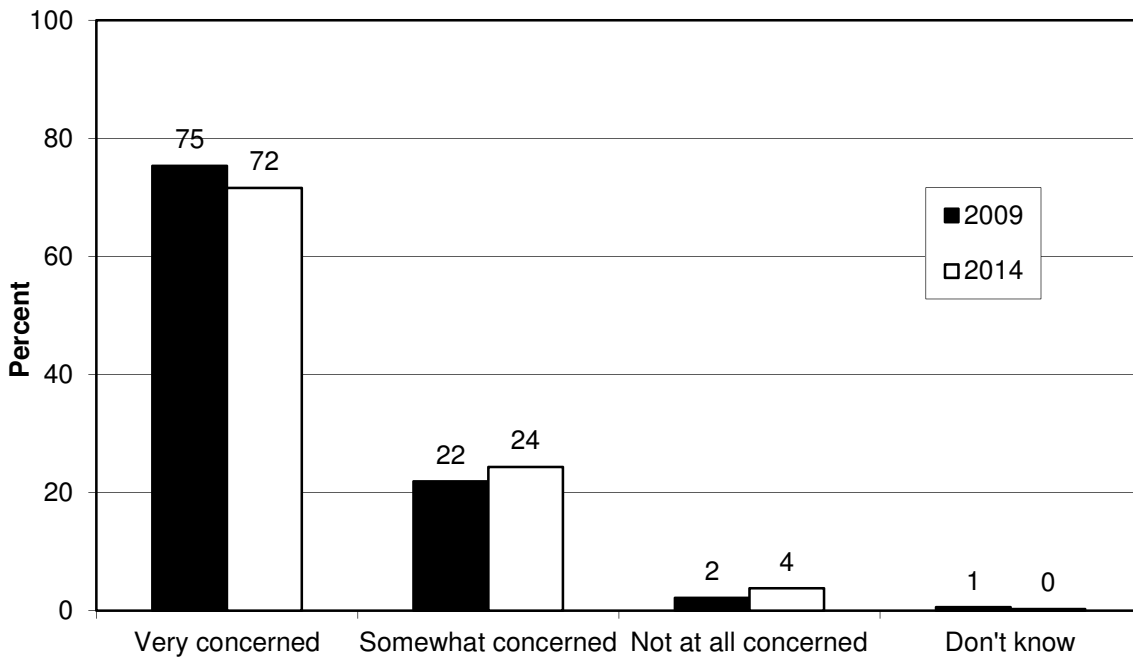
**Q16. Thinking about issues that the country faces, how concerned are you about crime rates in the U.S.?**



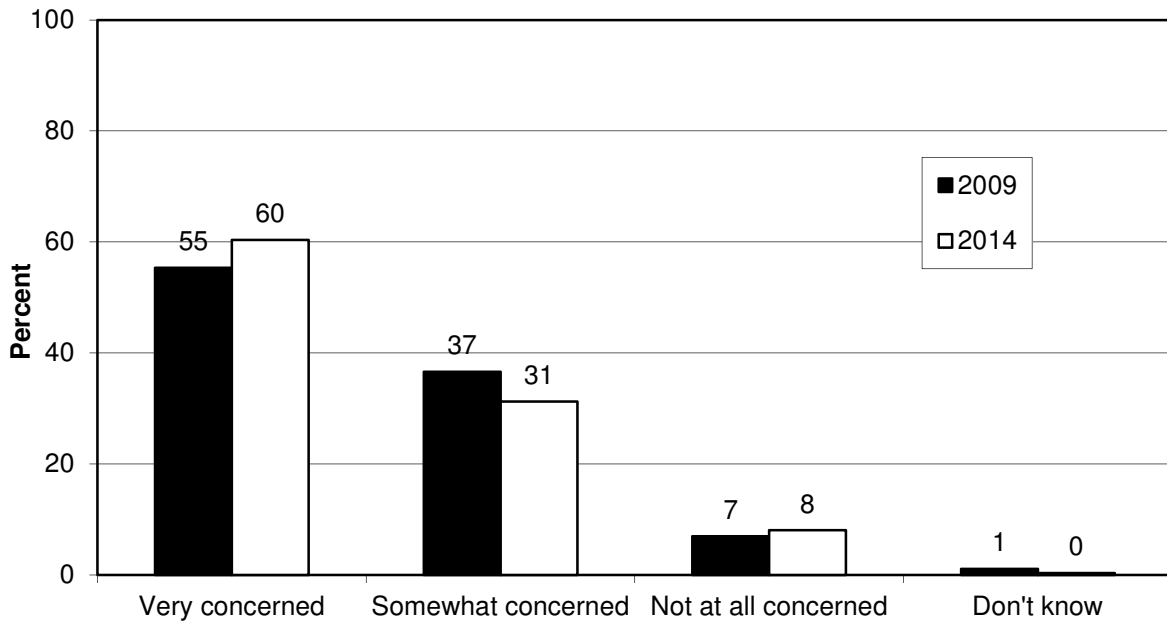
**Q17. Thinking about issues that the country faces, how concerned are you about sea level rise in the U.S.?**



**Q18. Thinking about issues that the country faces, how concerned are you about the economy in the U.S.?**

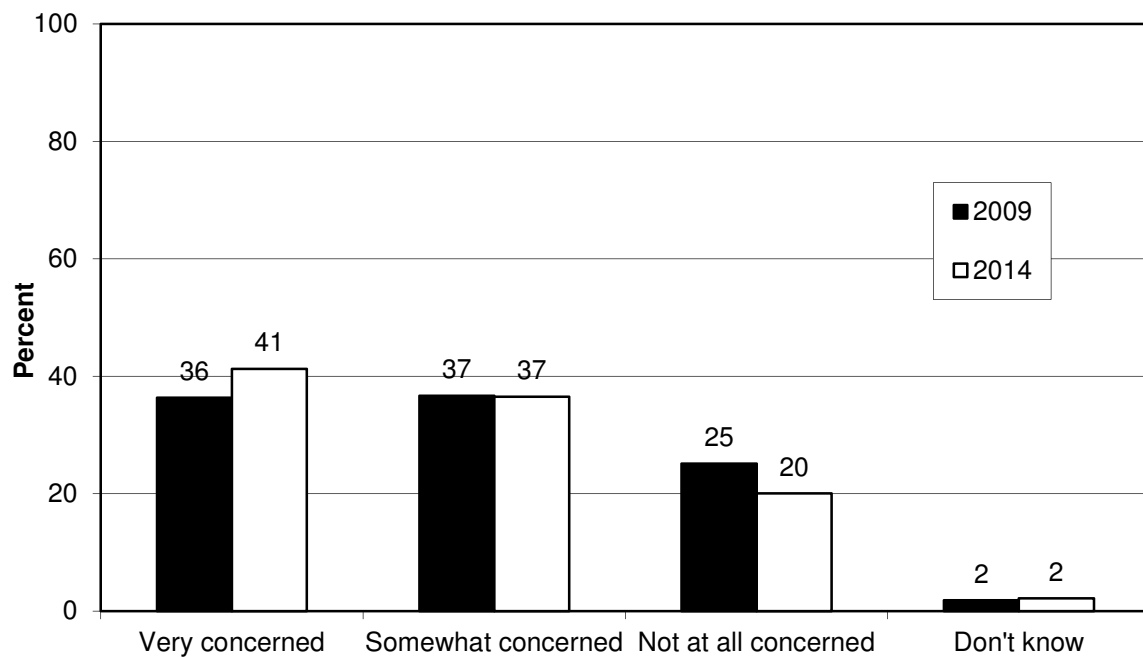


**Q19. Thinking about issues that the country faces, how concerned are you about the environment in the U.S.?**

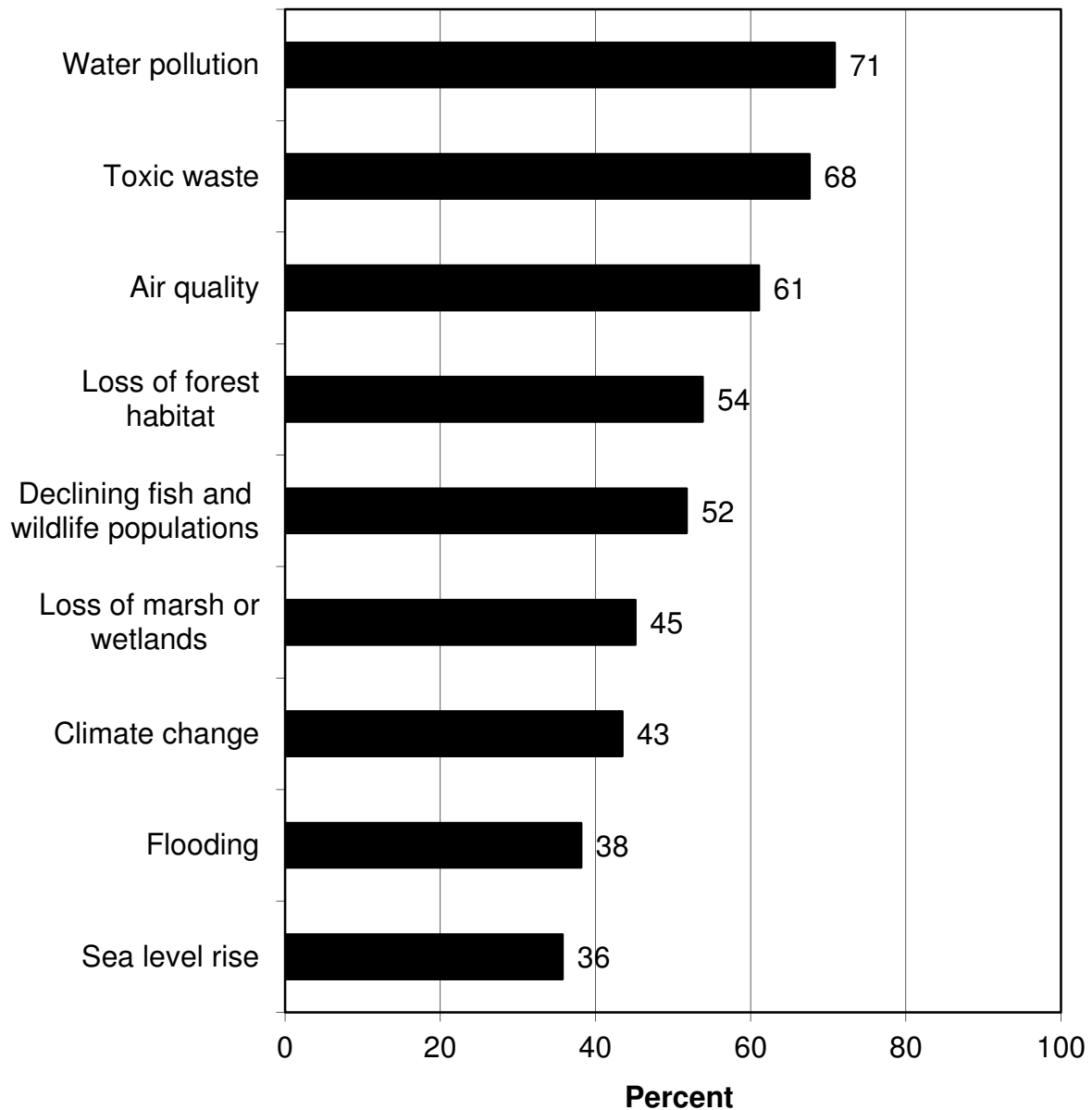




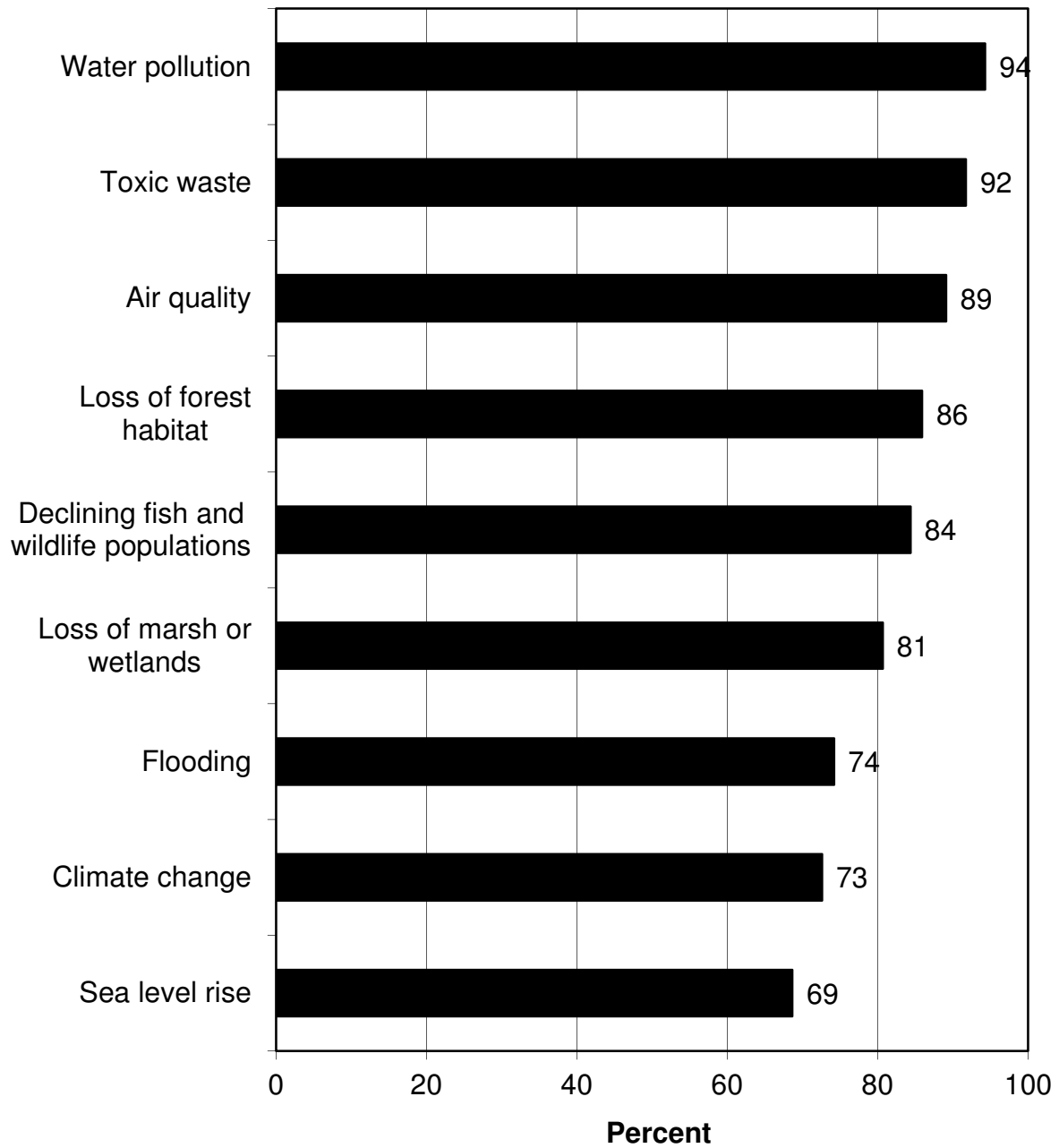
**Q20. Thinking about issues that the country faces, how concerned are you about climate change in the U.S.?**



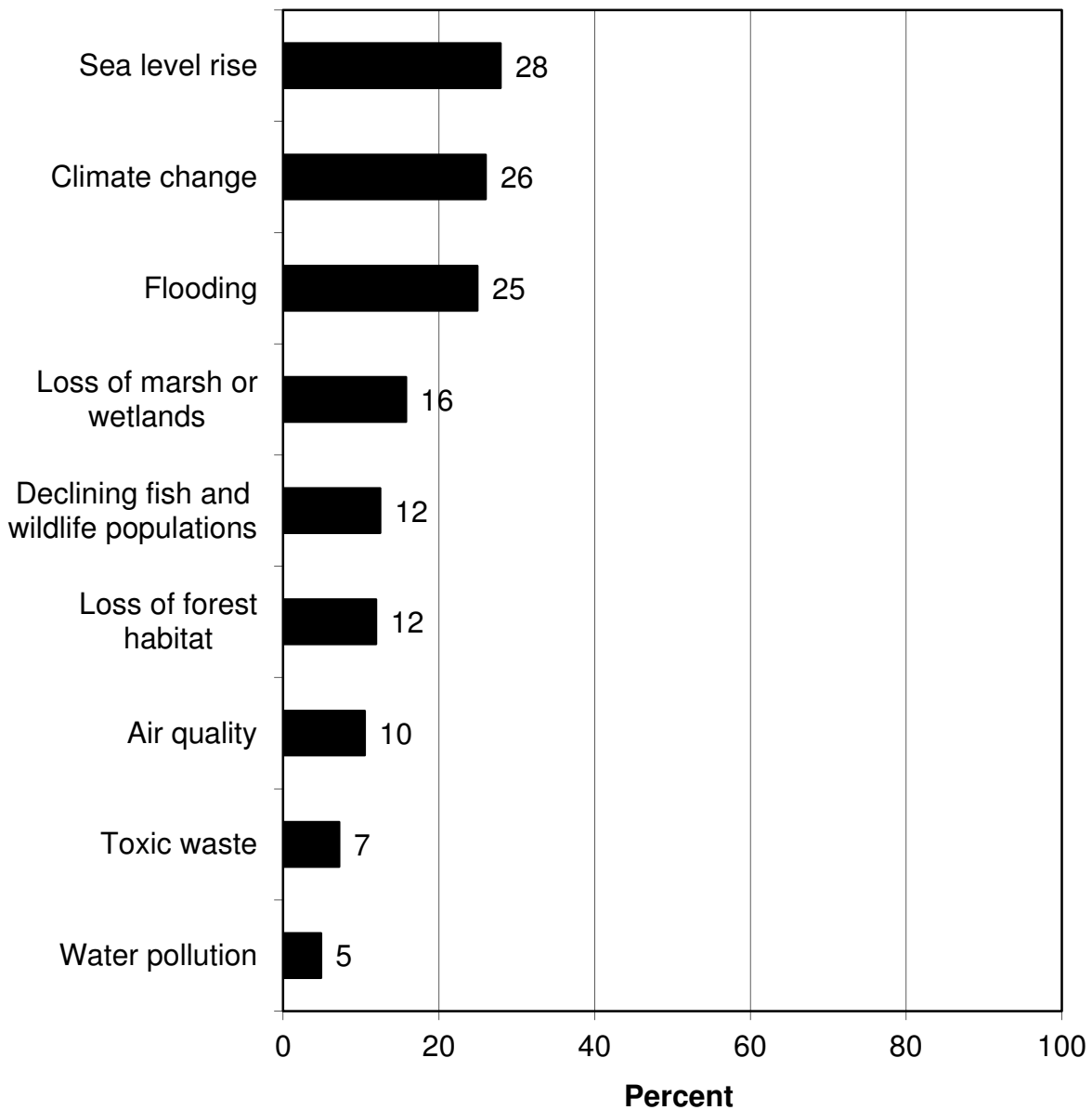
**Q23-Q31. Percent of respondents who are very concerned about each of the following in Delaware.**



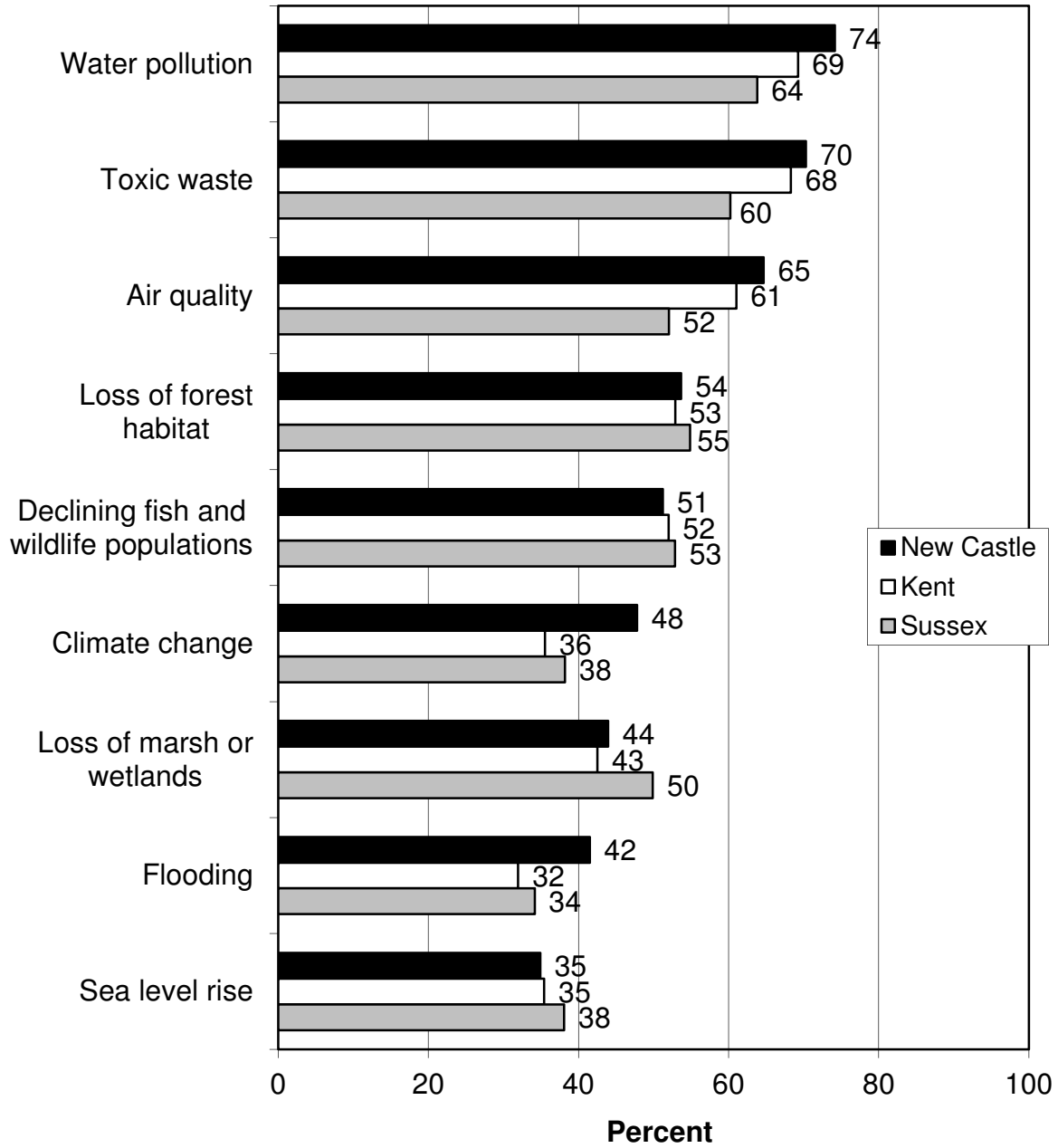
**Q23-Q31. Percent of respondents who are very or somewhat concerned about each of the following in Delaware.**



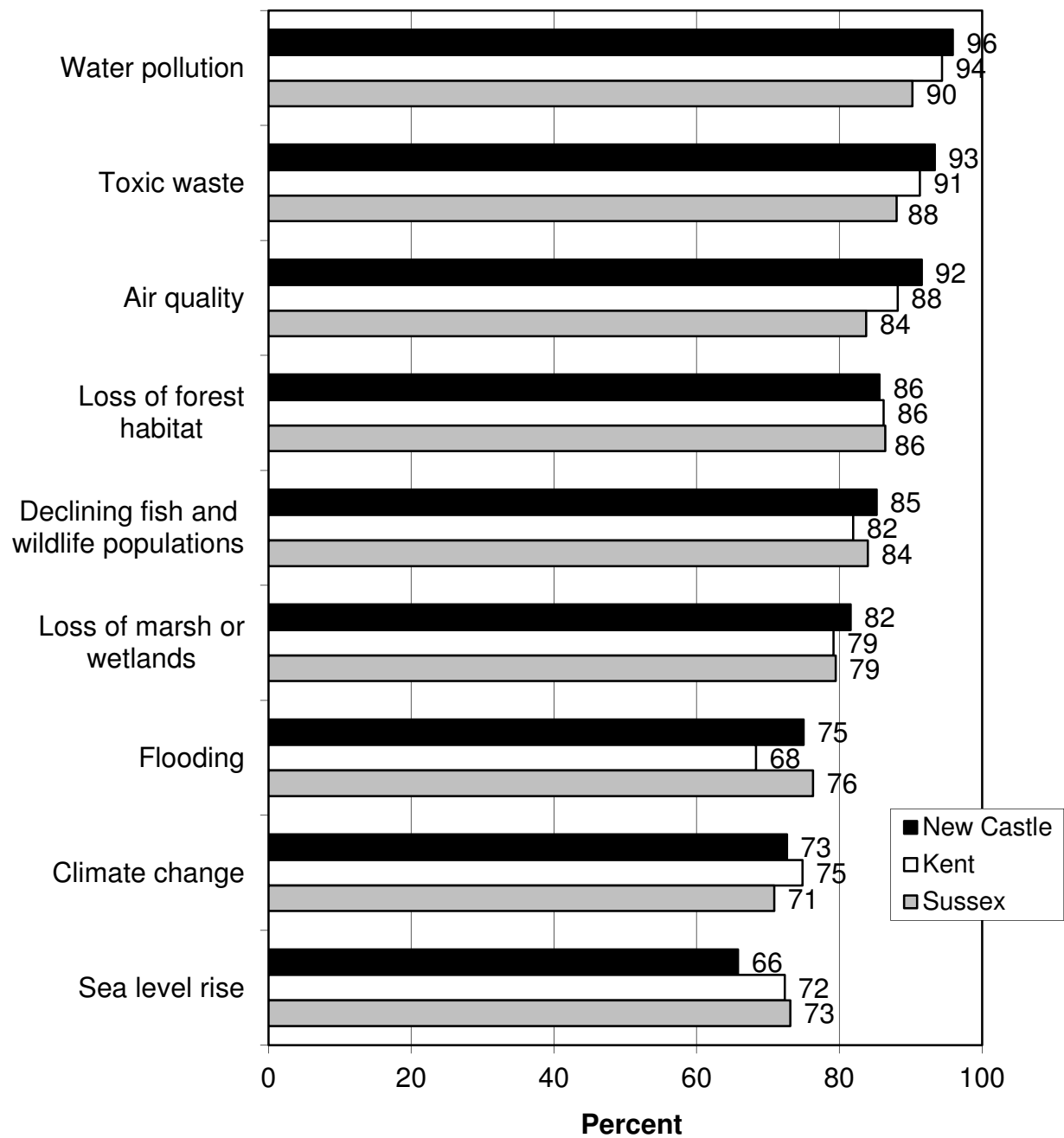
**Q23-Q31. Percent of respondents who are not at all concerned about each of the following in Delaware.**



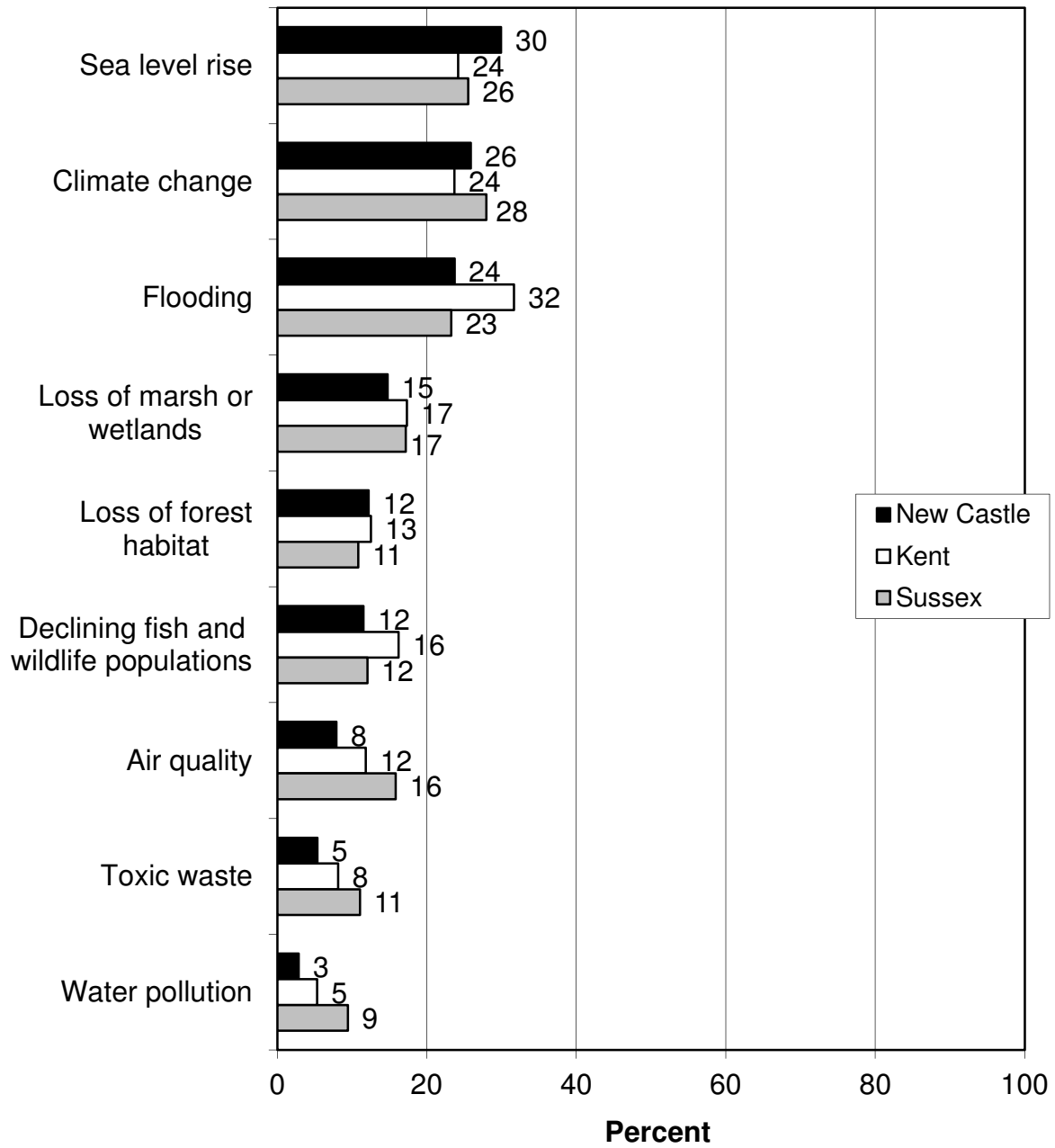
**Q23-Q31. Percent of respondents who are very concerned about each of the following in Delaware.**



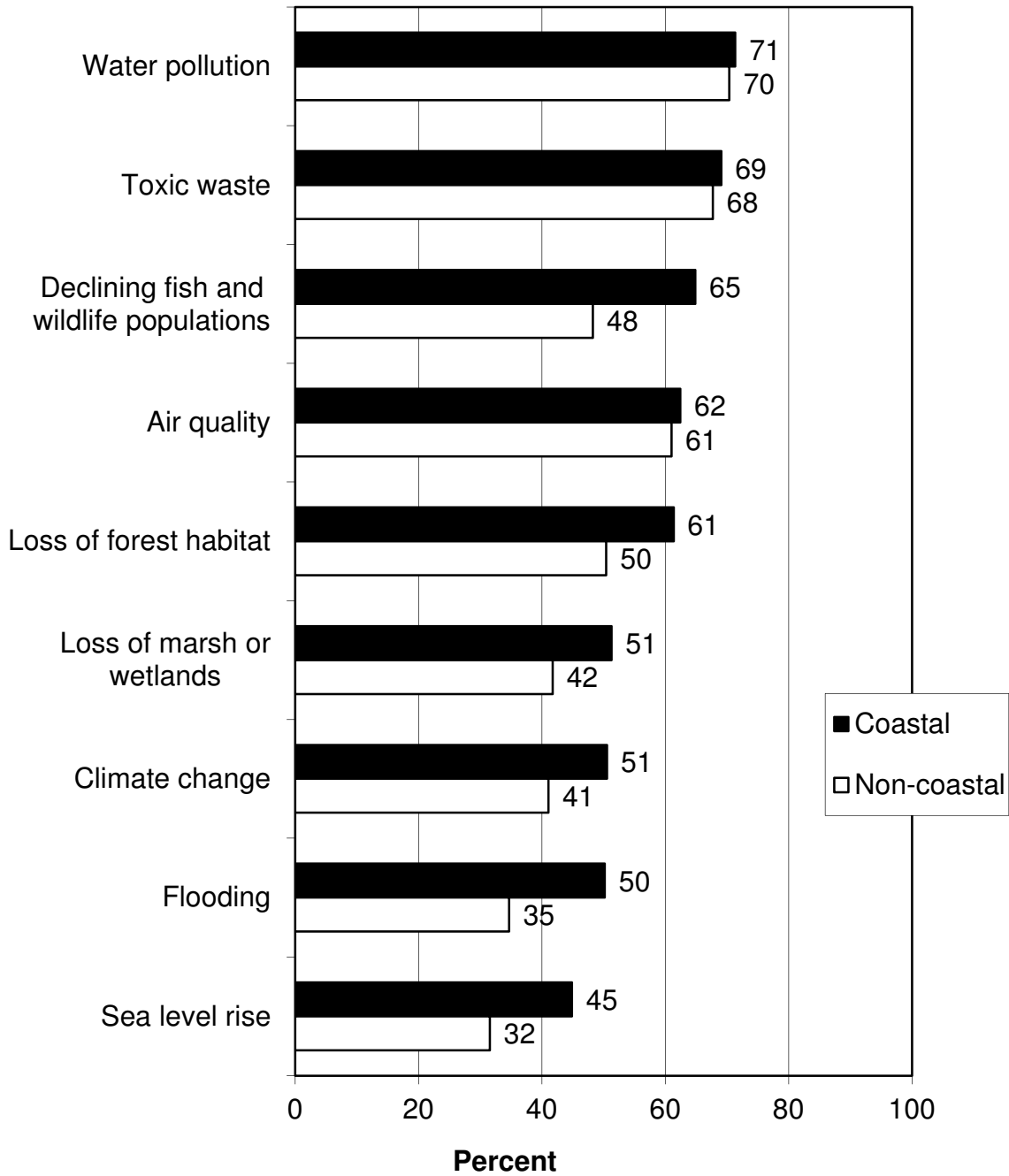
**Q23-Q31. Percent of respondents who are very or somewhat concerned about each of the following in Delaware.**



**Q23-Q31. Percent of respondents who are not at all concerned about each of the following in Delaware.**

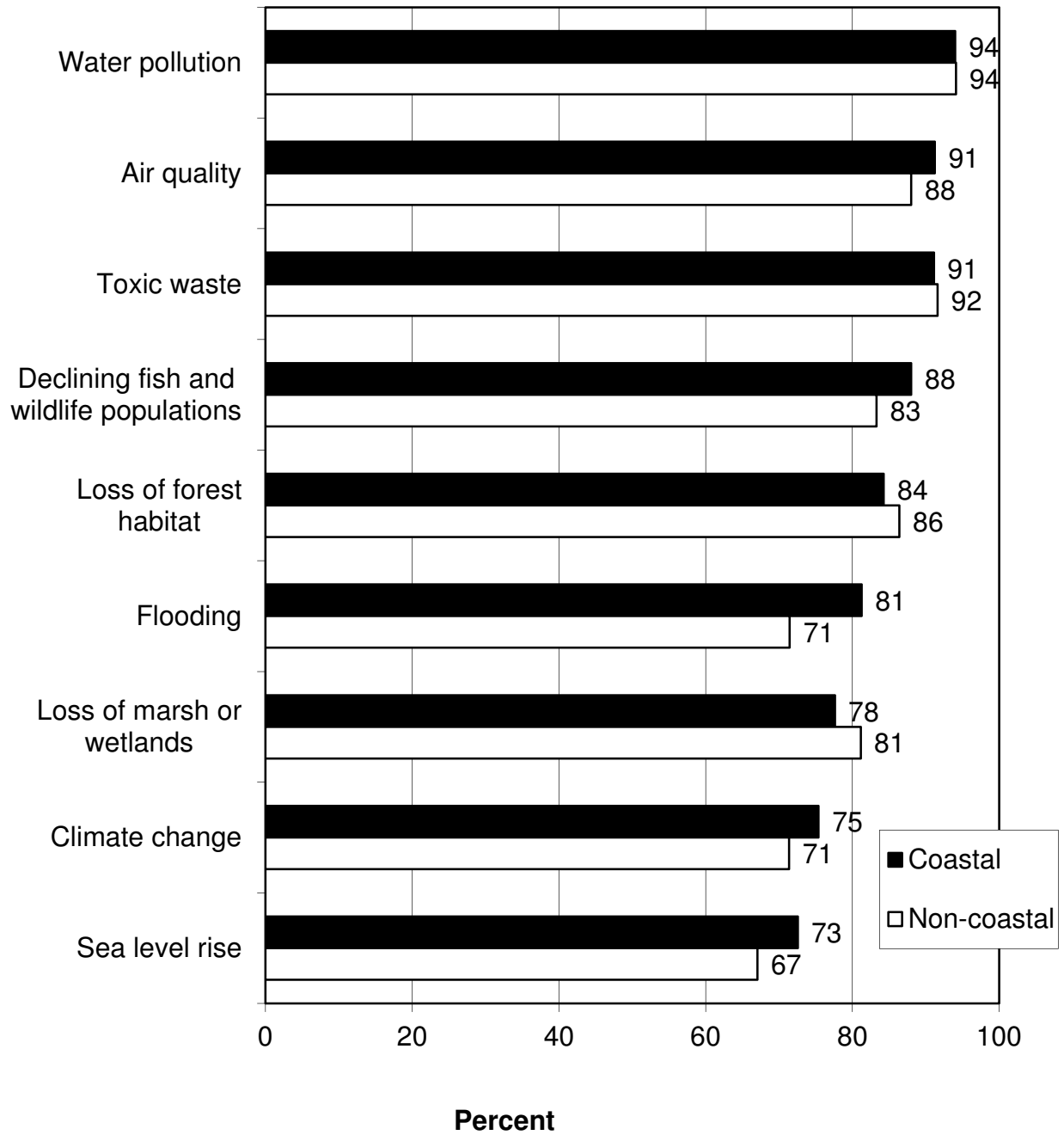


**Q23-Q31. Percent of respondents who are very concerned about each of the following in Delaware.**

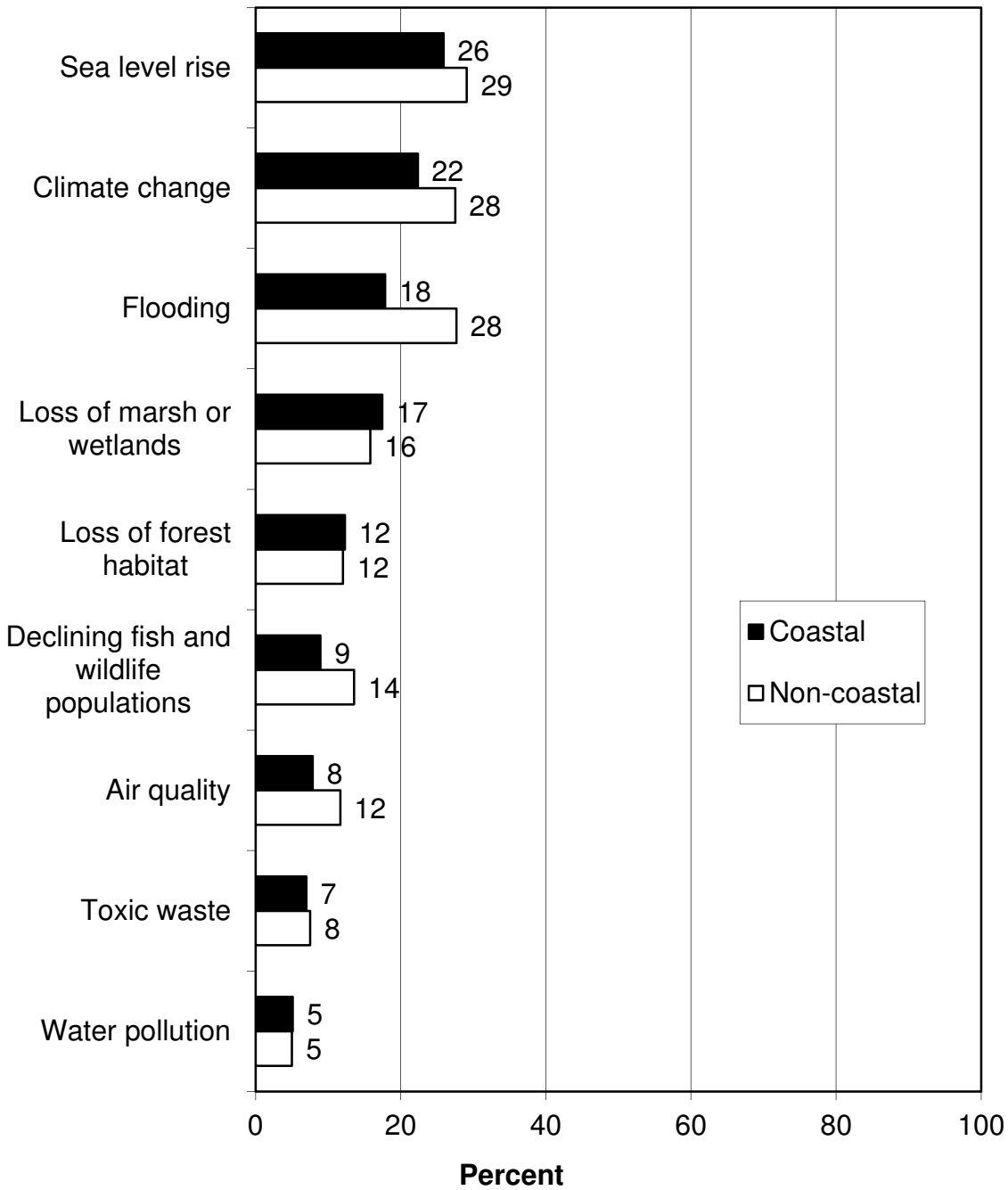




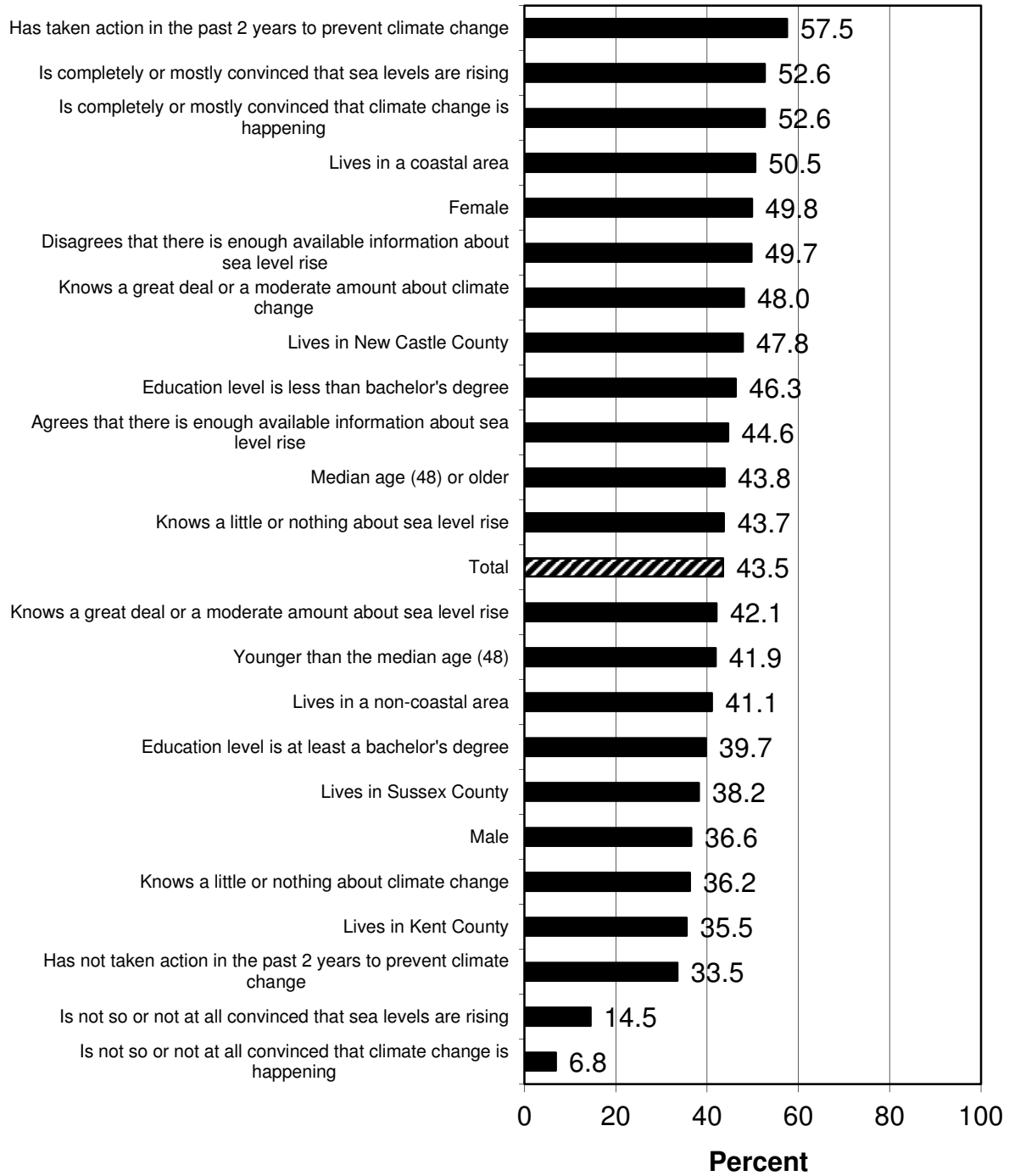
**Q23-Q31. Percent of respondents who are very or somewhat concerned about each of the following in Delaware.**



**Q23-Q31. Percent of respondents who are not at all concerned about each of the following in Delaware.**

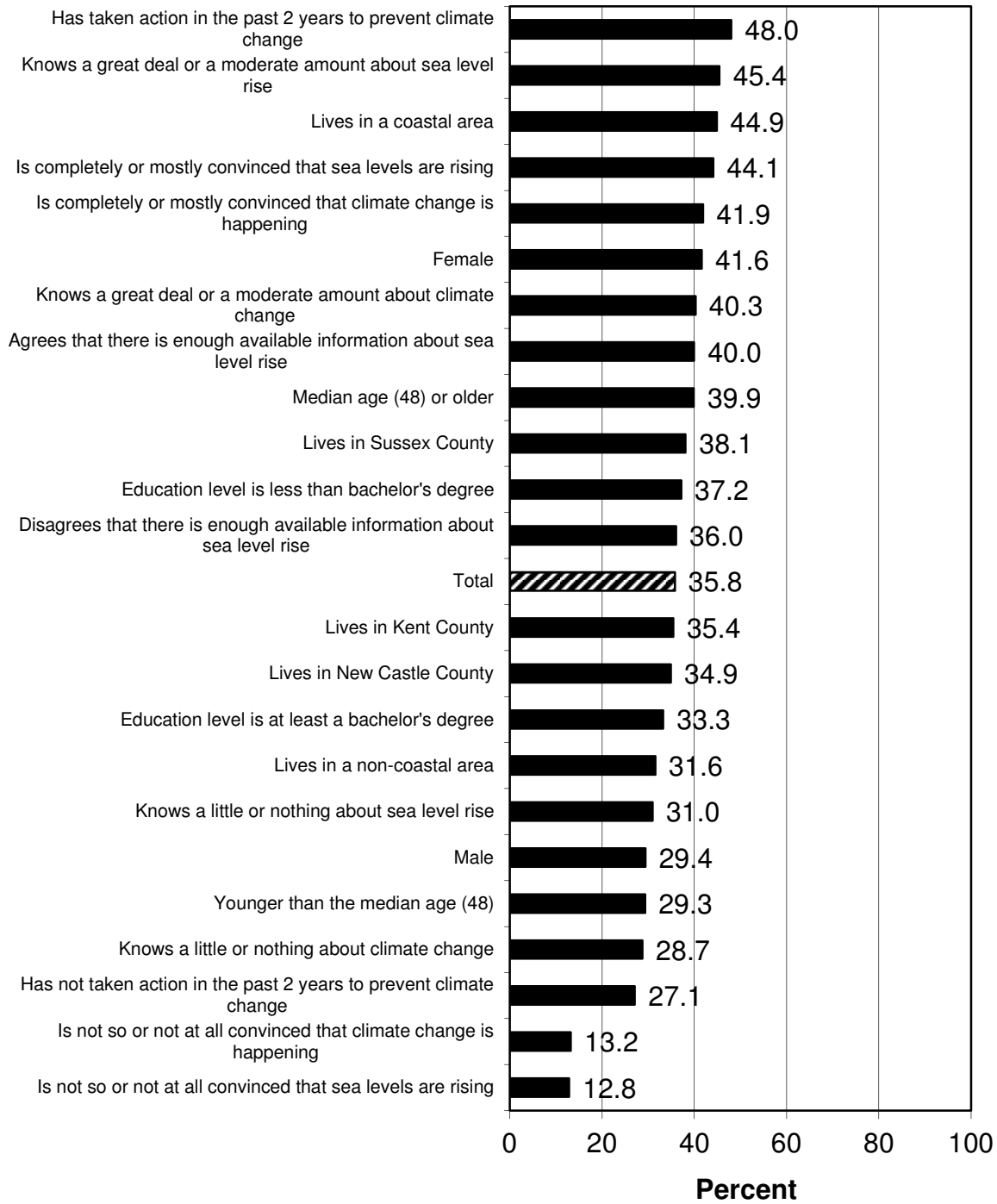


## Percent who are very concerned about climate change as an environmental issue in Delaware:



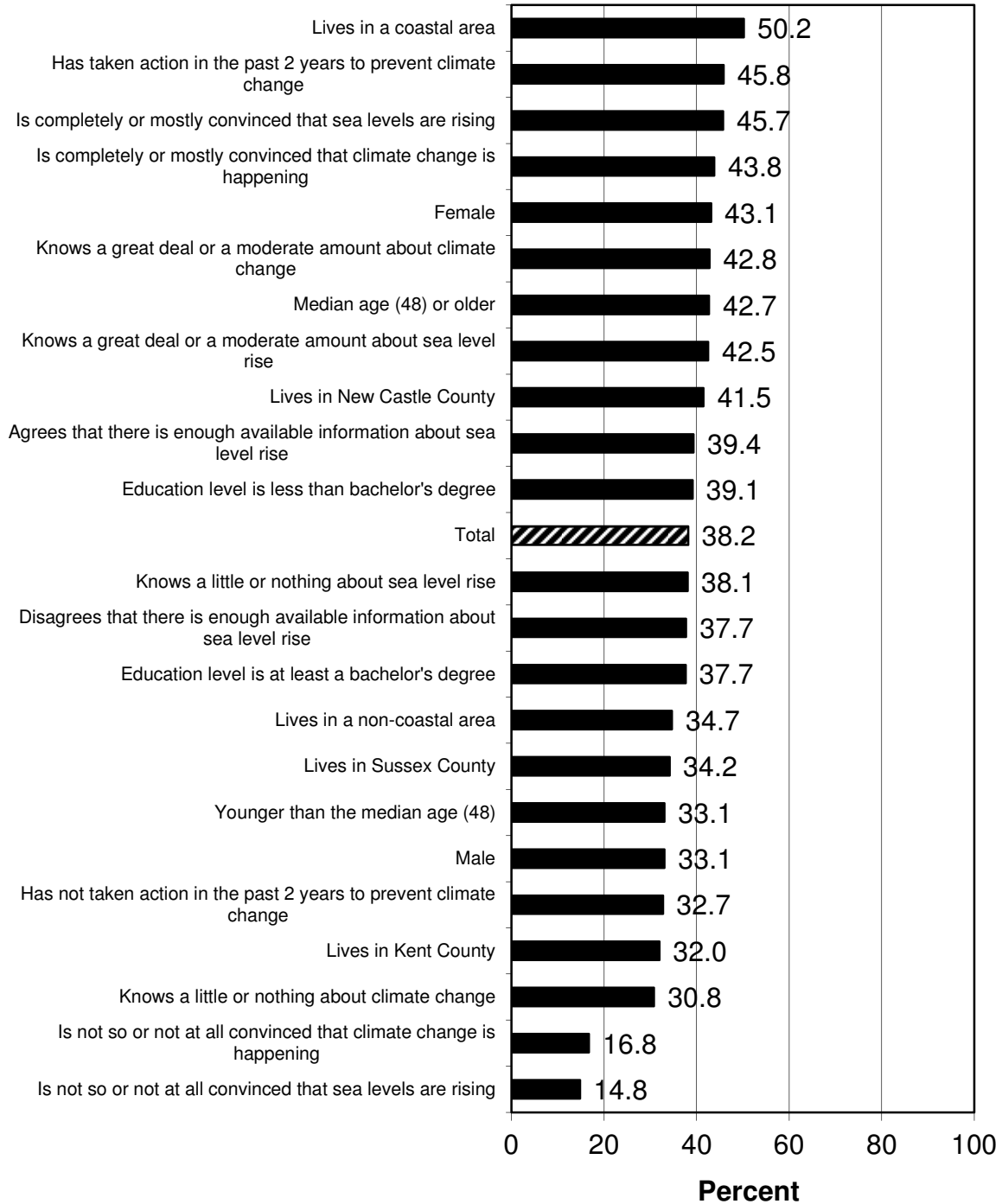
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) concerned about climate change as an environmental issue, relative to residents as a whole. Overall, 43.5% of Delaware residents are very concerned about climate change as an environmental issue (striped bar). Those groups more inclined to be very concerned are above that bar (for instance, 50.5% of those who live in a coastal area are very concerned); those groups less inclined to be very concerned are below that bar (for instance, only 35.5% of Kent County residents are very concerned).

## Percent who are very concerned about sea level rise as an environmental issue in Delaware:



The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) concerned about sea level rise as an environmental issue, relative to residents as a whole. Overall, 35.8% of Delaware residents are very concerned about sea level rise as an environmental issue (striped bar). Those groups more inclined to be very concerned are above that bar (for instance, 44.9% of those who live in a coastal area are very concerned); those groups less inclined to be very concerned are below that bar (for instance, only 29.4% of males are very concerned).

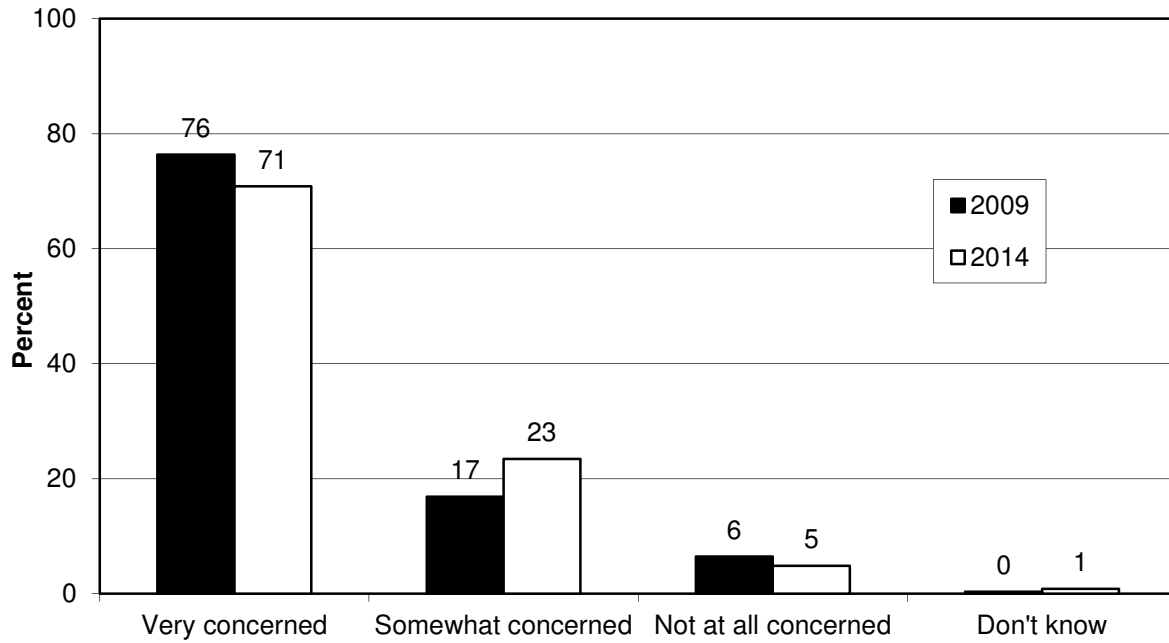
### Percent who are very concerned about flooding as an environmental issue in Delaware:



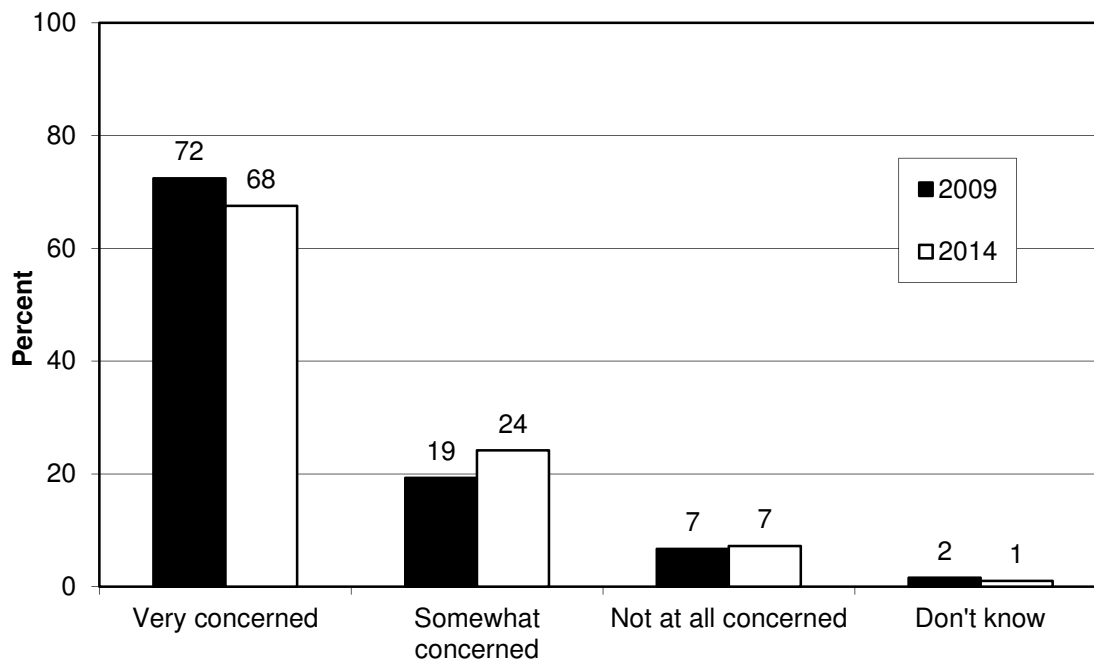
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) concerned about flooding as an environmental issue, relative to residents as a whole. Overall, 38.2% of Delaware residents are very concerned about flooding as an environmental issue (striped bar). Those groups more inclined to be very concerned are above that bar (for instance, 50.2% of those who live in a coastal area are very concerned); those groups less inclined to be very concerned are below that bar (for instance, only 32.0% of Kent County residents are very concerned).



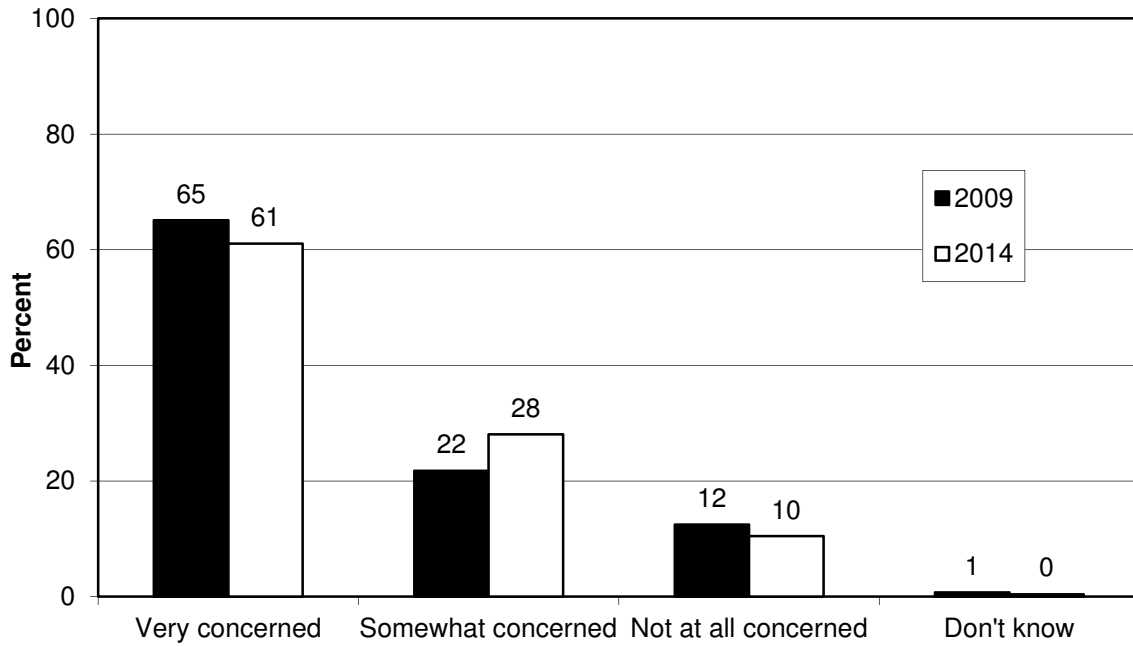
**Q23. Thinking specifically about environmental issues, how concerned are you about water pollution in Delaware?**



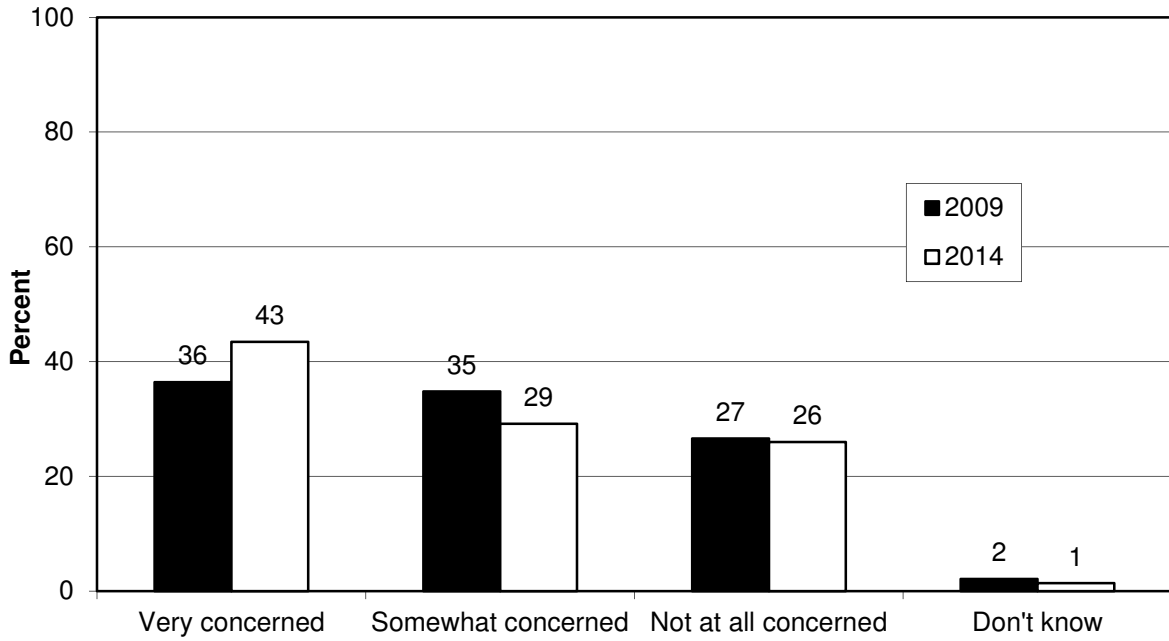
**Q24. Thinking specifically about environmental issues, how concerned are you about toxic waste in Delaware?**



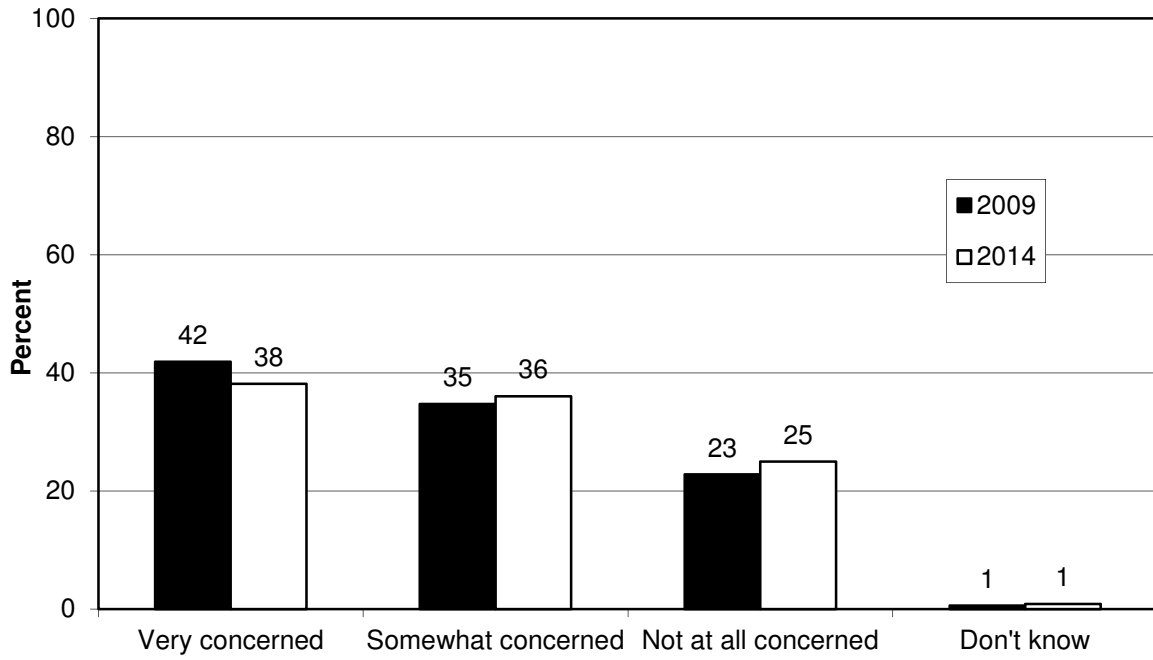
**Q25. Thinking specifically about environmental issues, how concerned are you about air quality in Delaware?**



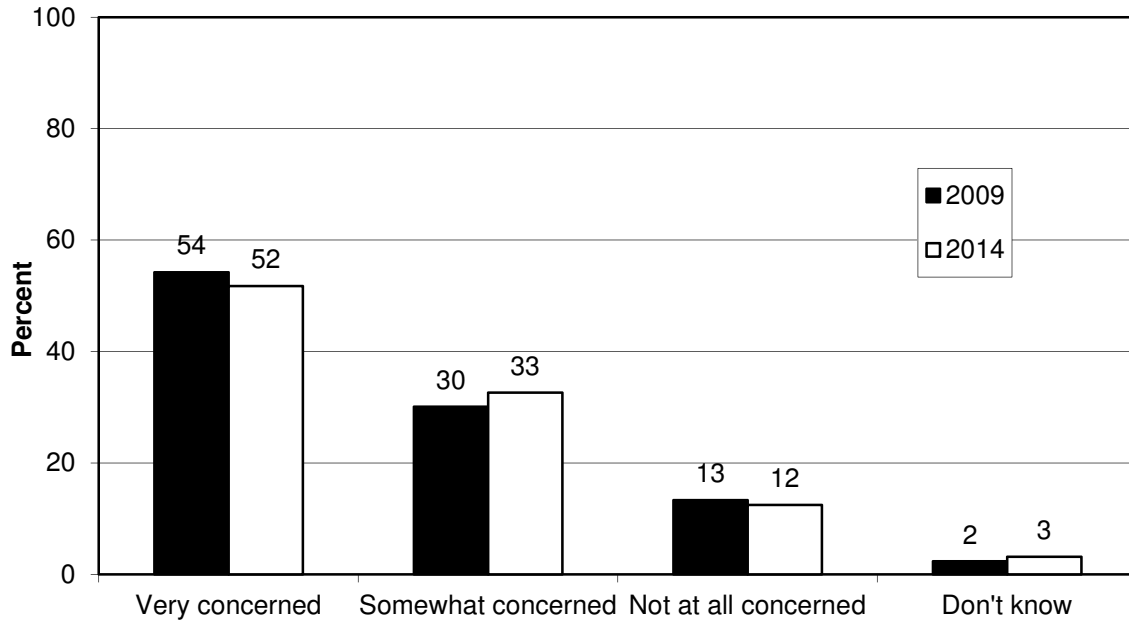
**Q26. Thinking specifically about environmental issues, how concerned are you about climate change in Delaware?**



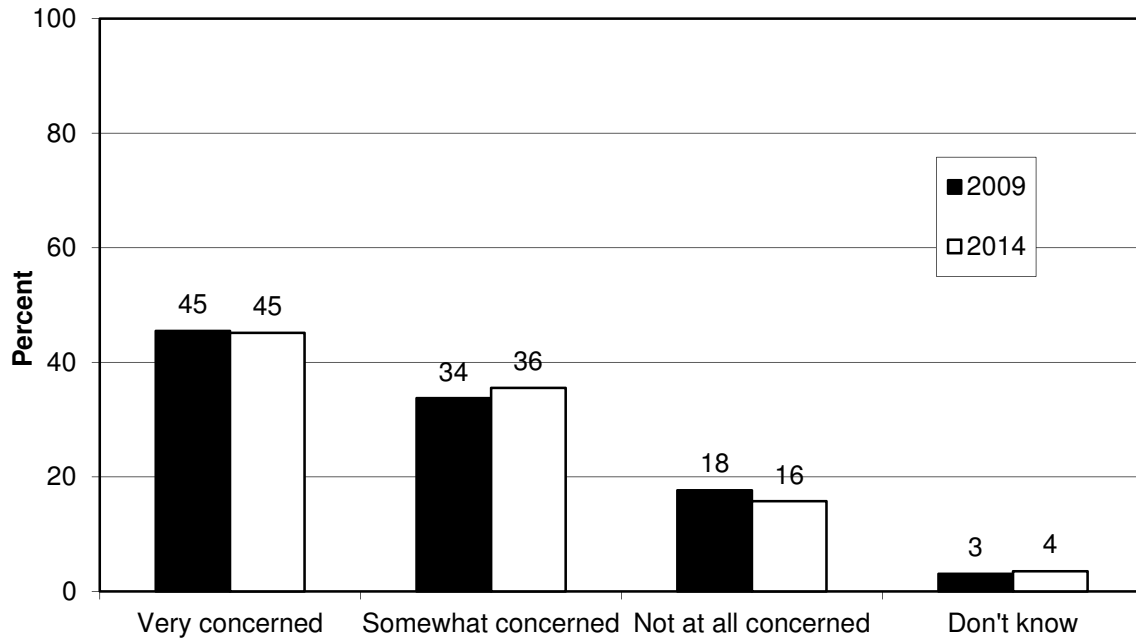
**Q27. Thinking specifically about environmental issues, how concerned are you about flooding in Delaware?**



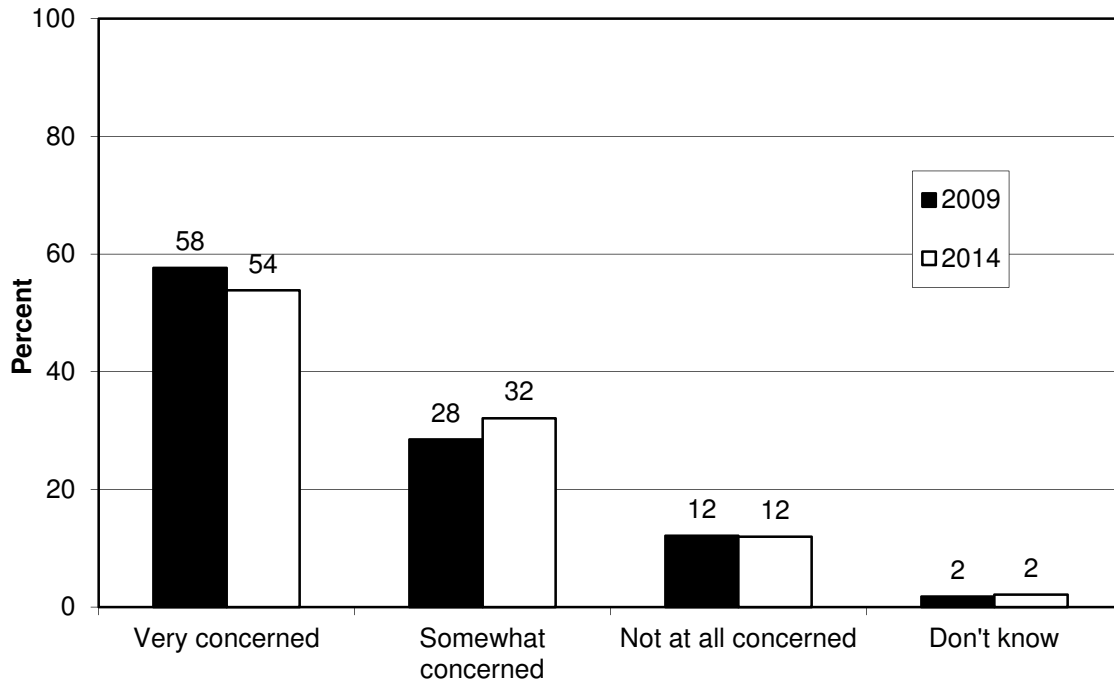
**Q28. Thinking specifically about environmental issues, how concerned are you about declining fish and wildlife populations in Delaware?**



**Q29. Thinking specifically about environmental issues, how concerned are you about loss of marsh or wetlands in Delaware?**

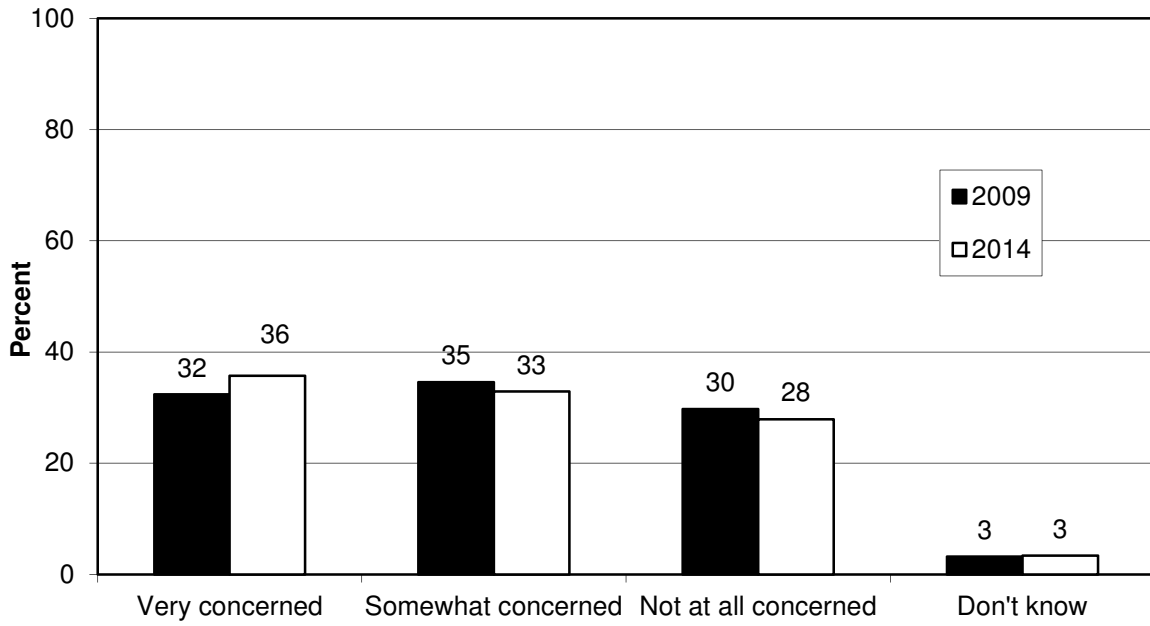


**Q30. Thinking specifically about environmental issues, how concerned are you about loss of forest habitat in Delaware?**





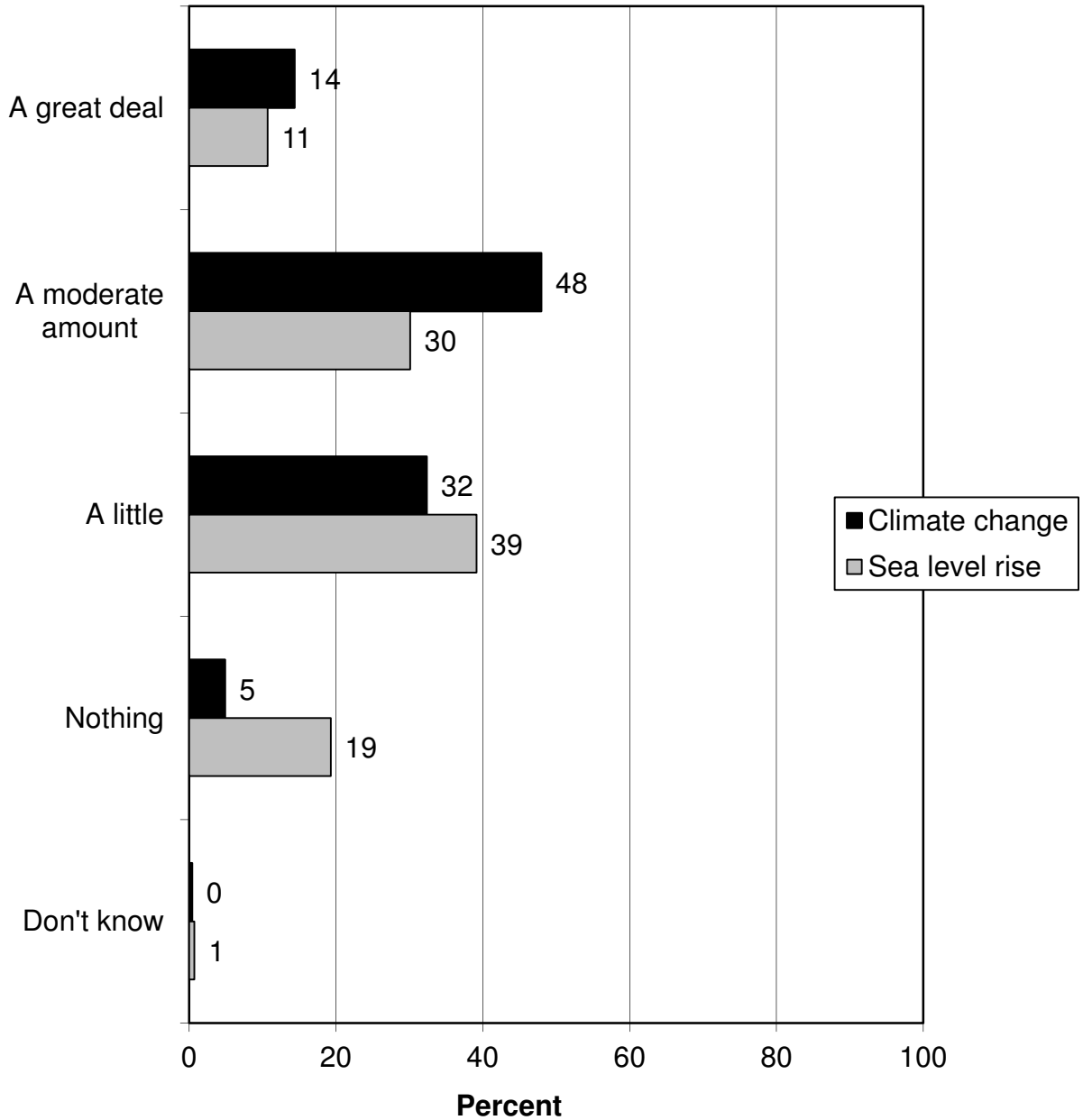
**Q31. Thinking specifically about environmental issues, how concerned are you about sea level rise in Delaware?**



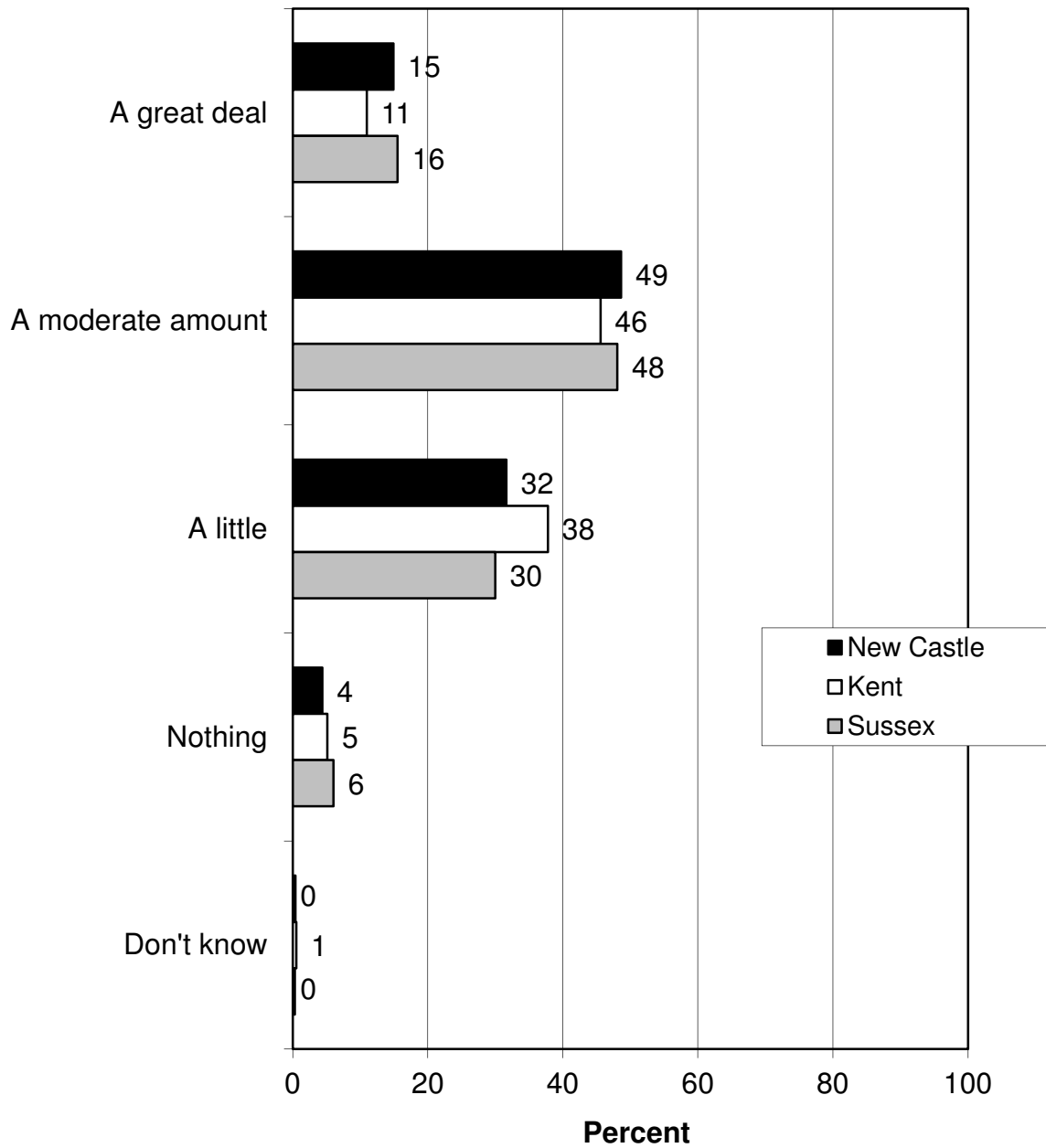
## KNOWLEDGE AND AWARENESS OF CLIMATE CHANGE AND SEA LEVEL RISE

- Two questions asked residents to rate their knowledge about climate change and sea level rise. They claim to know a bit more about climate change than sea level rise.
  - Most Delaware residents say that they know at least a moderate amount about climate change: 62% say that they know either a *great deal* (14%) or a *moderate amount* (48%). At the other end, 32% claim to know a *little*, and only 5% say that they know *nothing*.
  - In looking at knowledge of sea level rise, 41% of residents say that they know a *great deal* or *moderate amount*; meanwhile, 58% say that they know a *little* or *nothing*.
    - The trends analysis found that self-professed knowledge levels regarding climate change dropped slightly from 2009 to 2014: 70% reported knowing at least a moderate amount about climate change in 2009 compared to 62% in 2014, while the percentage reporting they know a little increased from 25% to 32%. The increase in those reporting they know a little is statistically significant at  $p \leq 0.01$ , meaning the correlation would happen by chance only 1 out of 100 times. The self-reported knowledge levels regarding sea level rise are about the same as they were in 2009.

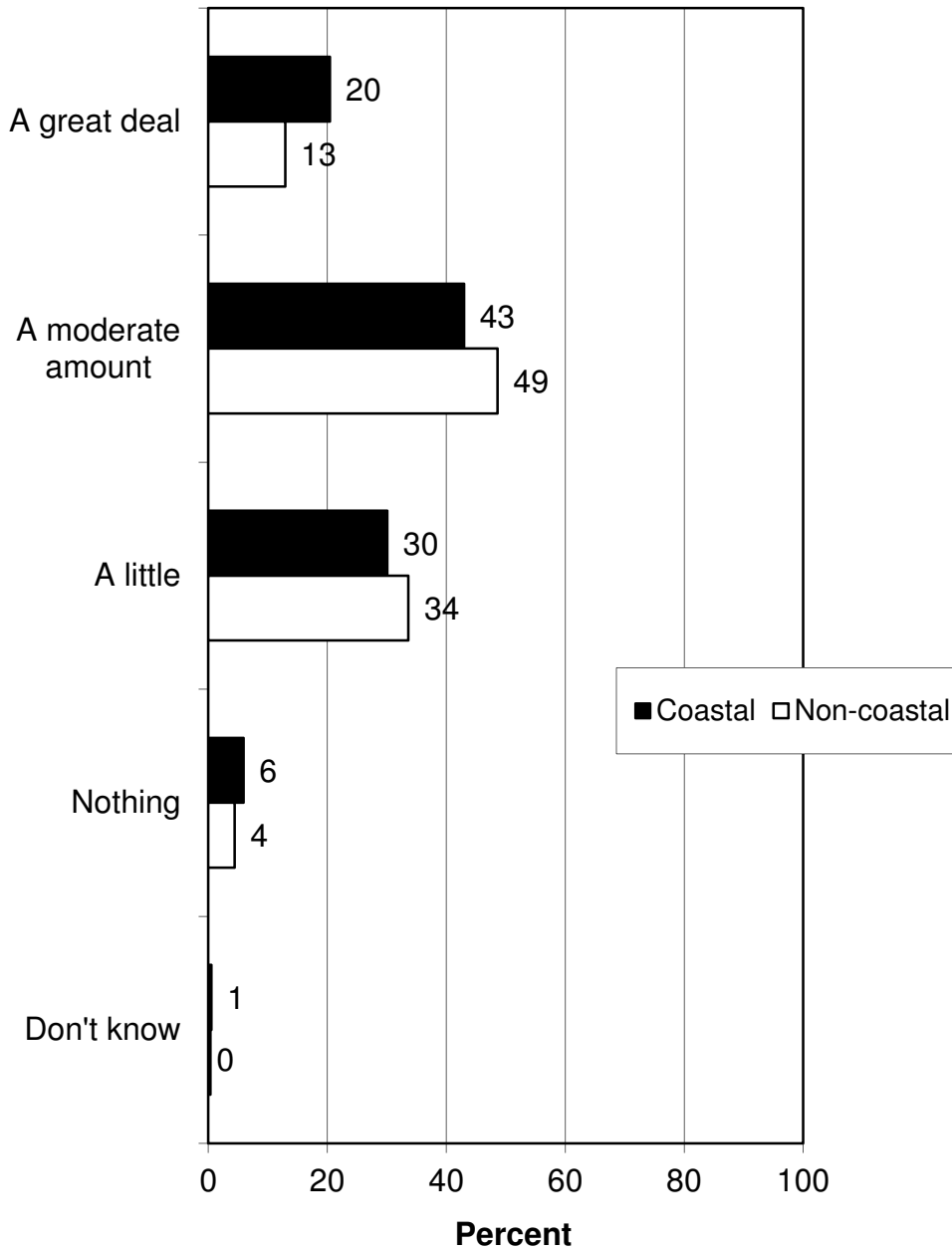
**Q34/Q56. How much would you say you know about [climate change / sea level rise]?**



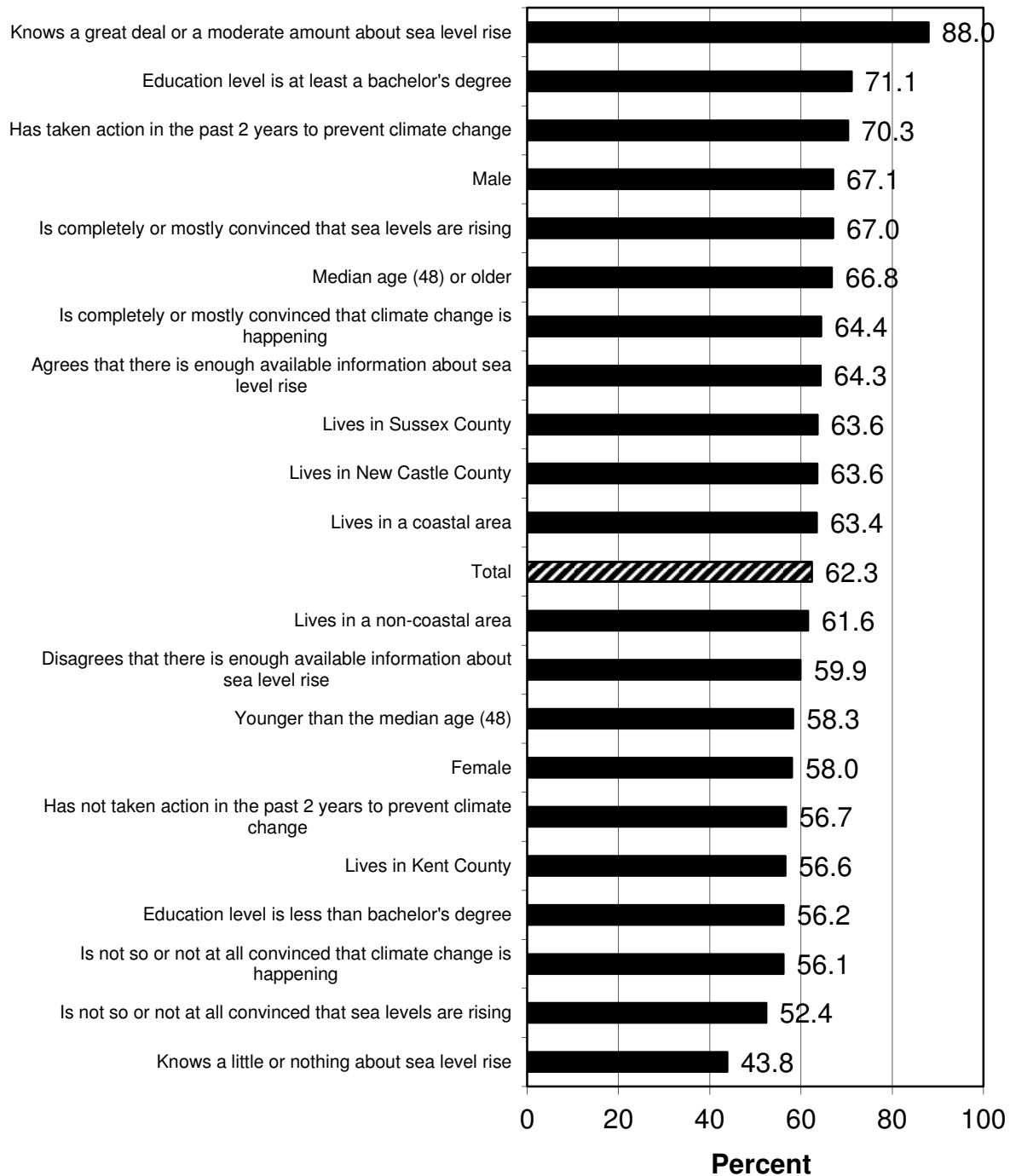
### Q34. How much would you say you know about climate change?



### Q34. How much would you say you know about climate change?

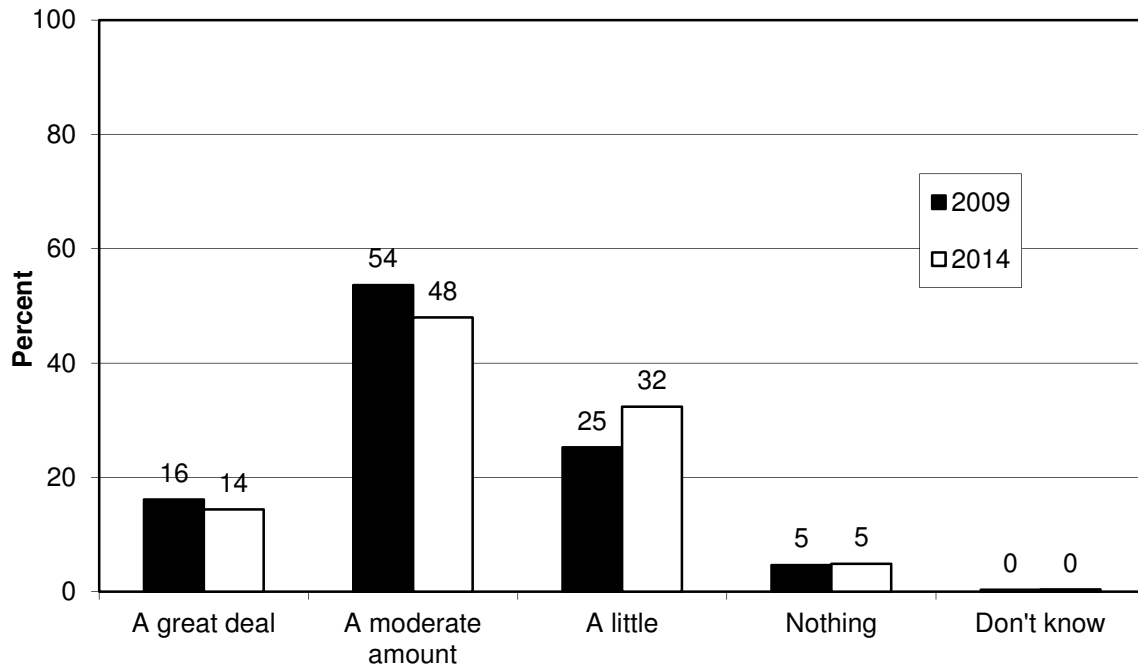


## Percent stating they know a great deal or a moderate amount about climate change:



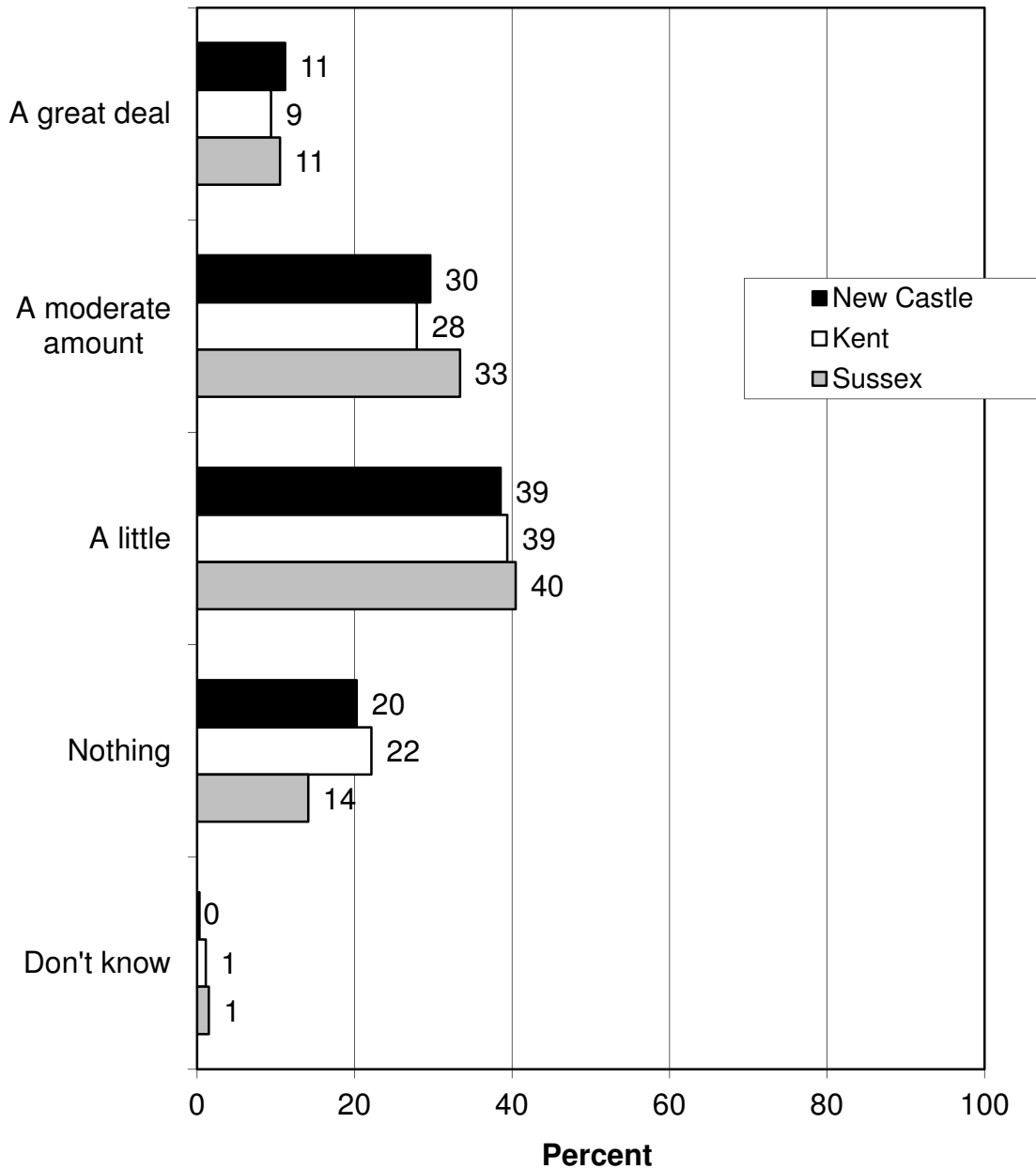
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to say that they know a great deal or moderate amount about climate change, relative to residents as a whole. Overall, 62.3% of Delaware residents say that they know a great deal or moderate amount about climate change (striped bar). Those groups more inclined to say that they know a great deal or moderate amount are above that bar (for instance, 67.1% of males say this); those groups less inclined to say that they know a great deal or moderate amount are below that bar (for instance, only 56.6% of Kent County residents say this).

### Q34. How much would you say you know about climate change?

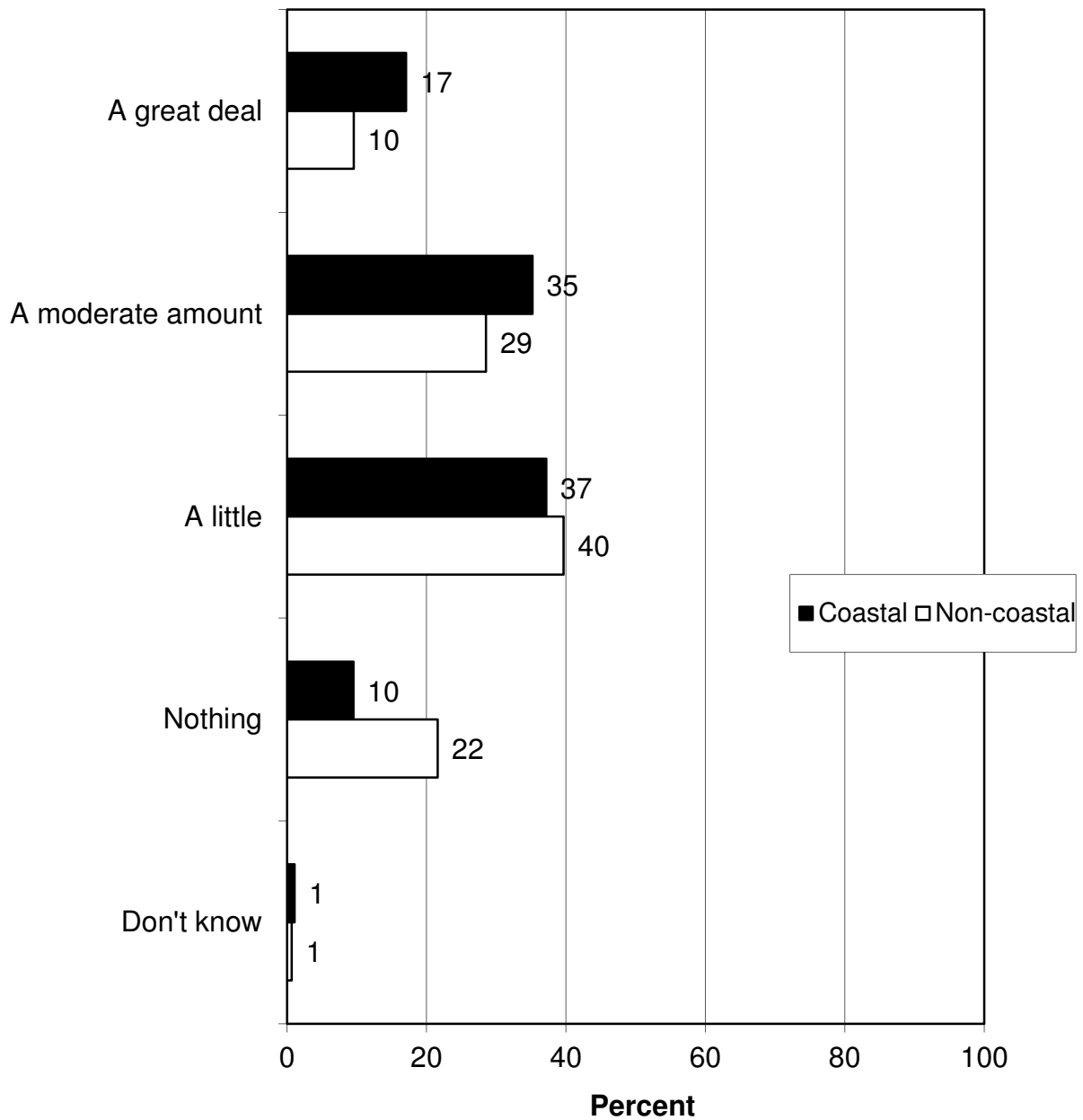




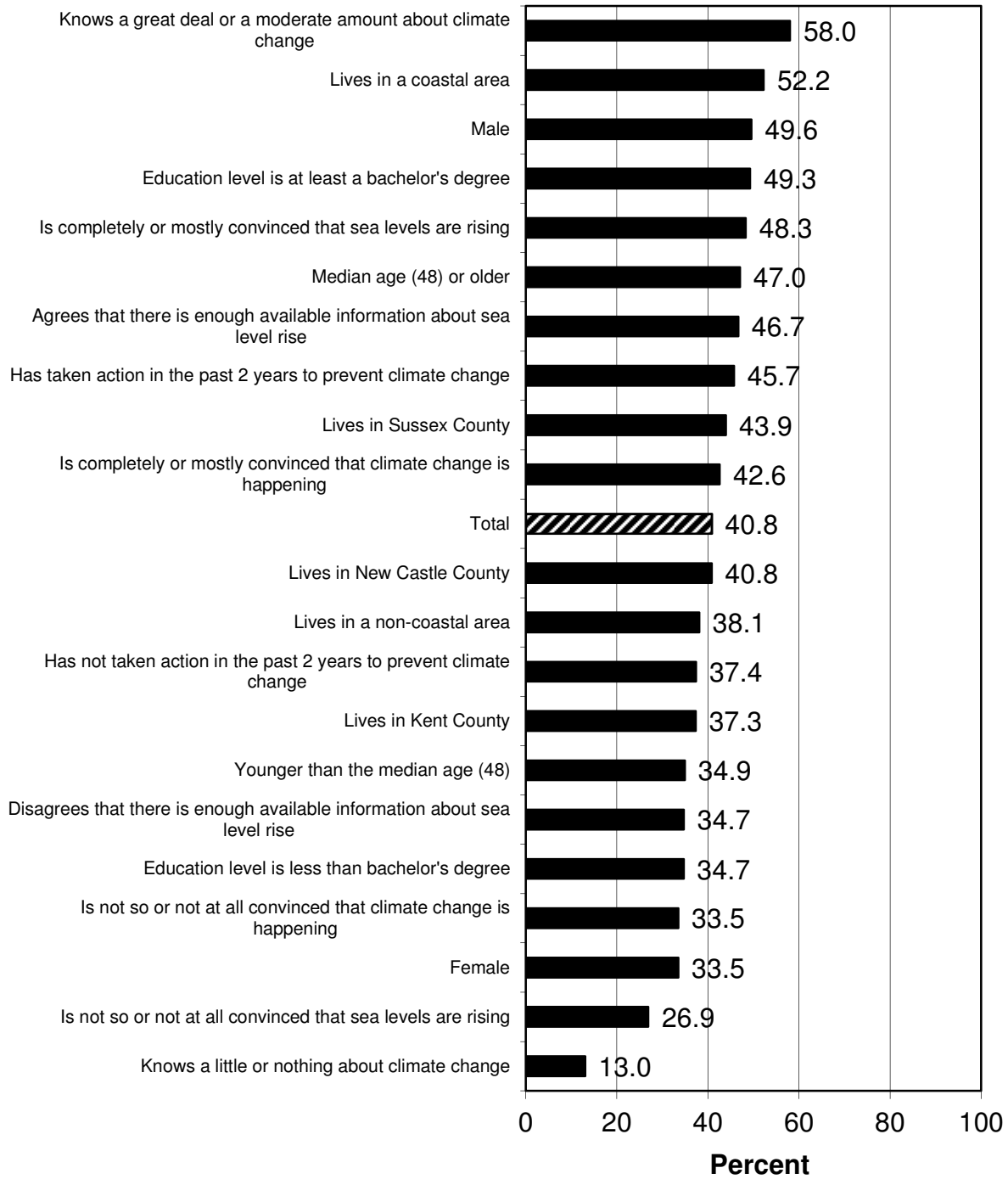
### Q56. How much would you say you know about sea level rise?



### Q56. How much would you say you know about sea level rise?

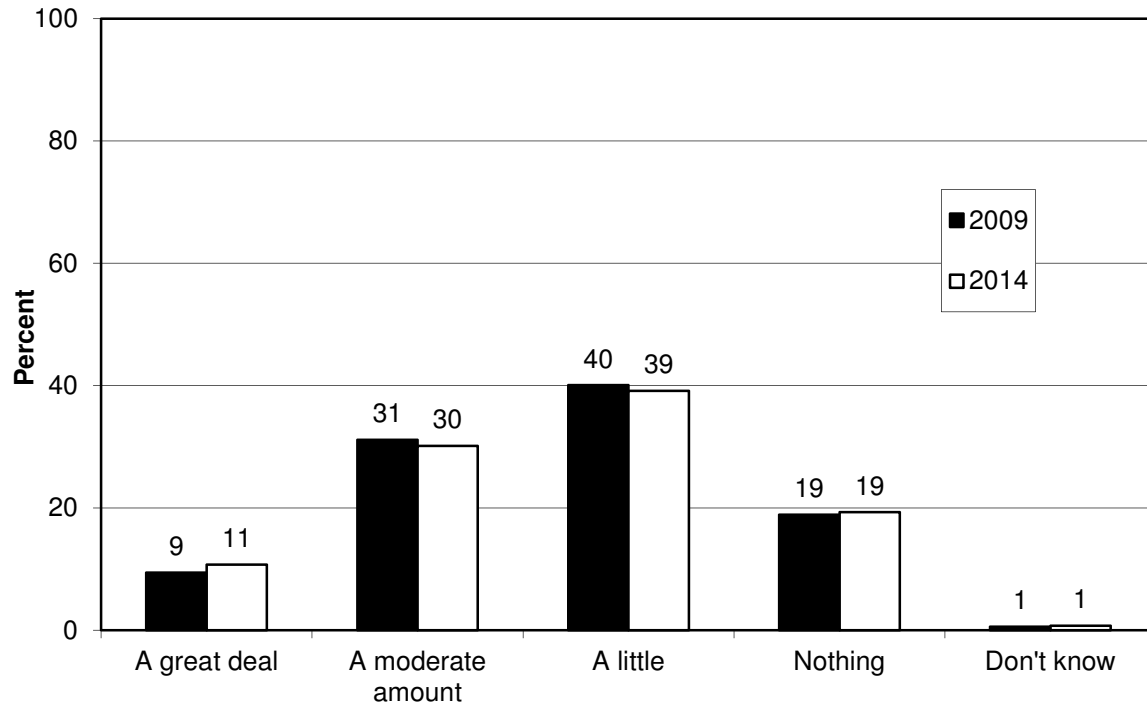


### Percent stating they know a great deal or a moderate amount about sea level rise:



The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to say that they know a great deal or moderate amount about sea level rise, relative to residents as a whole. Overall, 40.8% of Delaware residents say that they know a great deal or moderate amount about sea level rise (striped bar). Those groups more inclined to say that they know a great deal or moderate amount are above that bar (for instance, 52.2% of those who live in a coastal area say this); those groups less inclined to say that they know a great deal or moderate amount are below that bar (for instance, only 33.5% of females say this).

### Q56. How much would you say you know about sea level rise?



## OPINION ON CLIMATE CHANGE AND SEA LEVEL RISE AND WHETHER THEY ARE HAPPENING

- **Section summary:** This section includes several questions that probe Delaware residents' beliefs regarding climate change and concomitant sea level rise; with so many related questions, this summary is included. Residents fall into three camps: deniers/the misinformed (making up about a quarter of residents), those on the fence, so to speak (making up about a third), and those who think that climate change and sea level rise are happening (making up just under half). Note that the questions discussed below were randomized; some respondents received some questions, and other respondents received other questions, although all of them received Question 38 about whether climate change is happening.
- The deniers/misinformed are the 20% who are *not so* or *not at all* convinced that climate change is happening, and the 26% who are *not so* or *not at all* convinced that sea level rise is happening. They include all of the 3% who say that *most scientists think climate change is not happening*, and a portion of the 31% who say that *there is a lot of disagreement among scientists about whether it is happening*.
  - The middle ground consists of those who are convinced that climate change and sea level rise are happening but are only *mostly* convinced (rather than *completely* convinced). This group consists of the 32% who are *mostly* convinced about climate change and the 31% who are *mostly* convinced about sea level rise. Some of this group say that *there is a lot of disagreement among scientists about whether it is happening*, while some know that *most scientists think climate change is happening*.
  - The final group are those who think that climate change and sea level rise are happening. This group consists of those who are completely convinced that climate change (46%) and sea level rise (39%) are happening and the 49% who say that most scientists think climate change is happening.
    - The survey questions that made up this section summary are discussed on the following pages.

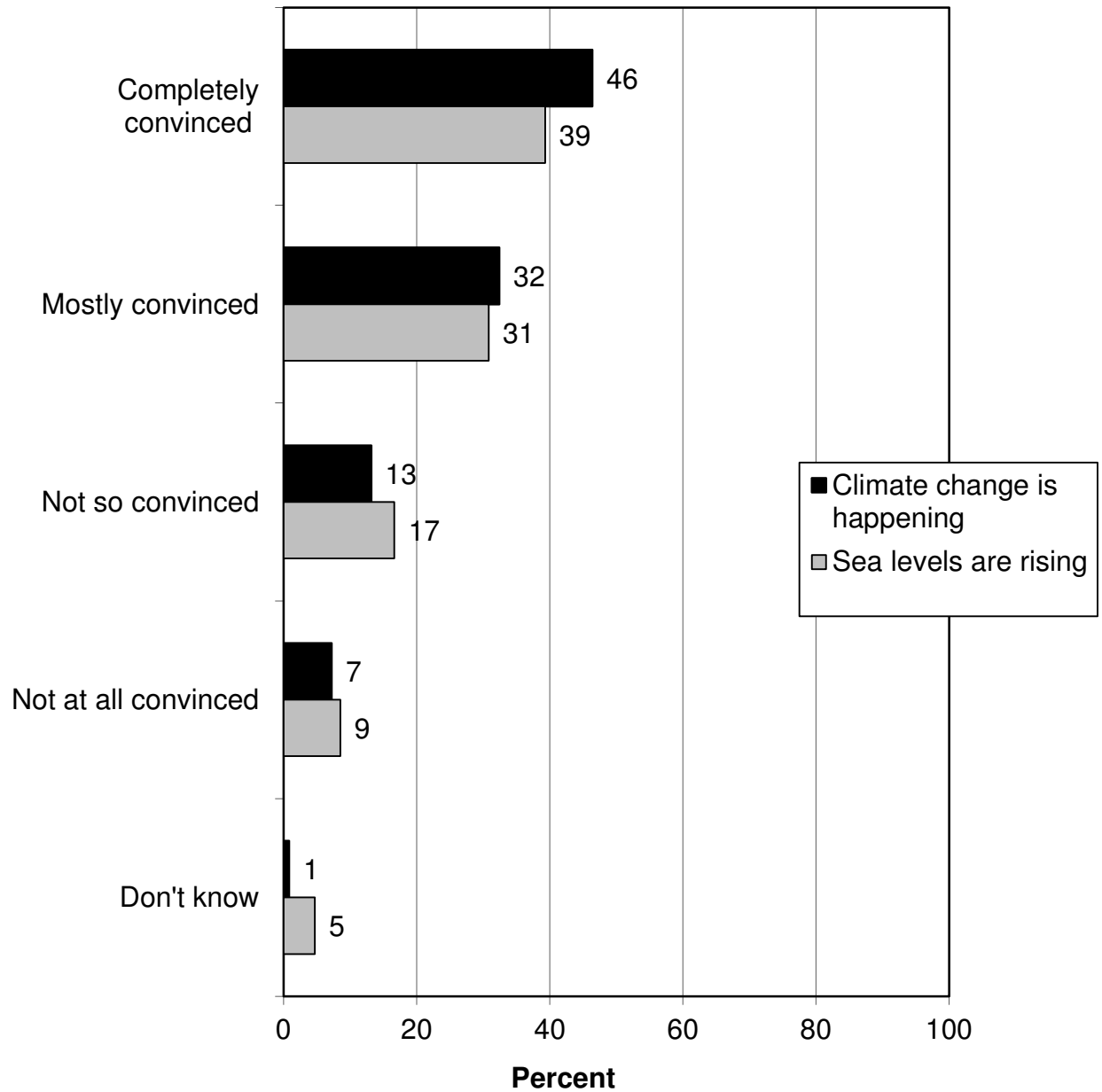
- In basic questions, the survey directly asked residents about their opinions on whether climate change and sea level rise are happening.
  - Regarding climate change, 20% of Delaware residents say that they are *not so convinced* or *not at all convinced* that climate change is happening. At the other end, 79% are *completely* or *mostly* convinced; however, a substantial portion of that consists of residents who are only *mostly* convinced (46% are *completely* and 32% are *mostly* convinced—rounding on the graph causes the apparent discrepancy in the sum, which is 79% when calculated on unrounded numbers).
    - In the trends analysis, the percentages of Delaware residents who say they are *completely* convinced climate change is happening increased: 40% said they were *completely* convinced in 2009 compared to 46% in 2014; however, this increase is *not* statistically significant.
  - Likewise, 26% of residents are *not so convinced* or *not at all convinced* that sea levels are rising; 70% are *completely* or *mostly* convinced, the latter split between *completely* convinced (39%) and *mostly* convinced (31%).
    - Although the percentage of Delaware residents who are *completely* convinced that sea levels are rising remains lower than the percentage who are completely convinced that climate change is happening, the trends analysis shows a substantial increase in the percentage who are *completely* convinced that sea levels are rising from 2009 to 2014: 29% in 2009 compared to 39% in 2014. The increases in the percentage of those who are *completely* convinced as well as the overall percentage of those who are completely or mostly convinced (from 63% to 70% combined) are both statistically significant at  $p \leq 0.01$ , meaning the correlation would happen by chance only 1 out of 100 times.
    - The survey included another way to assess opinion on whether climate change is happening. The survey asked residents if they agree or disagree that “Scientists are right that climate change is occurring”: while the majority of residents agree (83%), a substantial percentage (11%) disagree. In sum, 17% do not agree (they respond neutrally, that they disagree, or that they do not know). The trends analysis shows that the percentage of Delaware residents who *strongly* agree that “Scientists are right that climate change is occurring” increased from 51% in 2009 to 58% in 2014;

- however, the overall increase in agreement (strongly and moderately combined) with this statement is *not* statistically significant.
- Another question asked residents to say, regardless of their personal views, whether or not most *scientists* think climate change is happening (the overwhelming majority of climate scientists think climate change is happening). Misinformation is rampant, as 31% say that there is a lot of disagreement among scientists about whether it is happening or not, and another 3% say that most scientists think climate change is not happening. Only 49% of residents correctly say that most scientists think that climate change is happening. In the trends analysis, the percentage who say most scientists think climate change is happening increased (from 42% to 49%); while this increase is *not* statistically significant, the decrease among those who say there is a lot of disagreement and the increase among those who say they don't know enough to say are each statistically significant at  $p \leq 0.01$ , meaning the correlation would happen by chance only 1 out of 100 times.
  - A follow-up question asked residents to say whether climate change, if it is indeed happening, is caused mostly by human activities, mostly by natural changes in the environment, or both about equally. Most commonly, residents say it is caused mostly by human activities (41%), while 24% say mostly natural causes, and 29% say both about equally.
  - Another question asked if residents agree or disagree that "Climate change is contributing to the rise in sea levels." The majority (79%) agree, but 11% disagree. (The remainder answer neutrally or do not know.) The percentage who *strongly* agree that "Climate change is contributing to the rise in sea levels" increased (from 52% in 2009 to 57% in 2014), but it is *not* a statistically significant change.
- The survey delved into personal experiences with climate change and sea level rise, asking residents if they agree or disagree that they have personally experienced the impacts of climate change and sea level rise.
- A slight majority agree that they have "personally experienced or observed local impacts of climate change" (53%), but 40% disagree. (The remainder answer neutrally or do not know.)

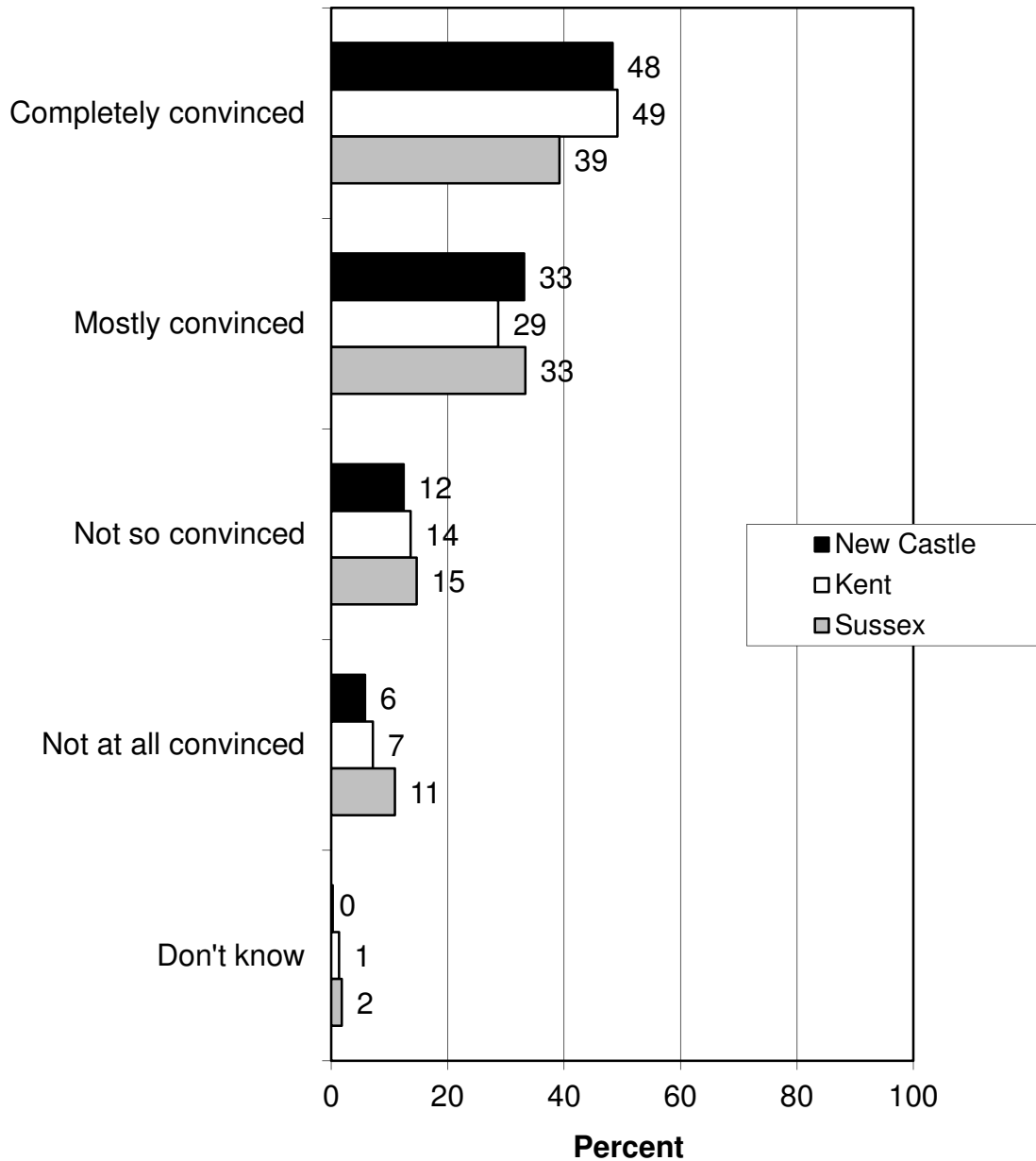


- Just over a quarter agree that they have “personally experienced the impacts of sea level rise” (28%), but the majority disagree (66%). (The remainder answer neutrally or do not know.)
  - In the trends analysis, the percentage of those who agree (strongly or moderately combined) that they have personally experienced the impacts of sea level rise increased substantially from 22% in 2009 to 30% in 2014. This increase is statistically significant at  $p \leq 0.01$ , meaning the correlation would happen by chance only 1 out of 100 times.

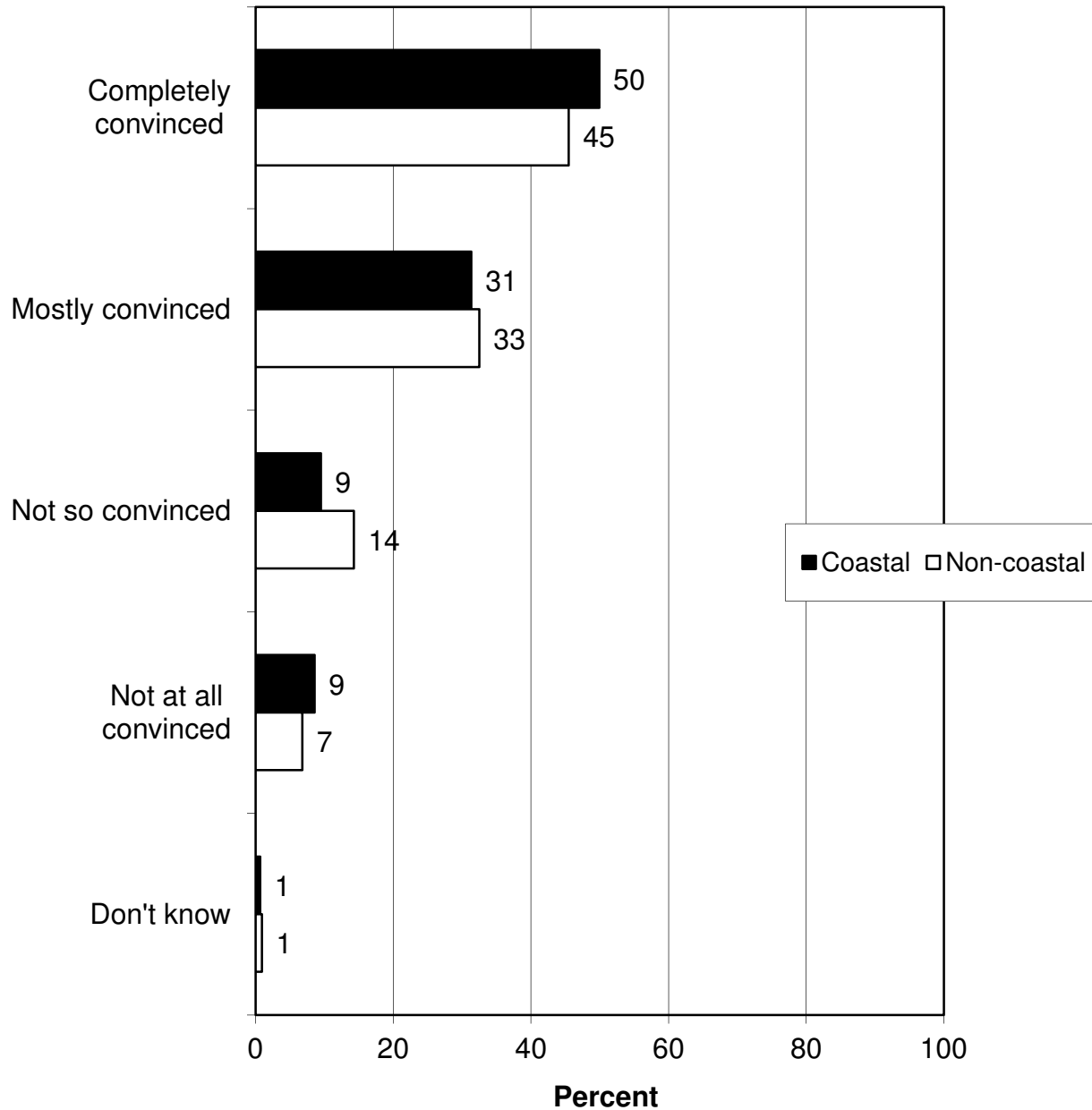
**Q38/Q58. How convinced are you that [climate change is happening / sea levels are rising]? Would you say you are completely convinced, mostly convinced, not so convinced, or not at all convinced?**



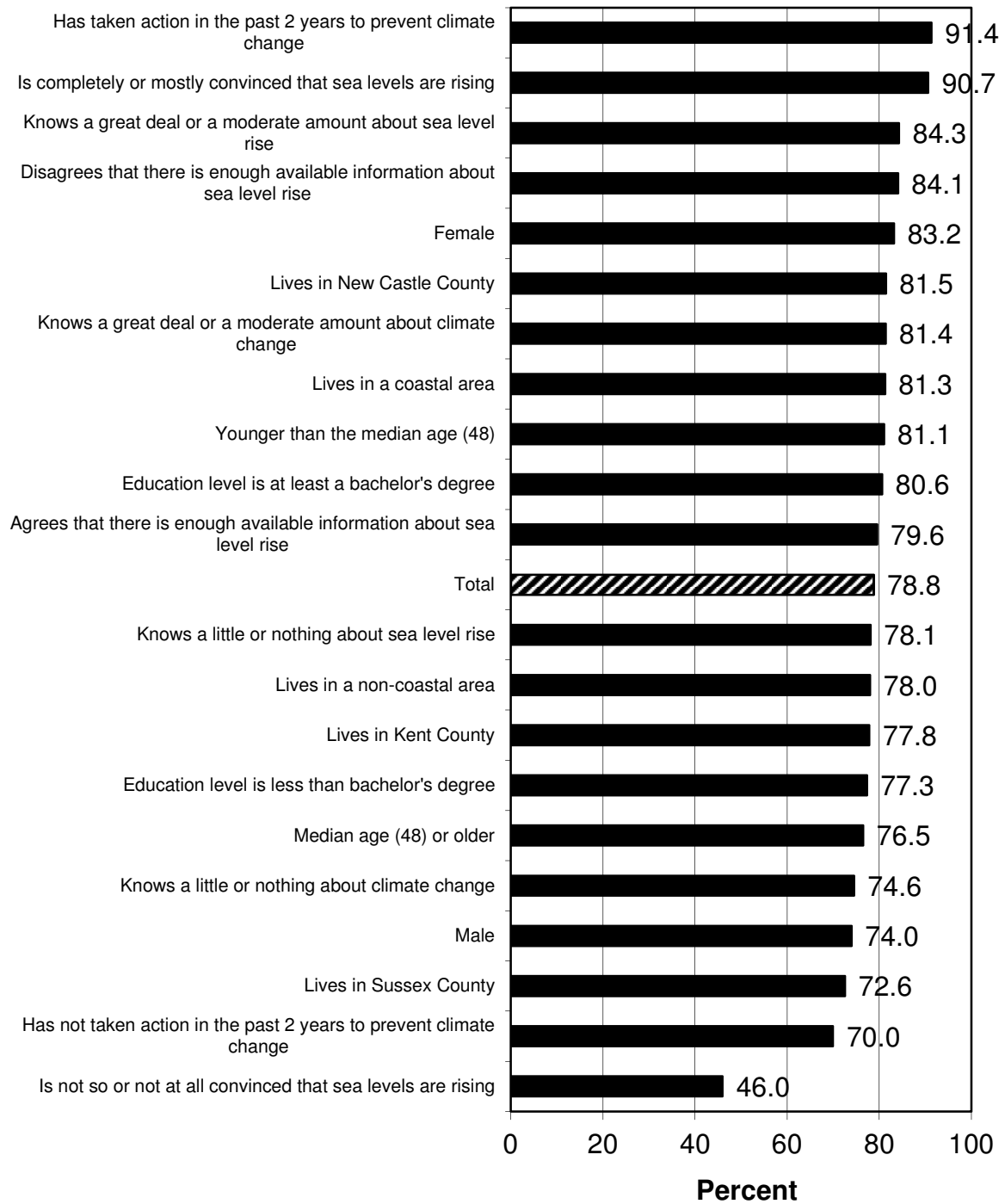
**Q38. How convinced are you that climate change is happening? Would you say you are completely convinced, mostly convinced, not so convinced, or not at all convinced?**



**Q38. How convinced are you that climate change is happening? Would you say you are completely convinced, mostly convinced, not so convinced, or not at all convinced?**

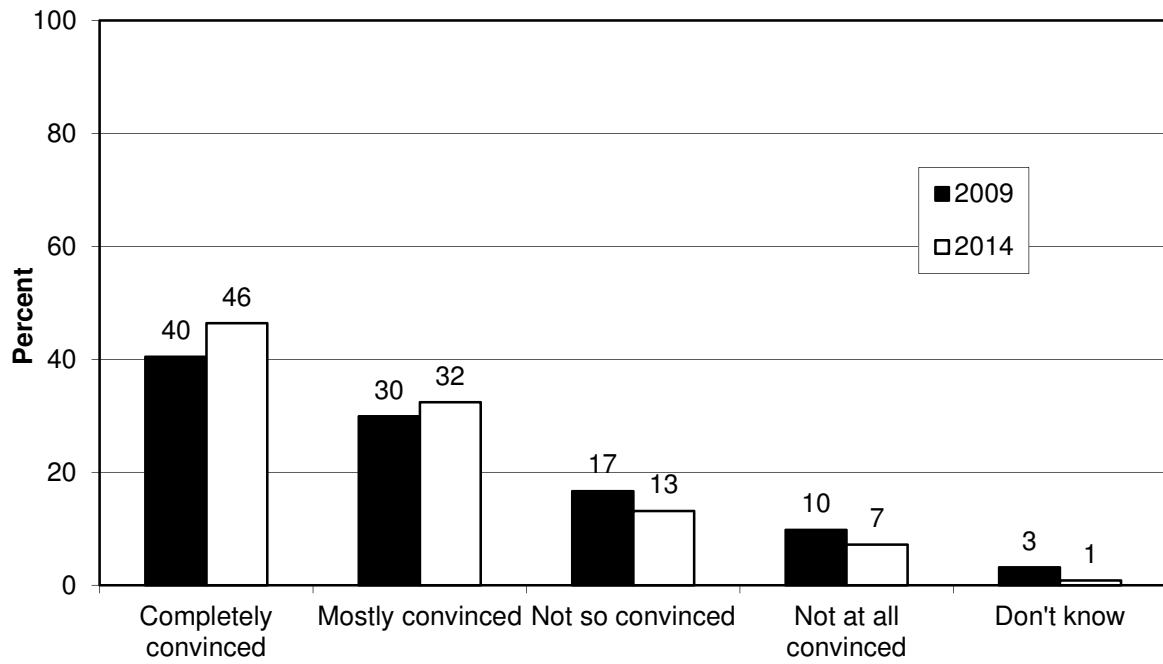


## Percent who are (completely or mostly) convinced climate change is happening:

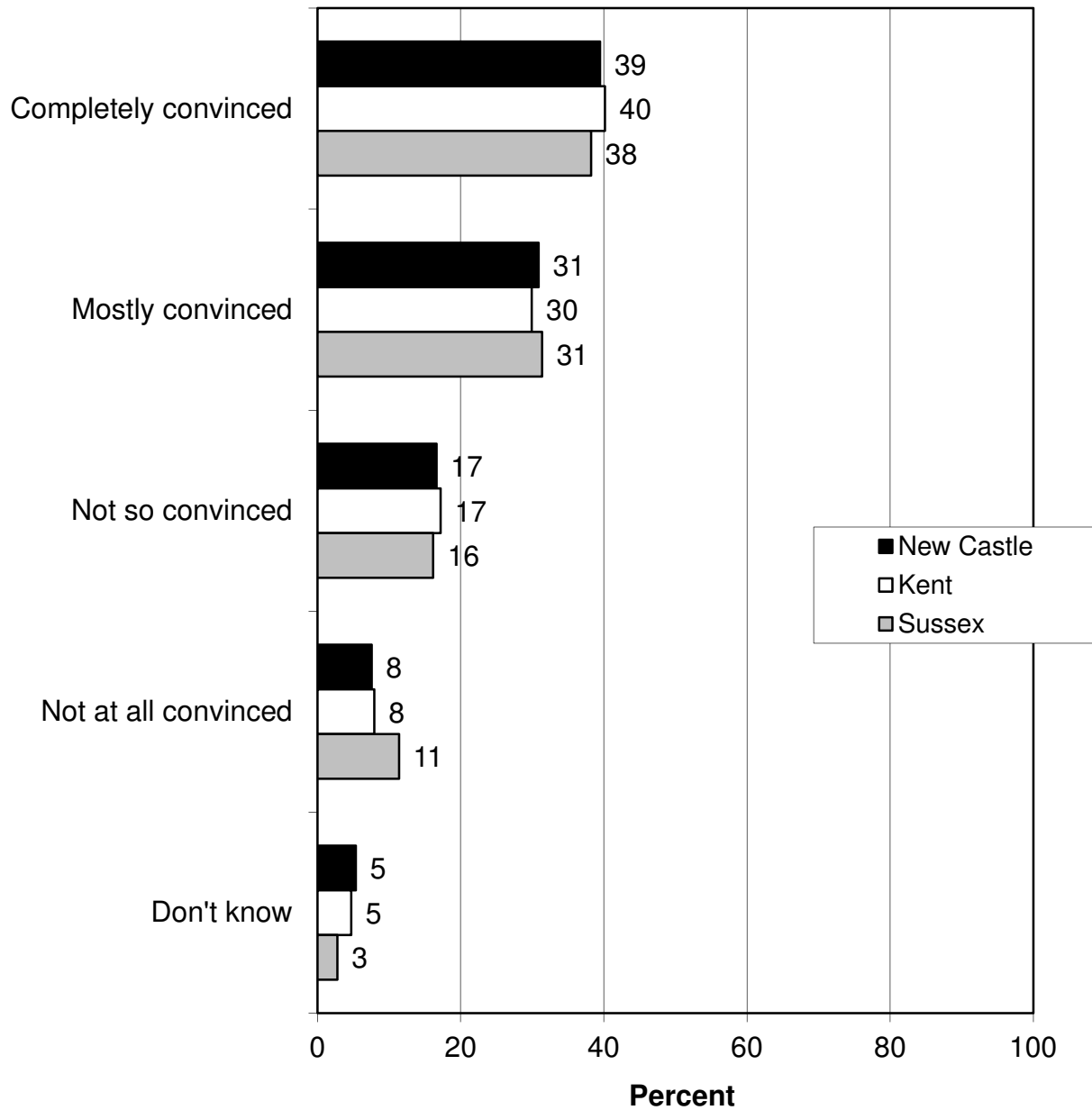


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to say that they are completely or mostly convinced that climate change is happening, relative to residents as a whole. Overall, 78.8% of Delaware residents are completely or mostly convinced that climate change is happening (striped bar). Those groups more inclined to say so are above that bar (for instance, 83.2% of females say that they are completely or mostly convinced); those groups less inclined to say so are below that bar (for instance, only 74.0% of males are completely or mostly convinced).

### Q38. How convinced are you that climate change is happening?

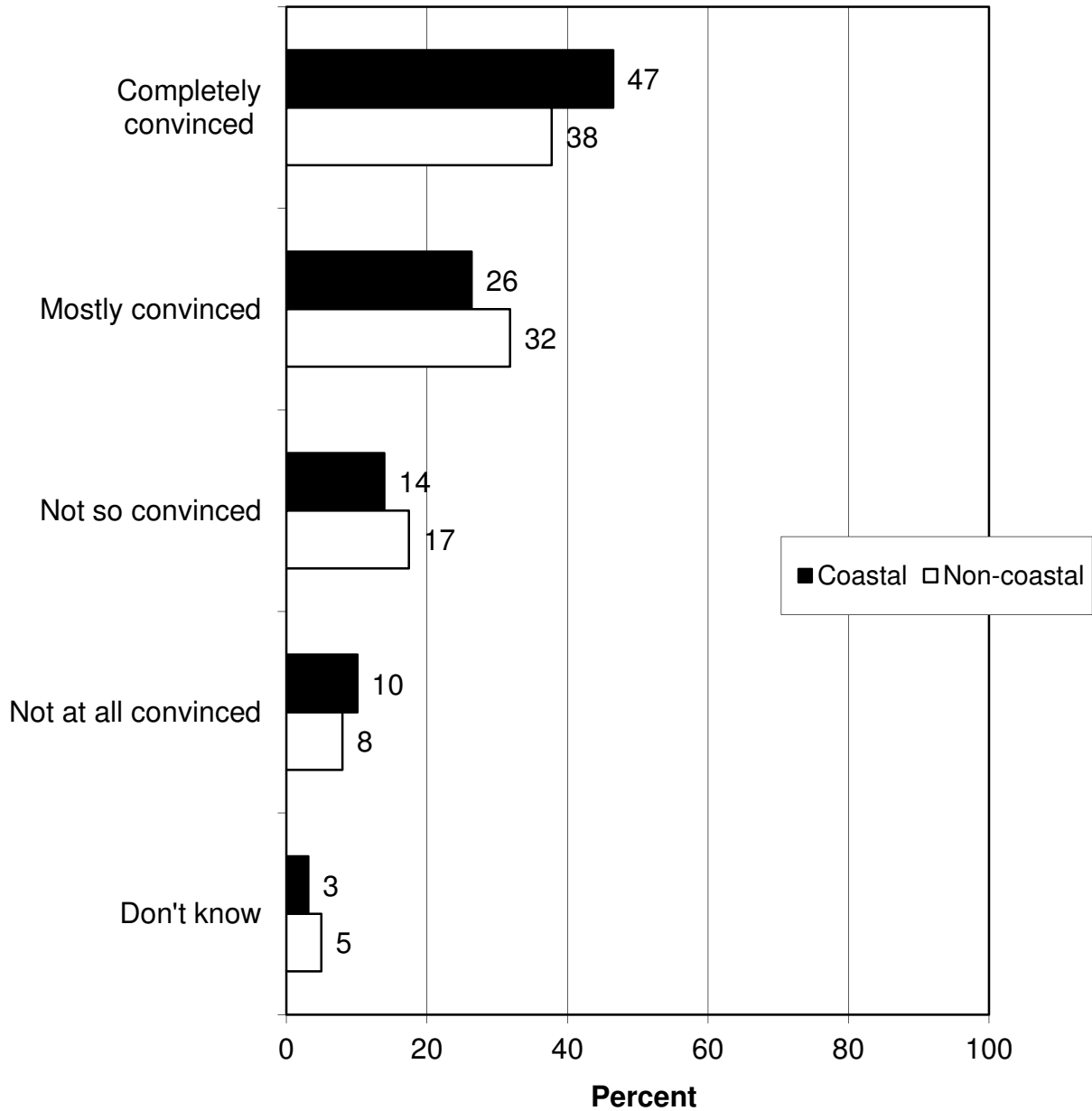


**Q58. How convinced are you that sea levels are rising? Would you say you are completely convinced, mostly convinced, not so convinced, or not at all convinced?**

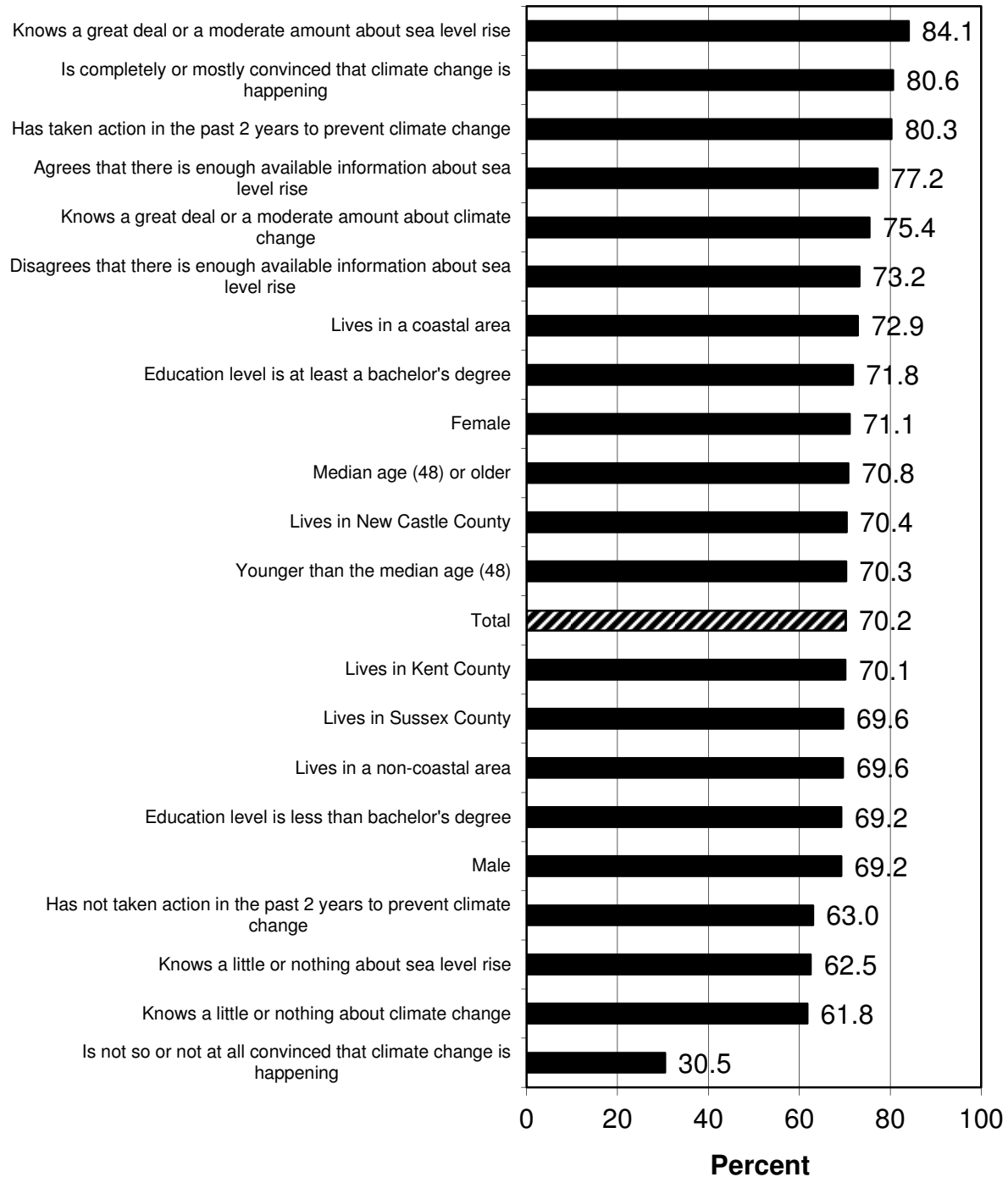




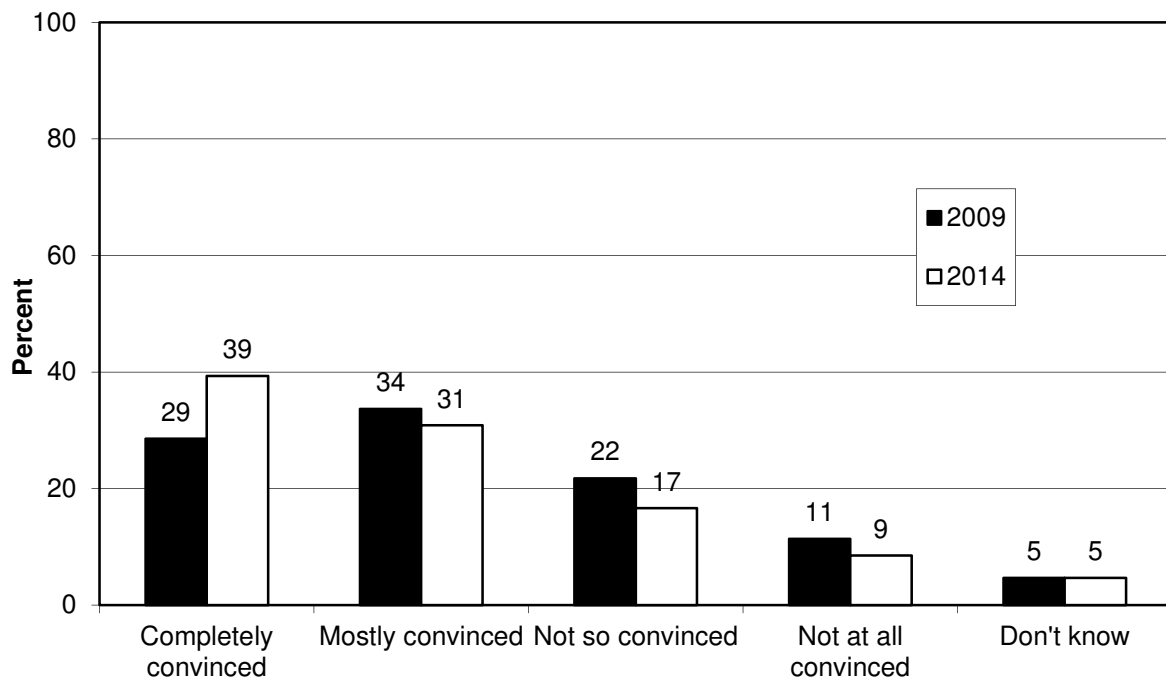
**Q58. How convinced are you that sea levels are rising? Would you say you are completely convinced, mostly convinced, not so convinced, or not at all convinced?**



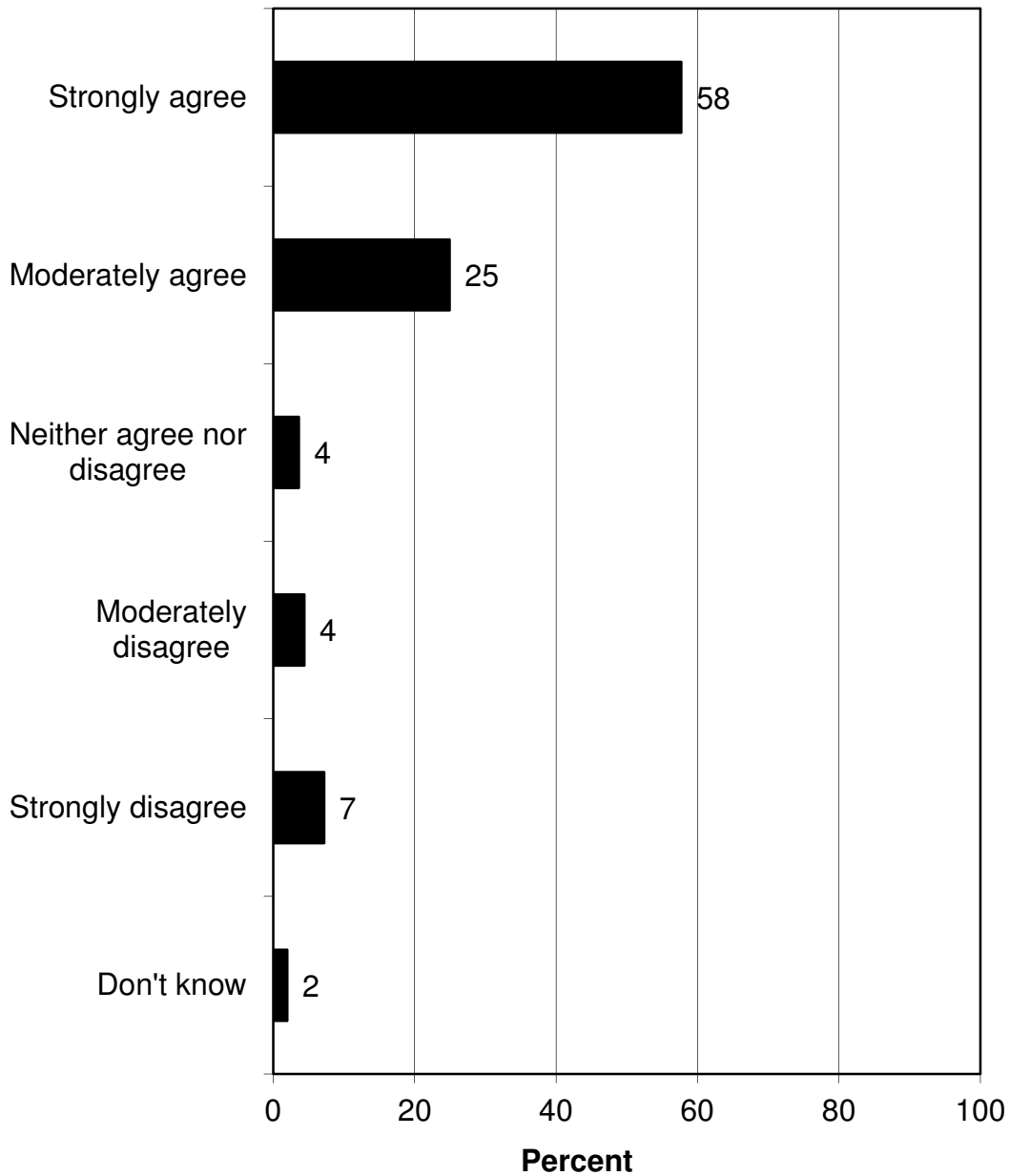
## Percent who are (completely or mostly) convinced sea levels are rising:



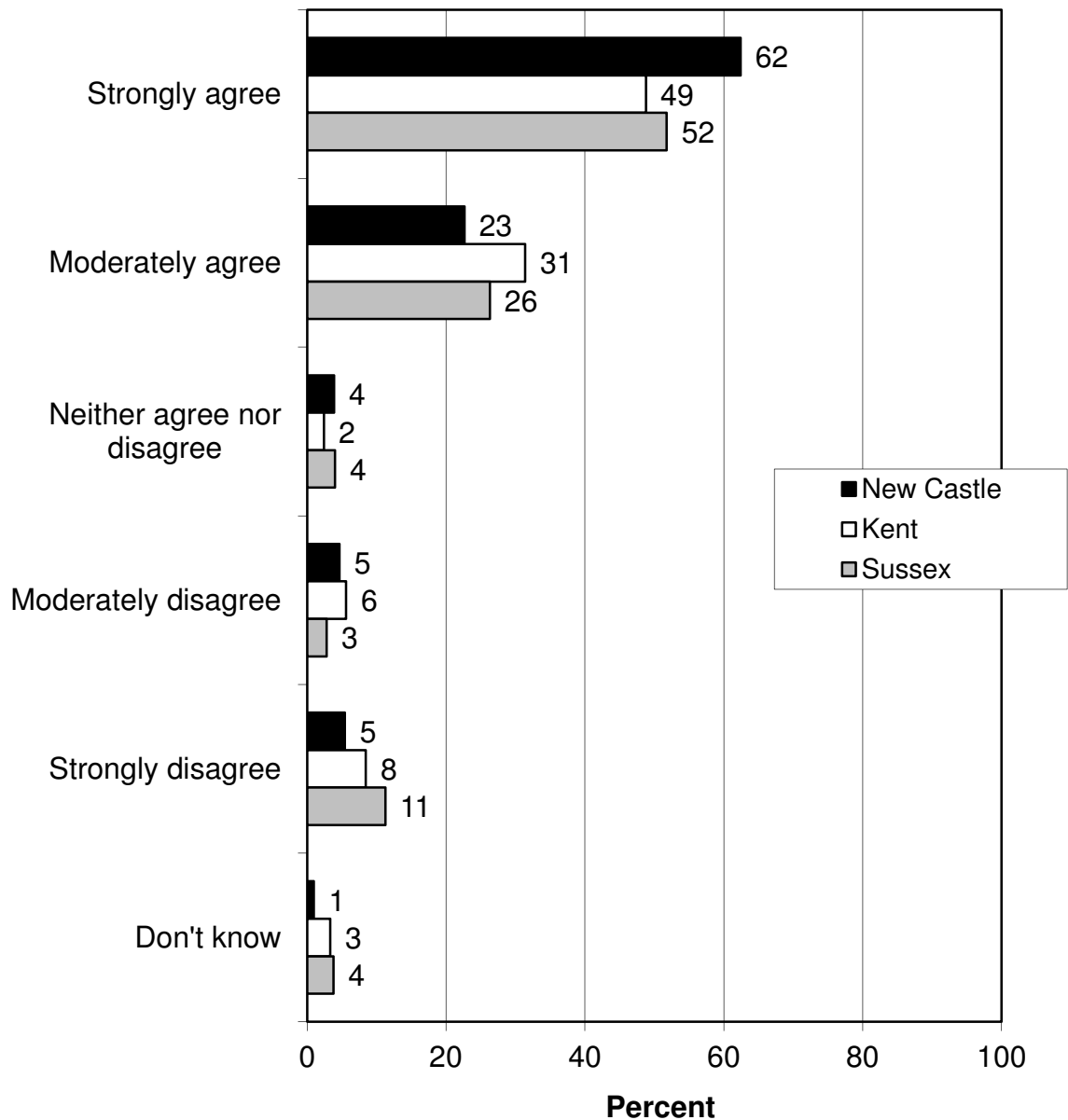
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to say that they are completely or mostly convinced that sea level rise is happening, relative to residents as a whole. Overall, 70.2% of Delaware residents are completely or mostly convinced that sea level rise is happening (striped bar). Those groups more inclined to say so are above that bar (for instance, 72.9% of those who live in a coastal area say that they are completely or mostly convinced); those groups less inclined to say so are below that bar (for instance, only 69.2% of males are completely or mostly convinced).

**Q58. How convinced are you that sea levels are rising?**

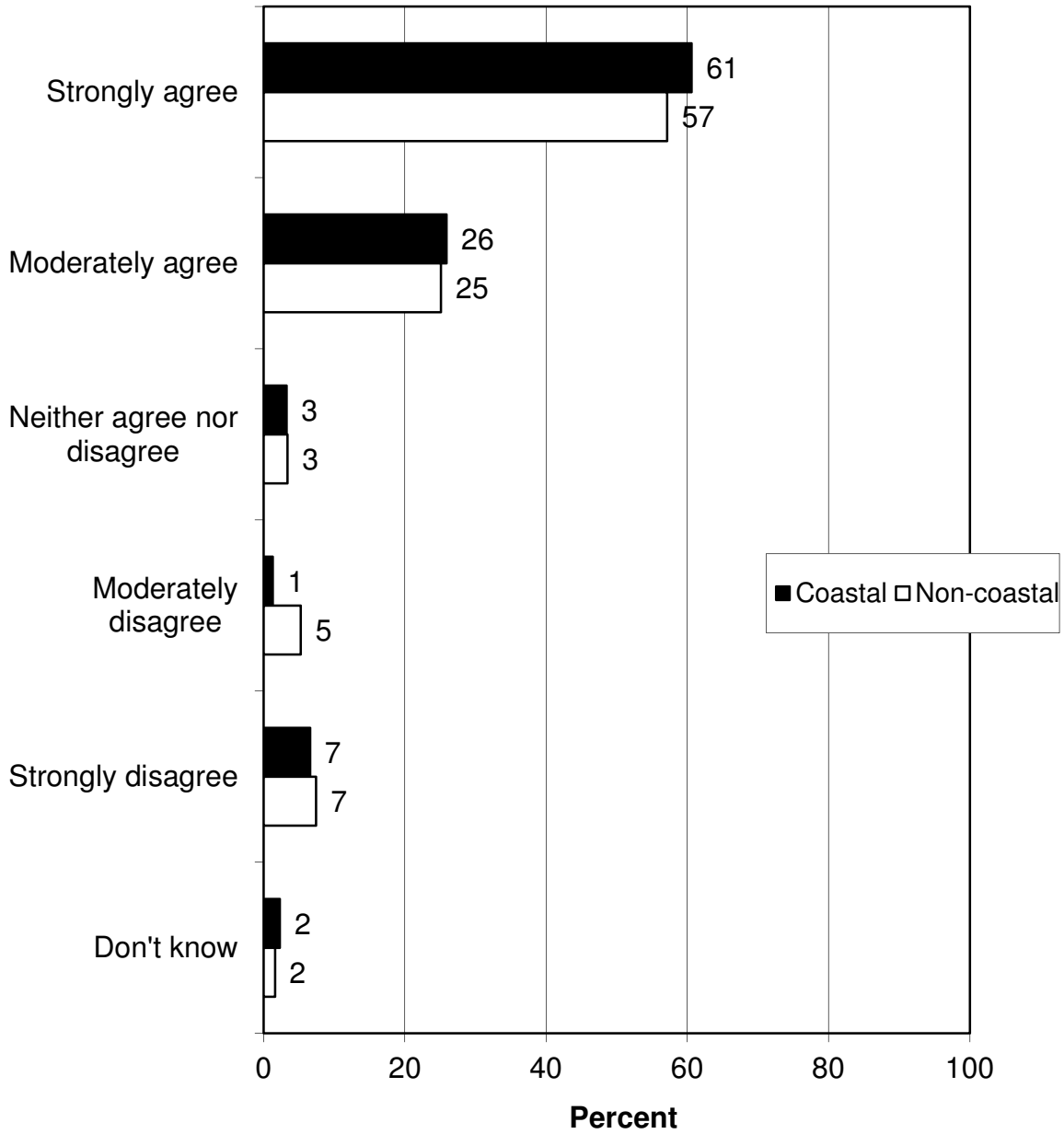
**Q83. Scientists are right that climate change is occurring. (Do you agree or disagree with this statement?)**



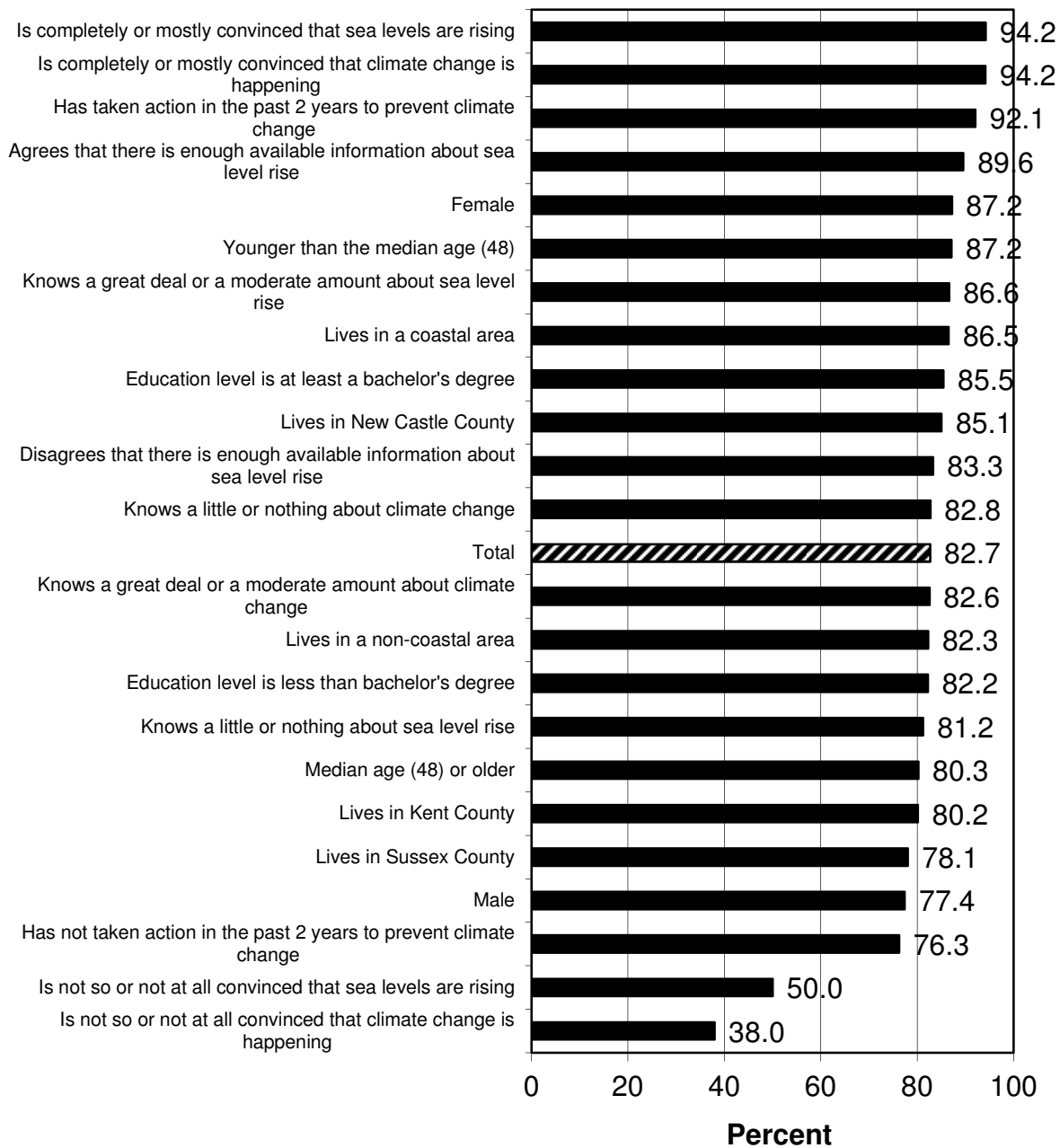
**Q83. Scientists are right that climate change is occurring. (Do you agree or disagree with this statement?)**



**Q83. Scientists are right that climate change is occurring. (Do you agree or disagree with this statement?)**



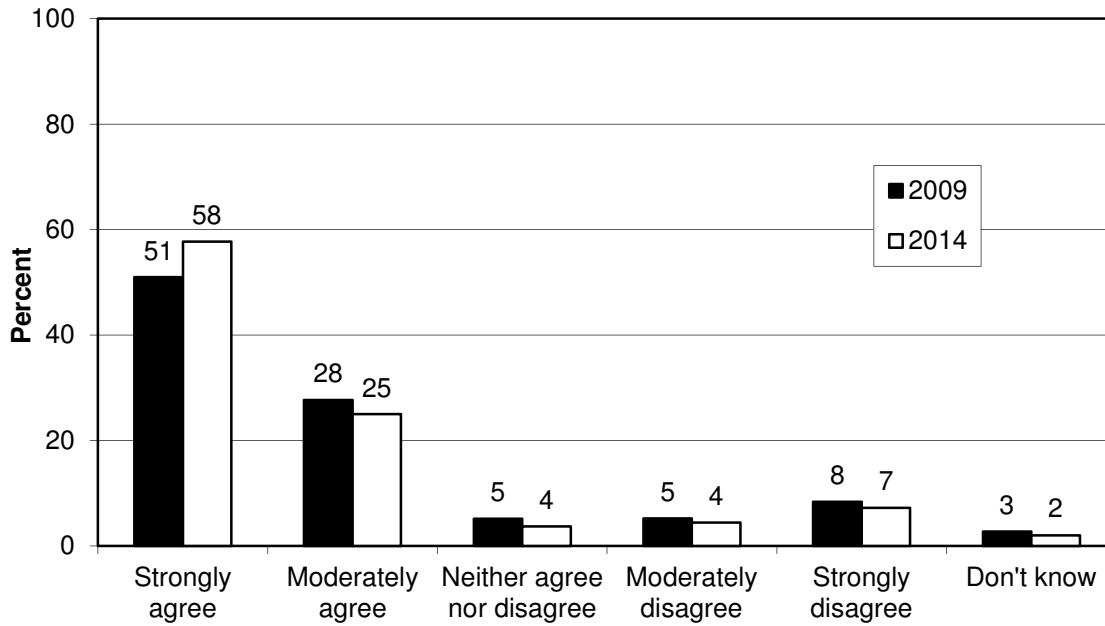
## Percent who agree (strongly or moderately) that scientists are right that climate change is occurring:



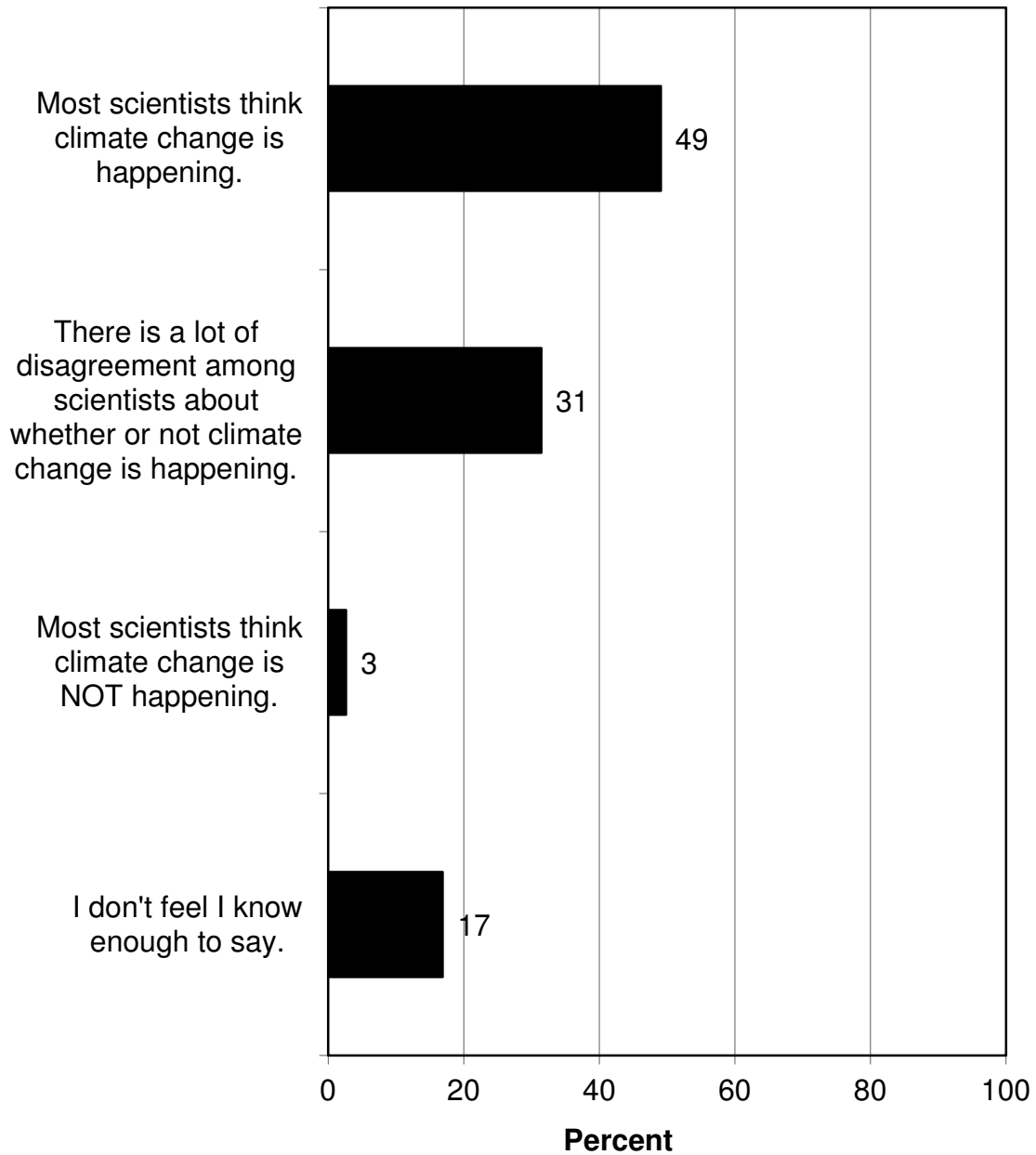


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to agree that scientists are right that climate change is occurring, relative to what residents as a whole think. Overall, 82.7% of Delaware residents agree that scientists are right that climate change is occurring (striped bar). Those groups more inclined to agree are above that bar (for instance, 87.2% of females agree); those groups less inclined to agree are below that bar (for instance, only 77.4% of males agree).

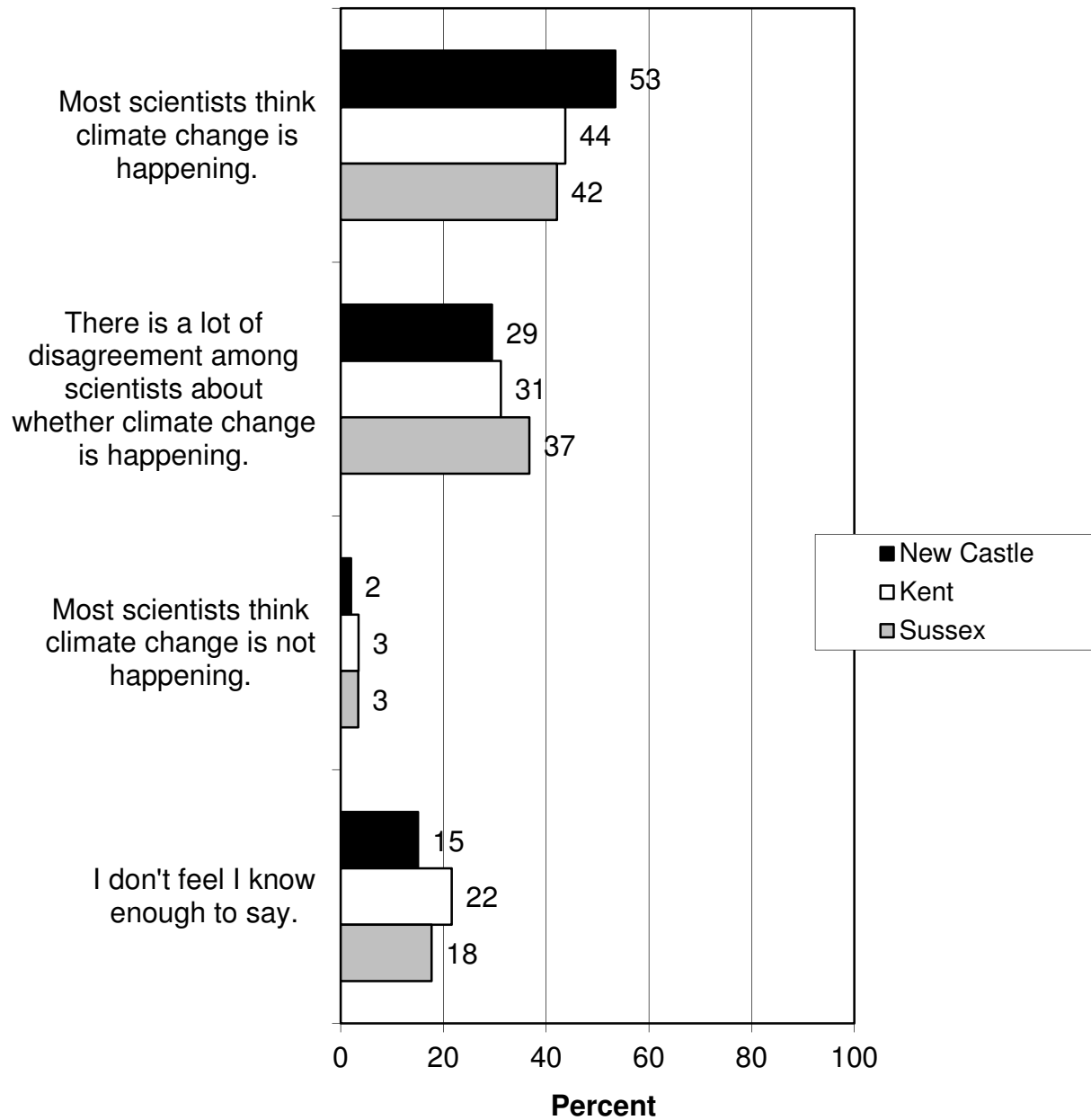
**Q83. Do you agree or disagree with this statement:  
Scientists are right that climate change is occurring.**



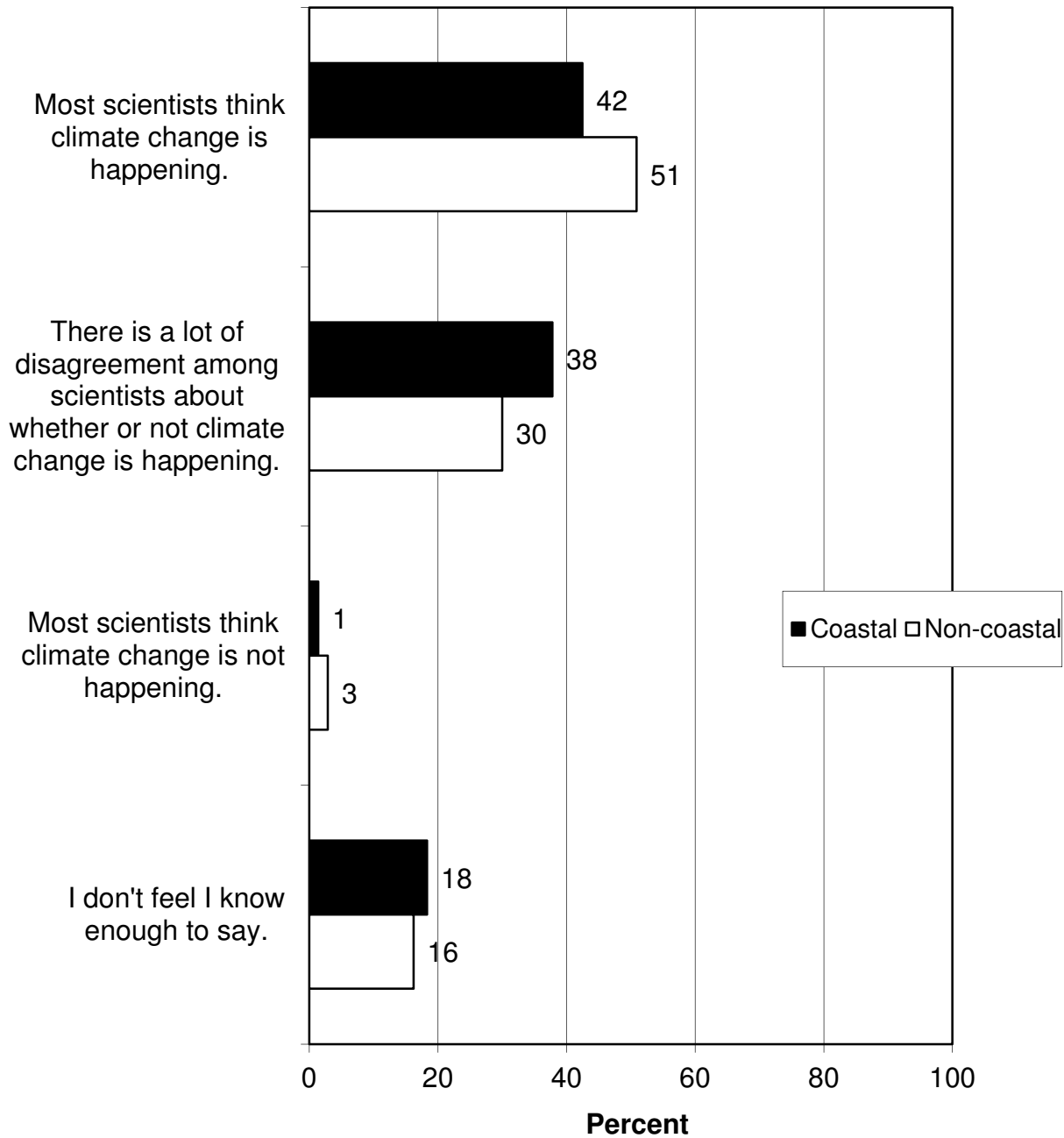
**Q39. Which of the following statements best describes your own view of climate change?**



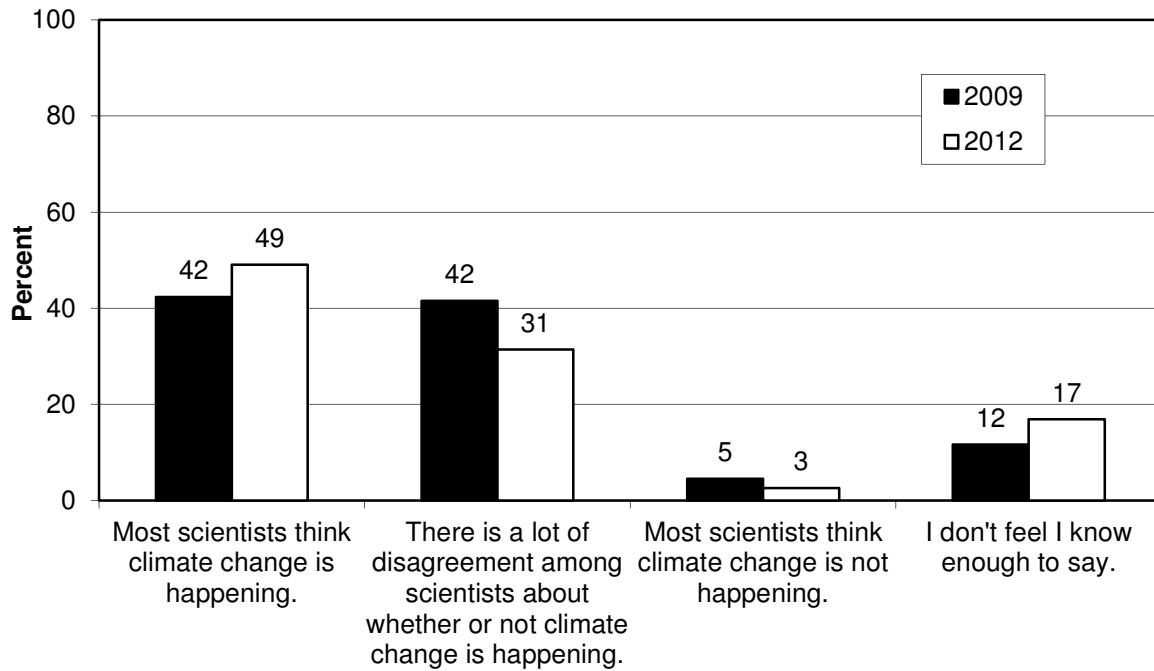
**Q39. Which of the following statements best describes your own view of climate change?**



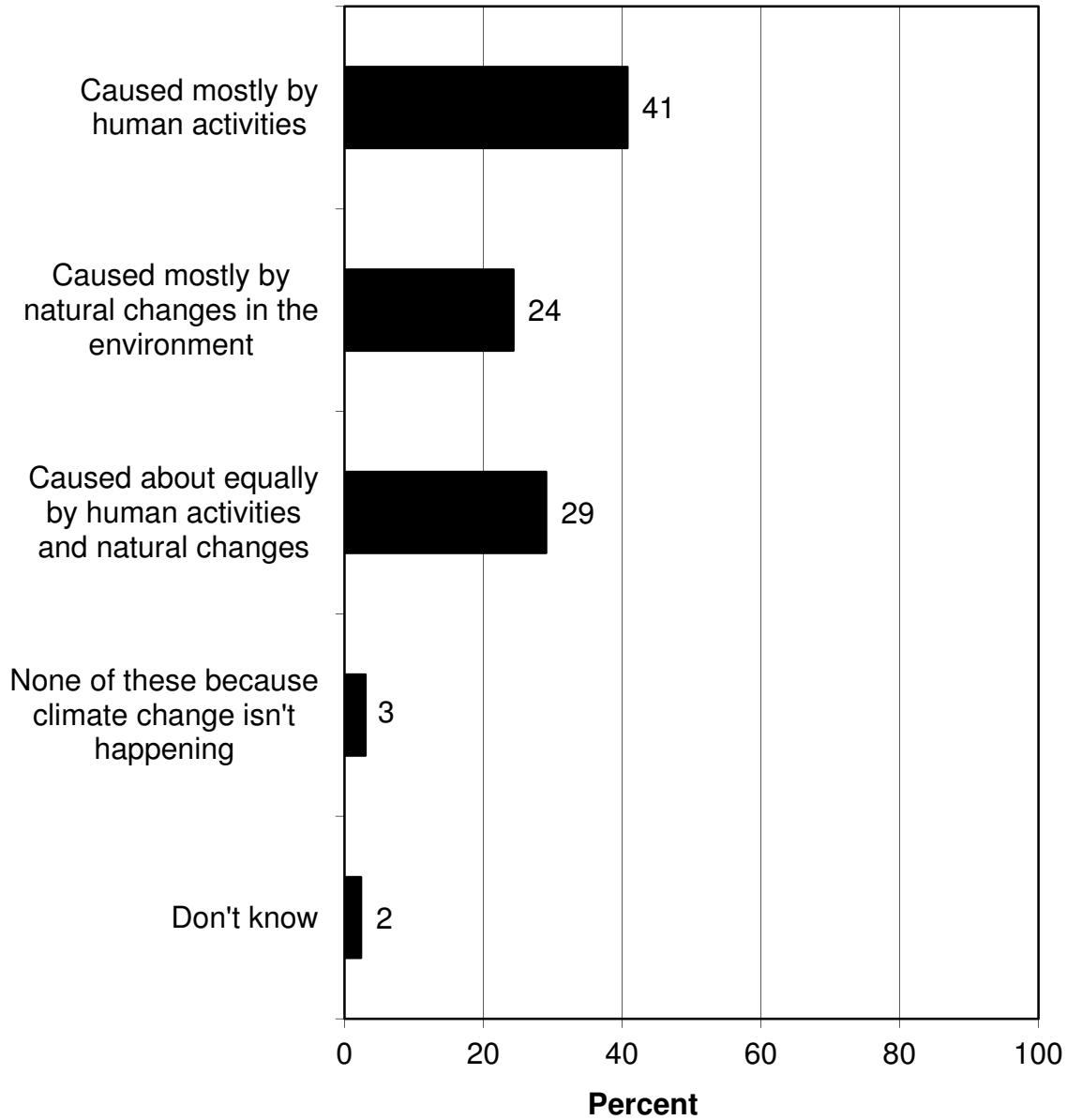
### Q39. Which of the following statements best describes your own view of climate change?



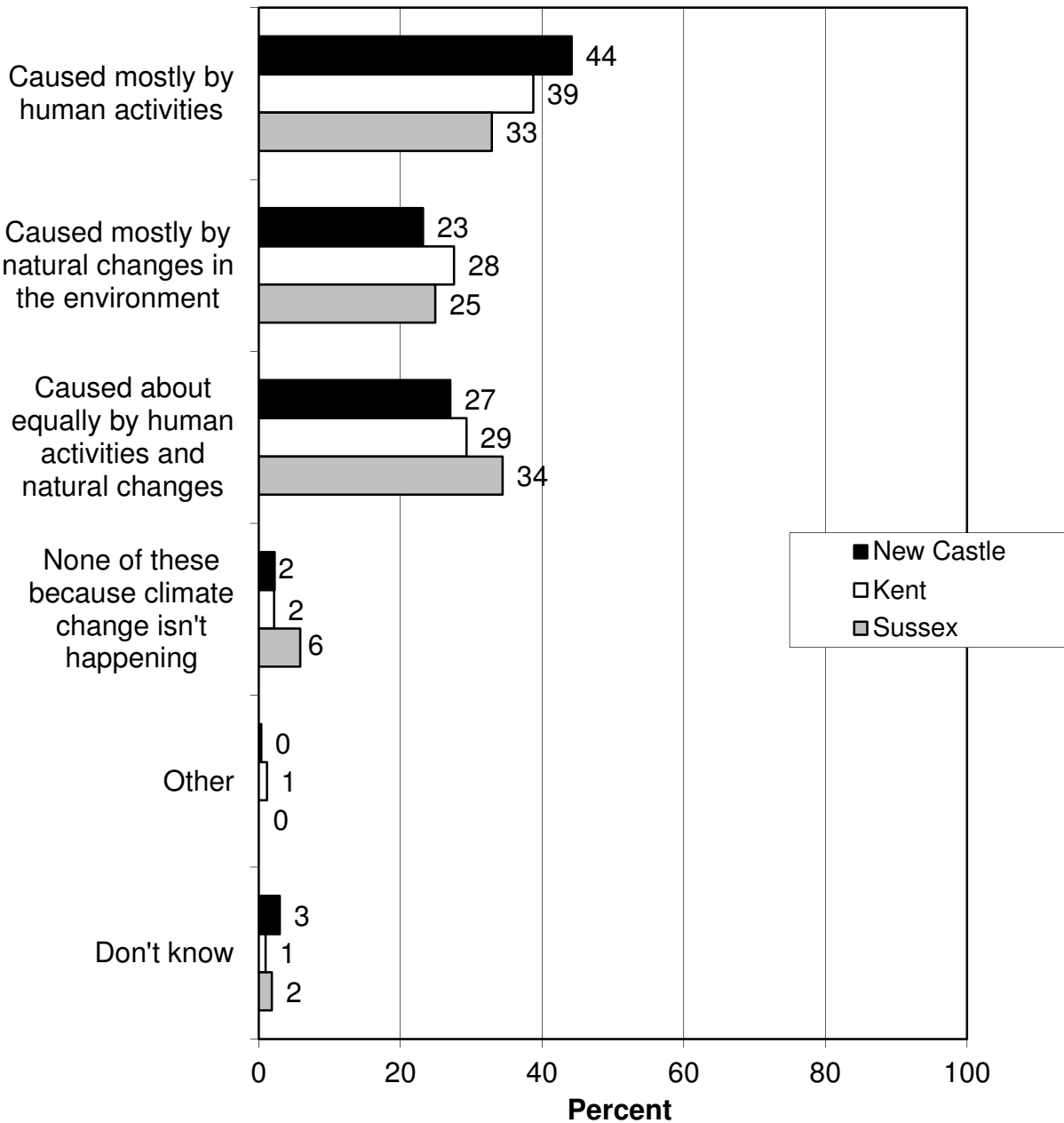
**Q39. Which of the following statements best describes your own view of climate change?**



**Q40. Please tell me which comes closer to your own view. If climate change is happening, do you think it is...?**

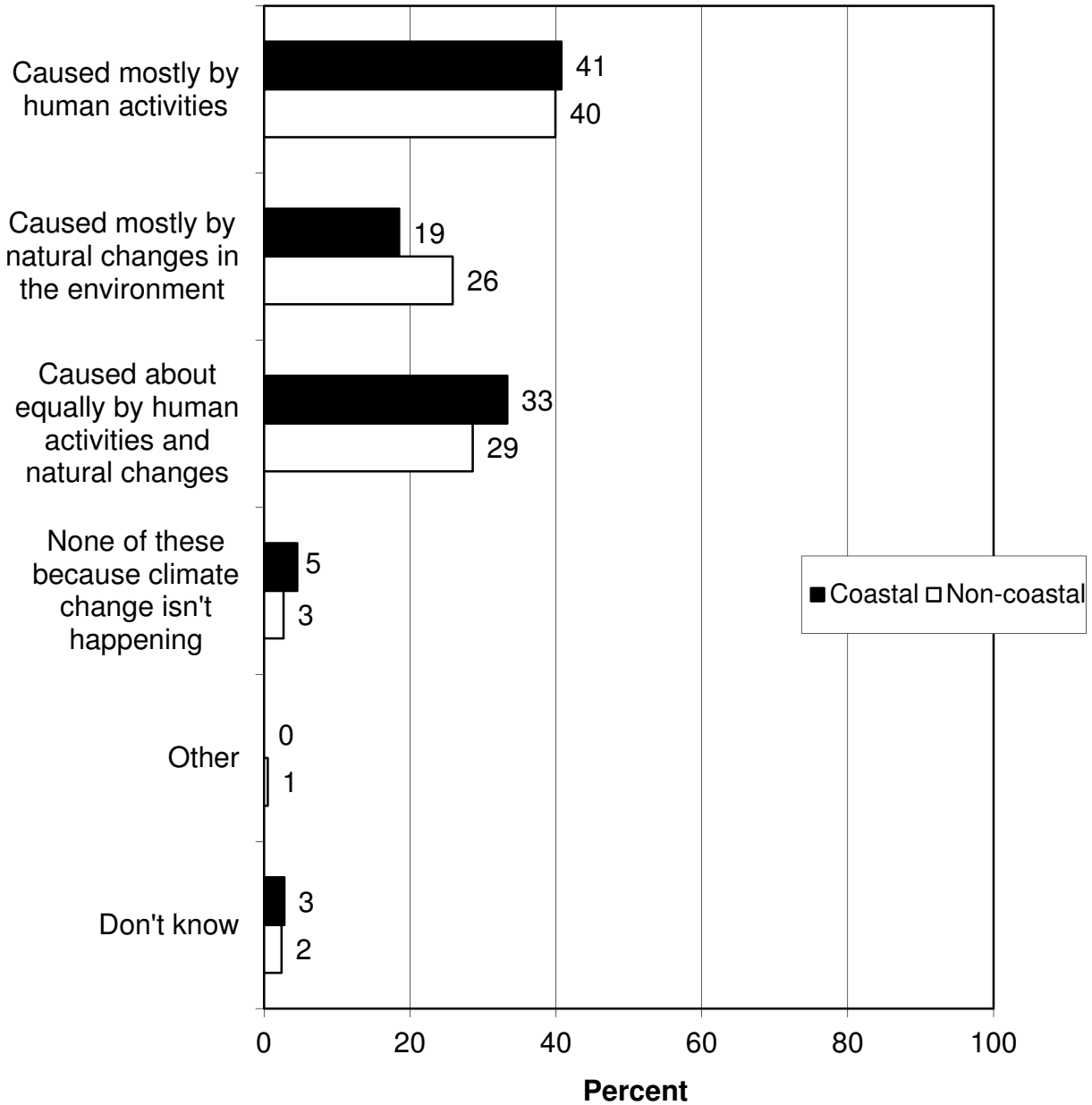


**Q40. Please tell me which comes closer to your own view. If climate change is happening, do you think it is...?**

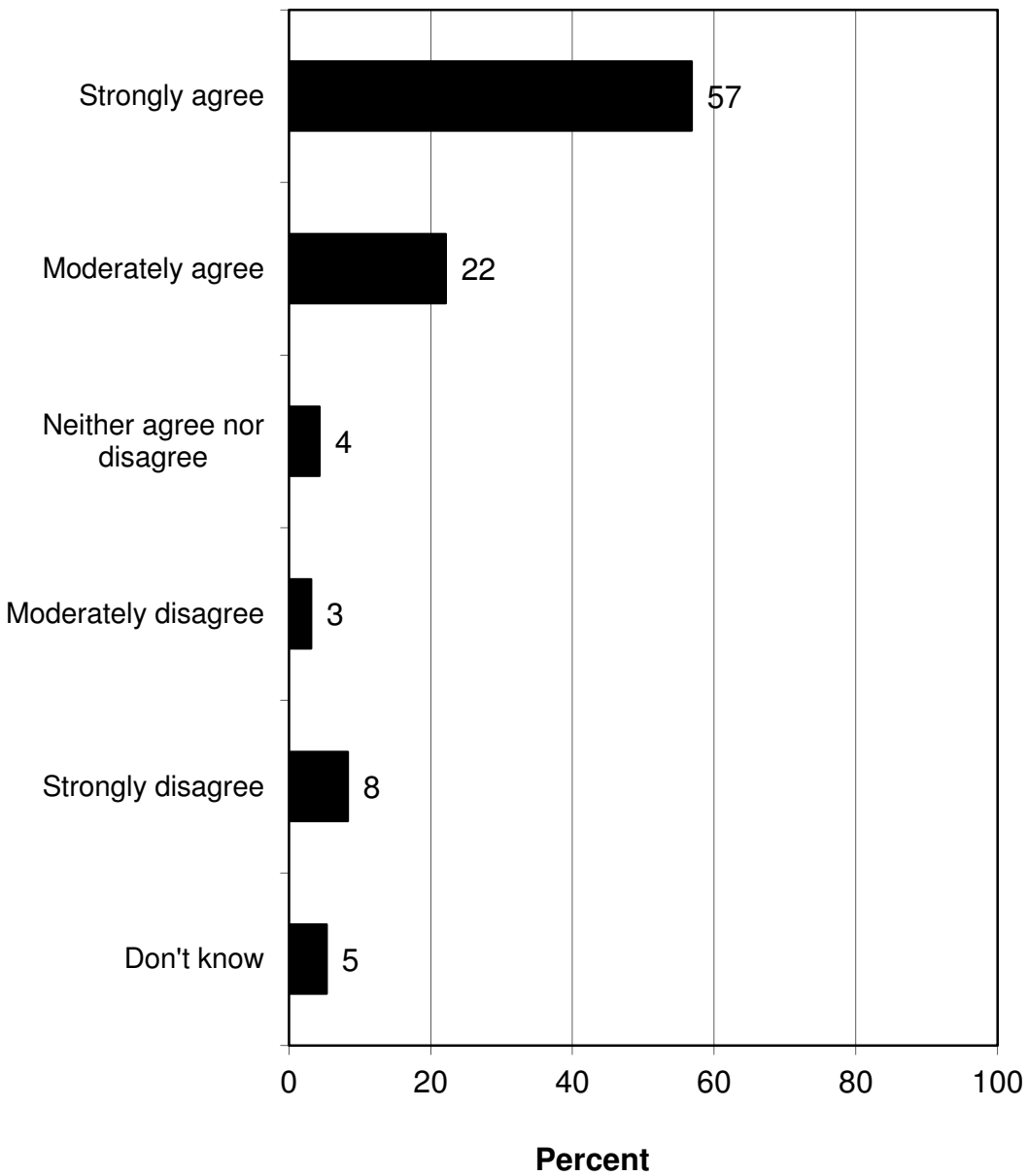




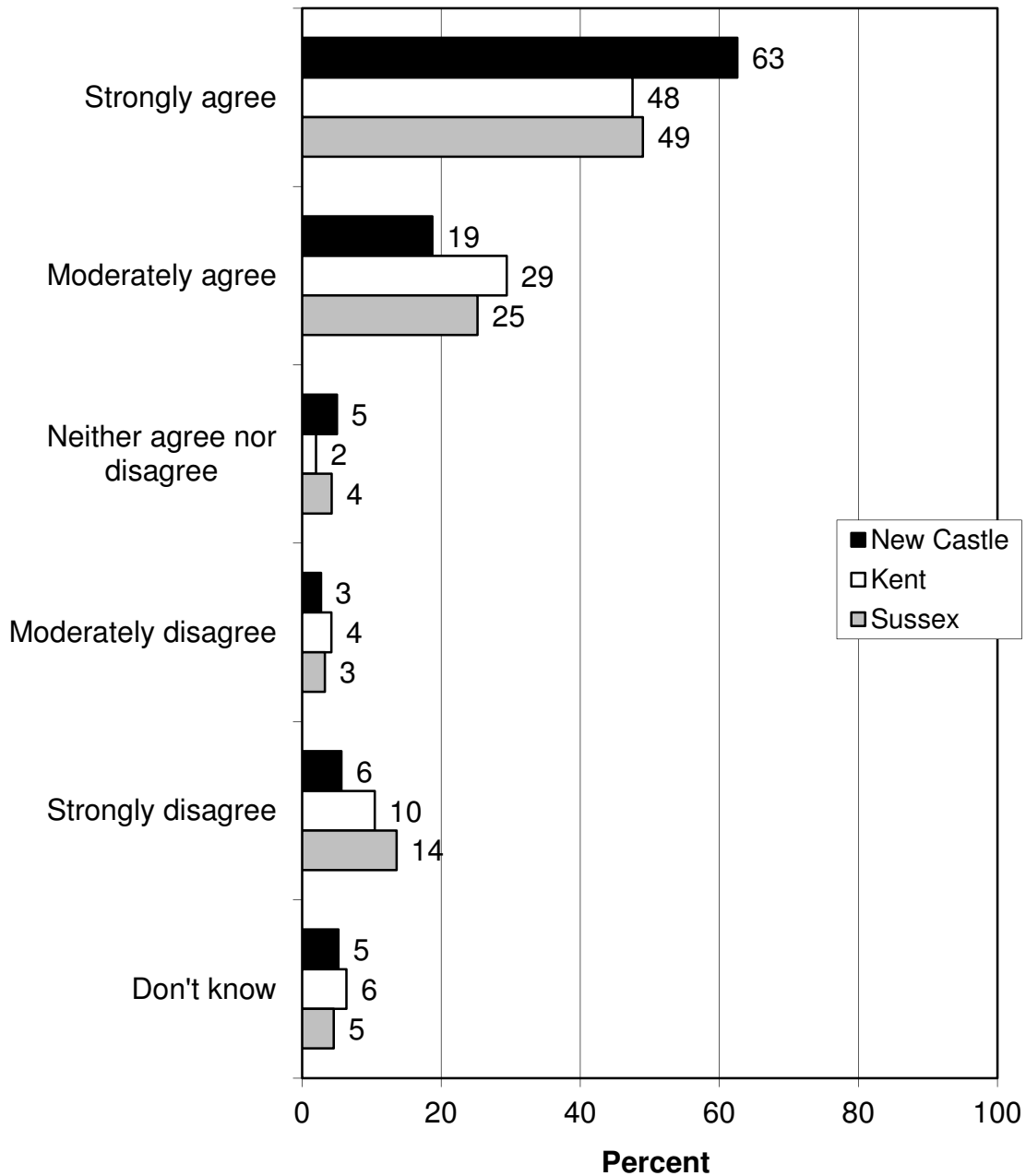
**Q40. Please tell me which comes closer to your own view. If climate change is happening, do you think it is...?**



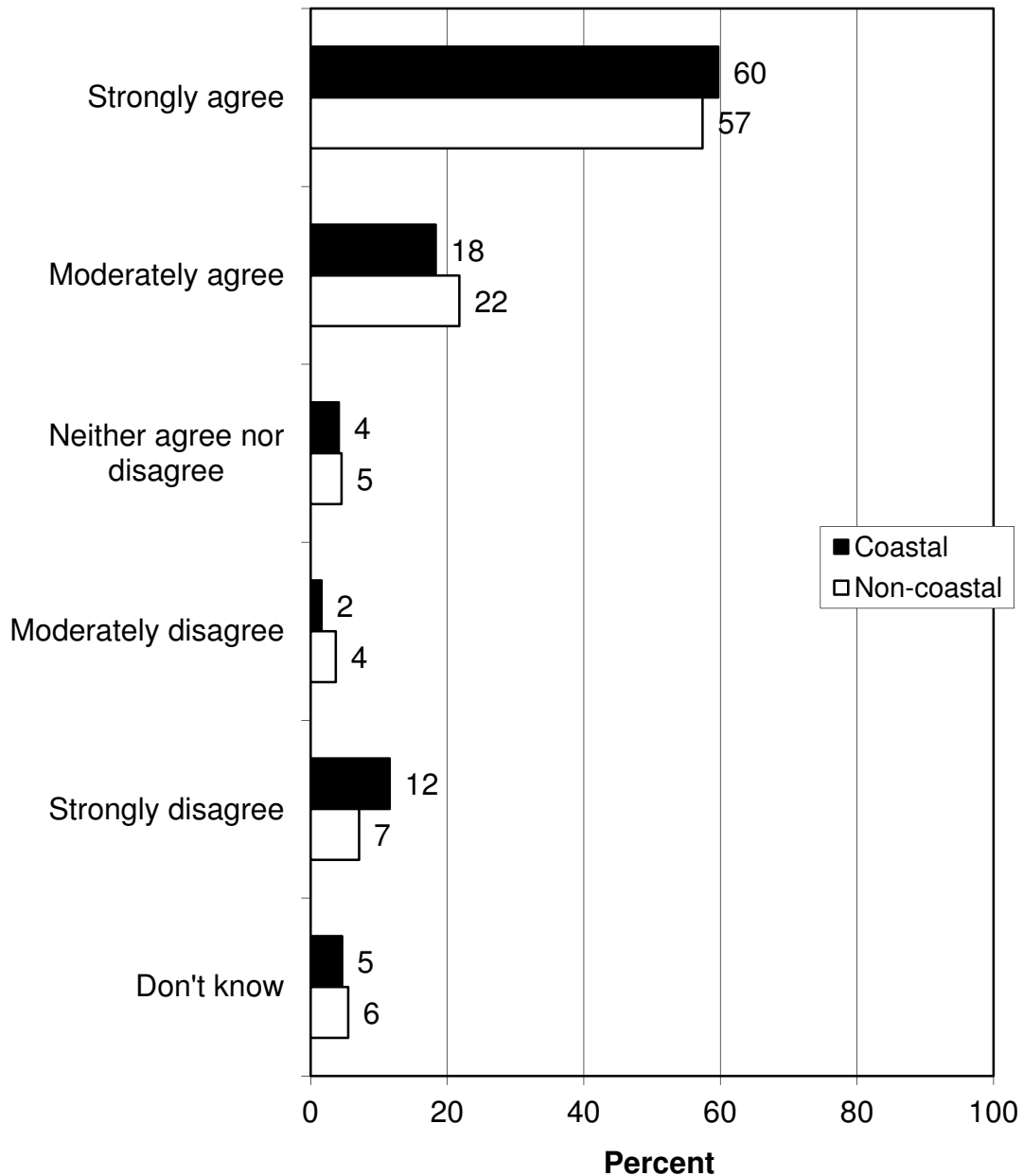
**Q98. Climate change is contributing to the rise in sea levels. (Do you agree or disagree with this statement?)**



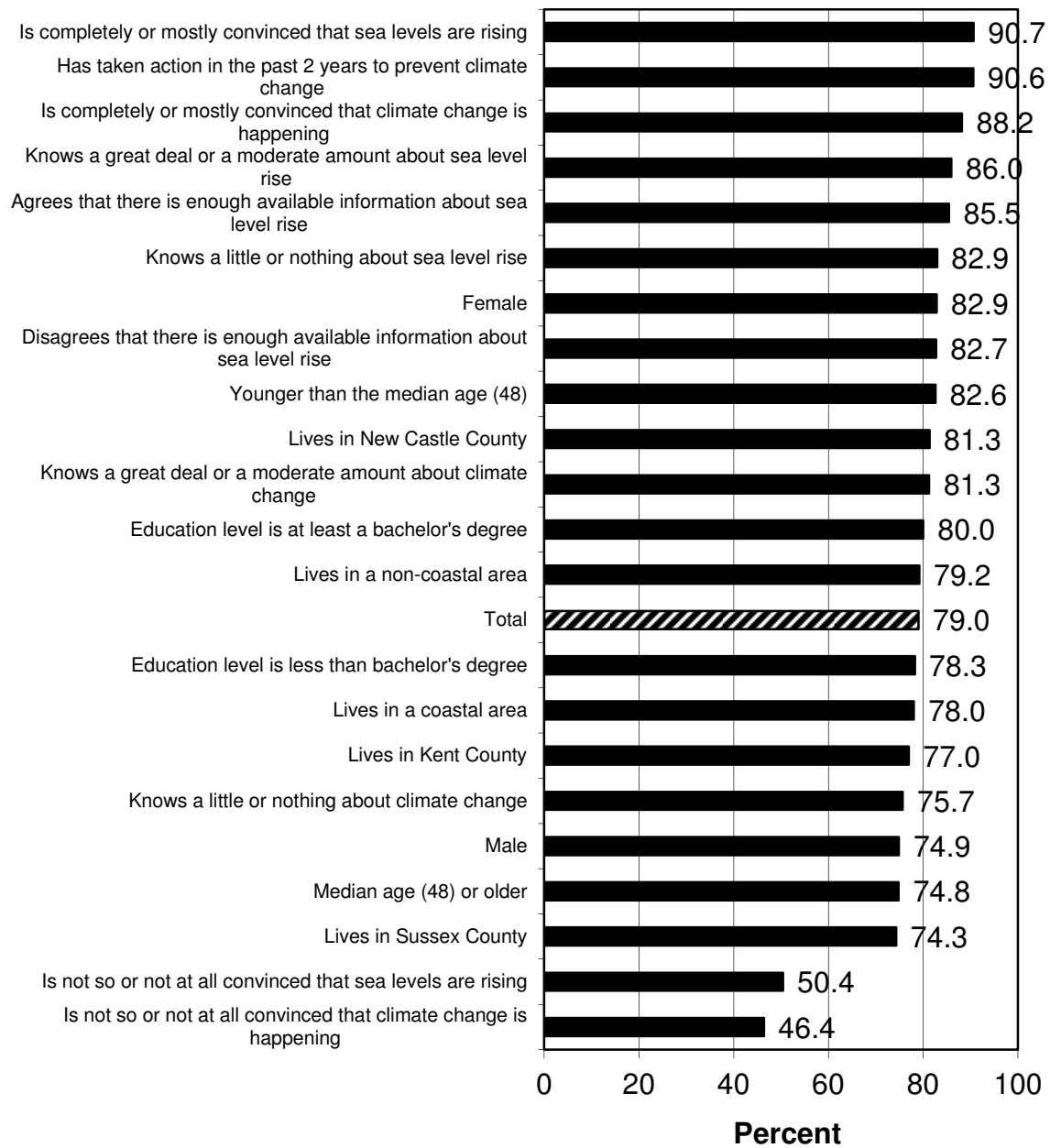
**Q98. Climate change is contributing to the rise in sea levels. (Do you agree or disagree with this statement?)**



**Q98. Climate change is contributing to the rise in sea levels. (Do you agree or disagree with this statement?)**

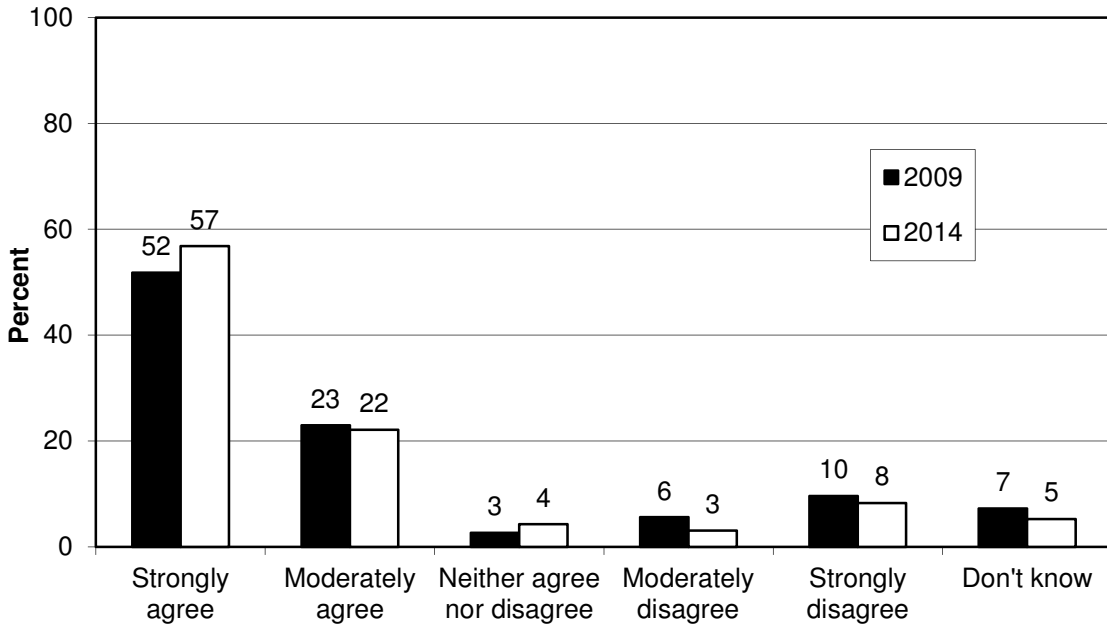


## Percent of each of the following groups who agree (strongly or moderately) that climate change is contributing to the rise in sea levels:



The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to agree that climate change is contributing to sea level rise, relative to residents as a whole. Overall, 79.0% of Delaware residents agree (striped bar). Those groups more inclined to agree are above that bar (for instance, 82.9% of females agree); those groups less inclined to agree are below that bar (for instance, only 74.9% of males agree).

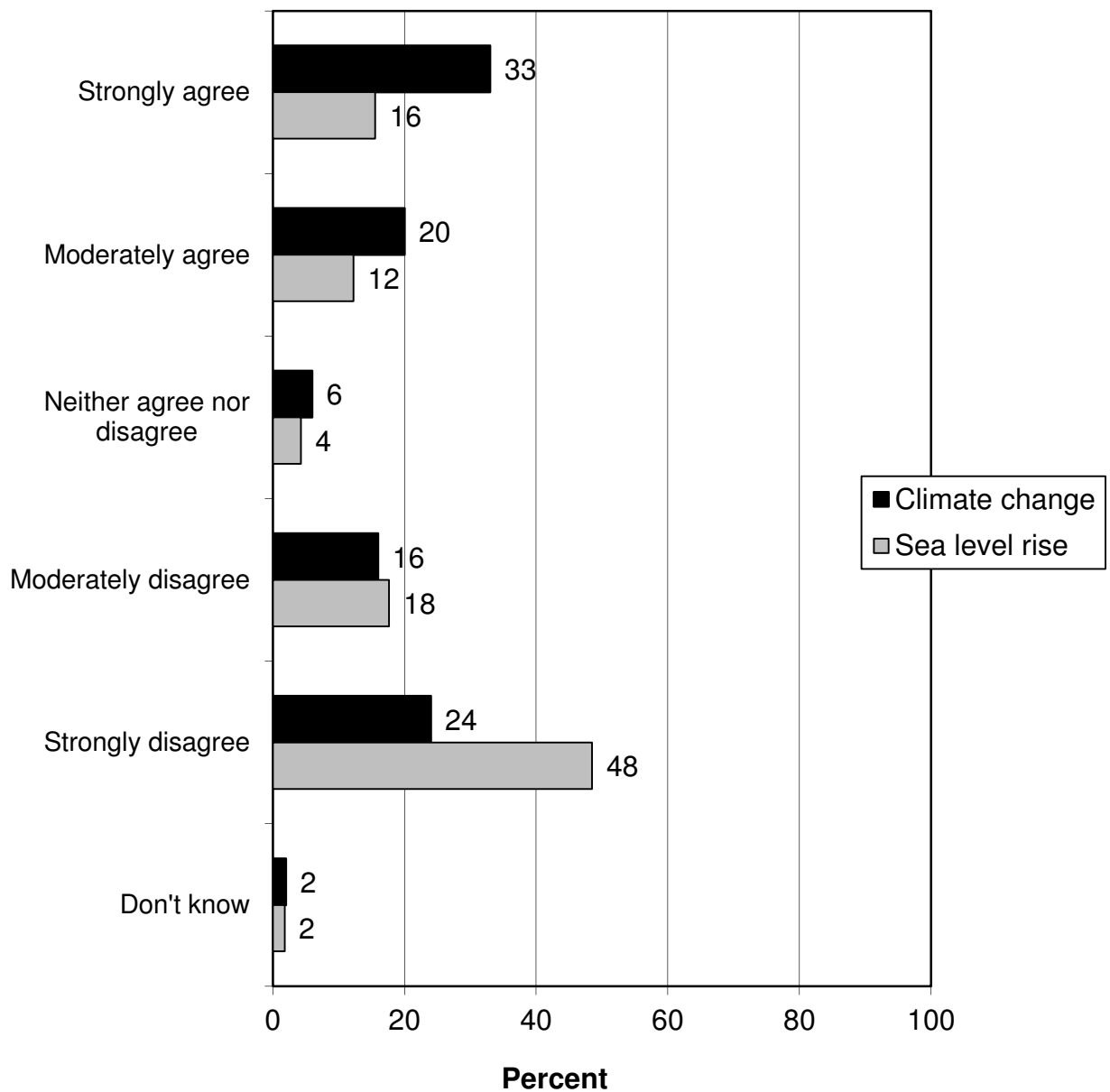
**Q98. Do you agree or disagree with this statement:  
Climate change is contributing to the rise in sea levels.**



**Q84. I have personally experienced or observed local impacts of climate change.**

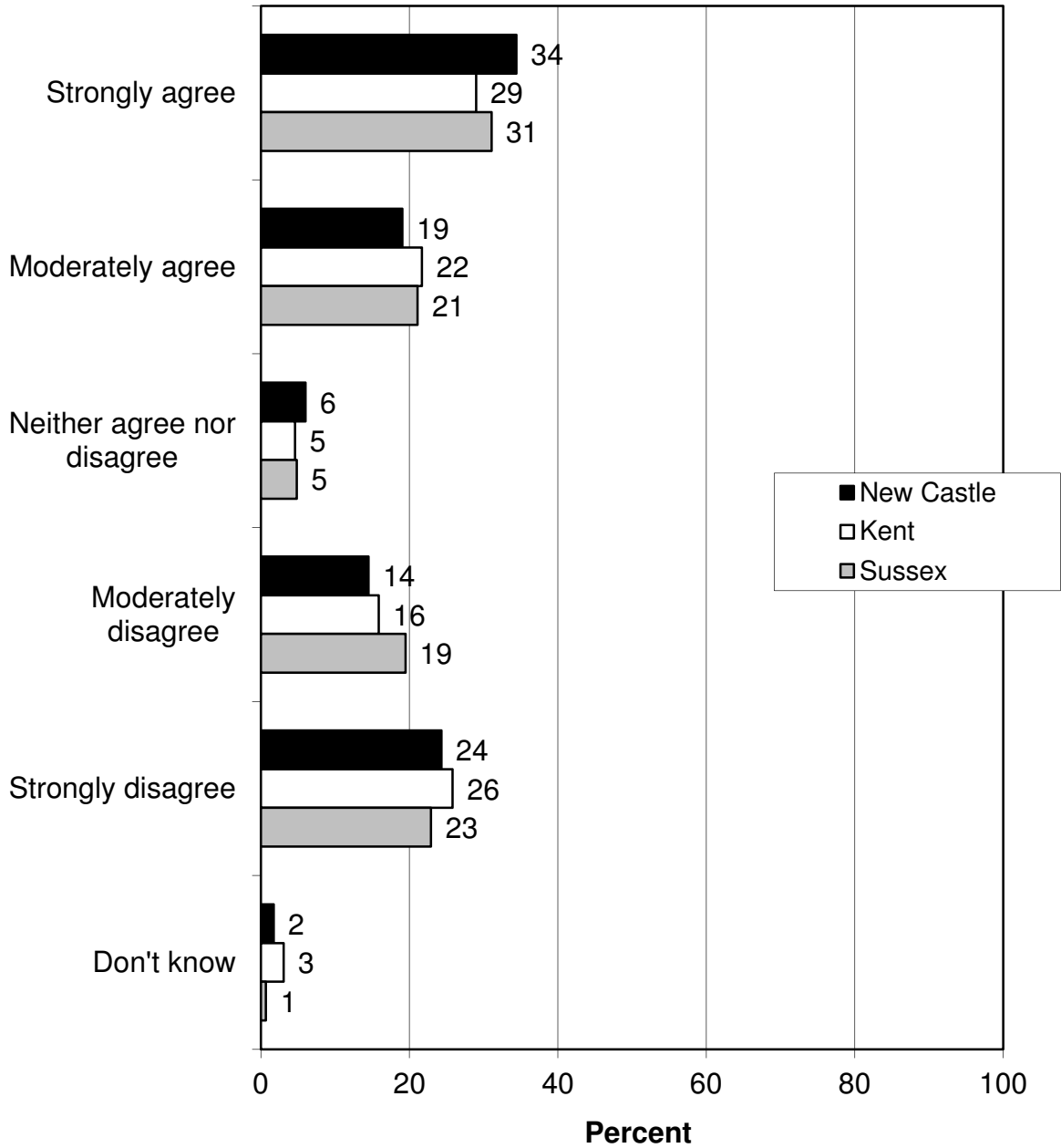
**Q99. I have personally experienced the impacts of sea level rise.**

**(Do you agree or disagree with these statements?)**

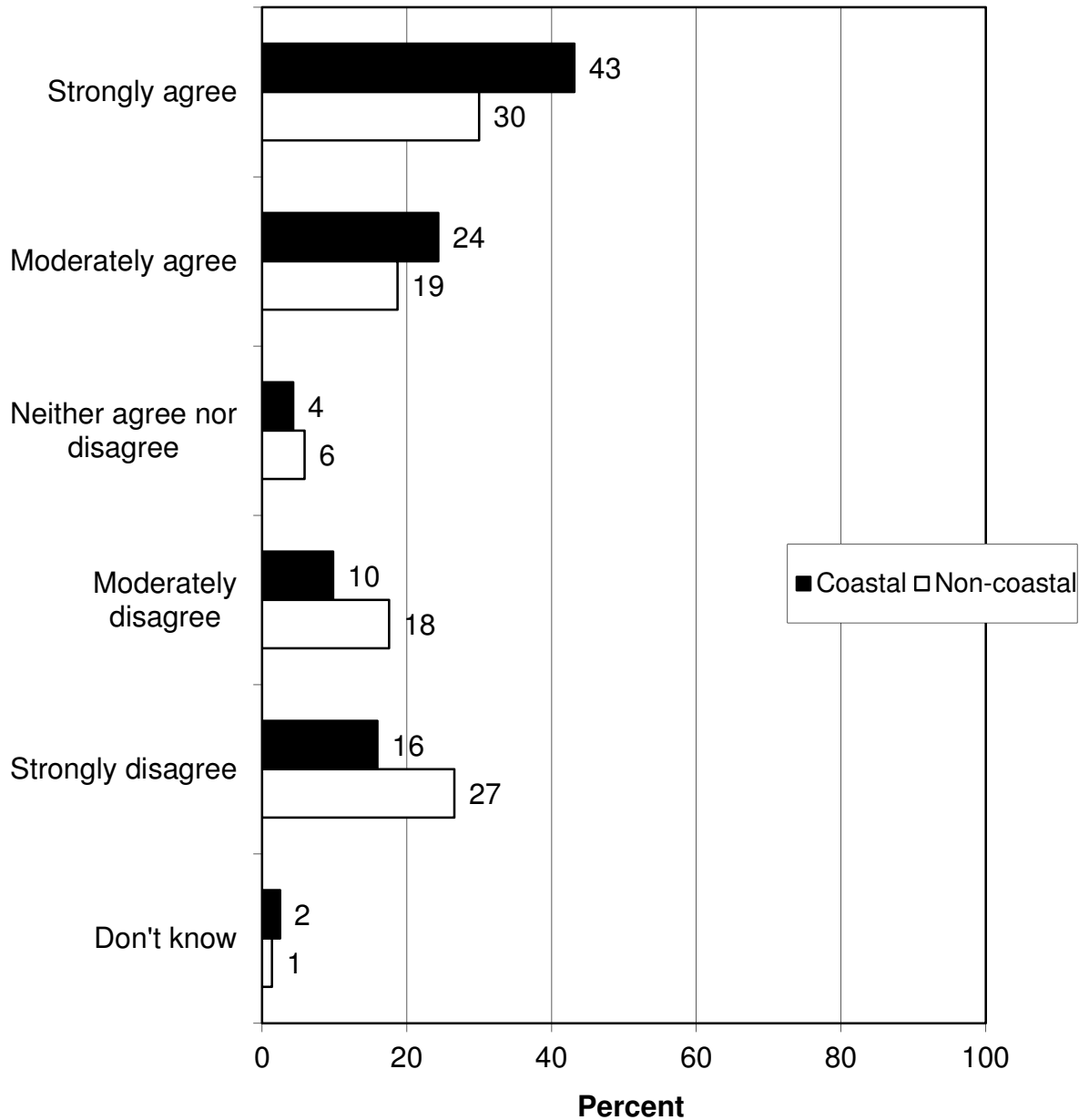




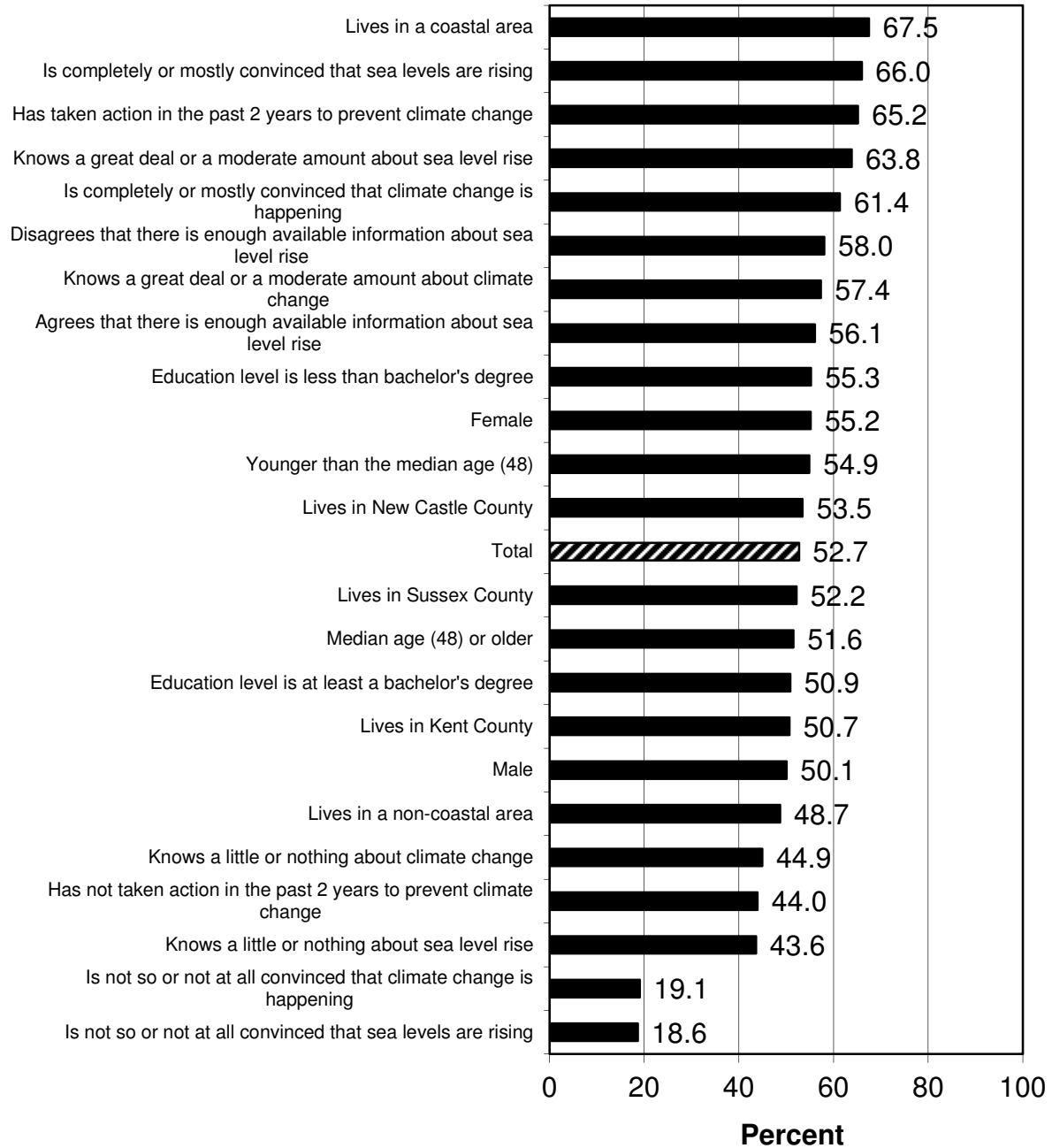
**Q84. I have personally experienced or observed local impacts of climate change. (Do you agree or disagree with this statement?)**



**Q84. I have personally experienced or observed local impacts of climate change. (Do you agree or disagree with this statement?)**

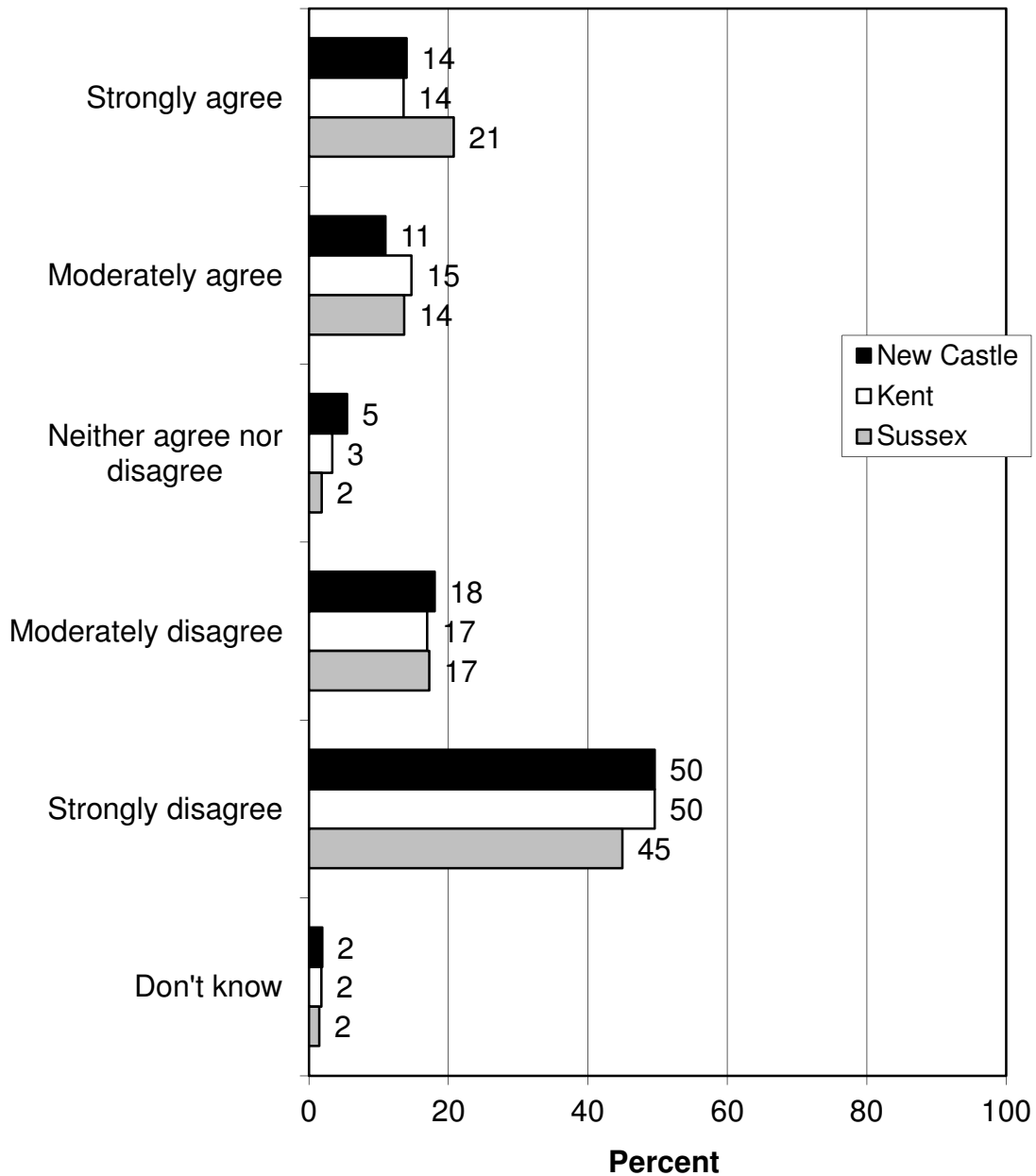


### Percent who agree (strongly or moderately) that they have personally experienced or observed local impacts of climate change:

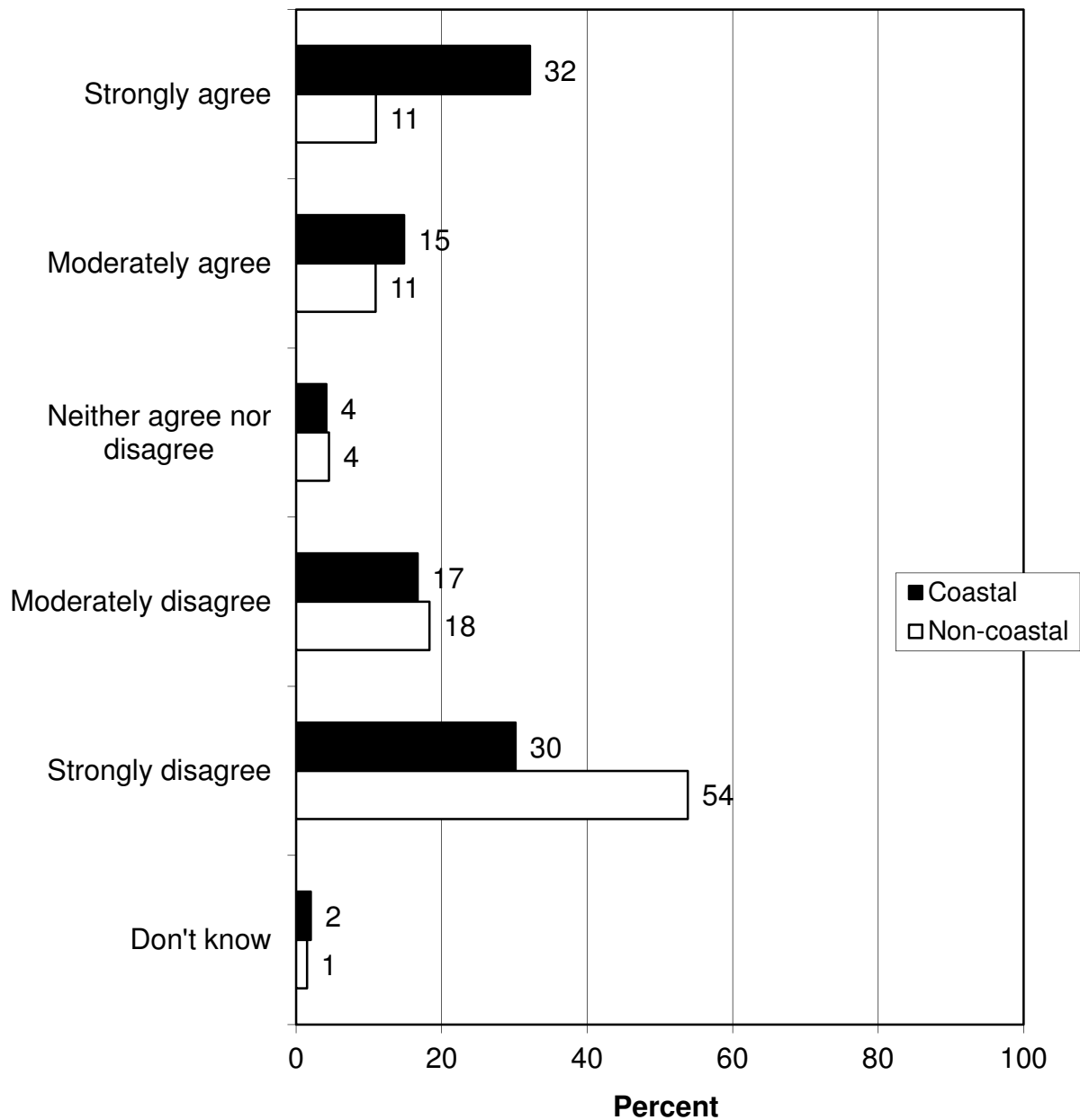


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to agree that they have personally experienced or observed local impacts of climate change, relative to residents as a whole. Overall, 52.7% of Delaware residents agree (striped bar). Those groups more inclined to agree are above that bar (for instance, 67.5% of those who live in a coastal area agree); those groups less inclined to agree are below that bar (for instance, only 50.1% of males agree).

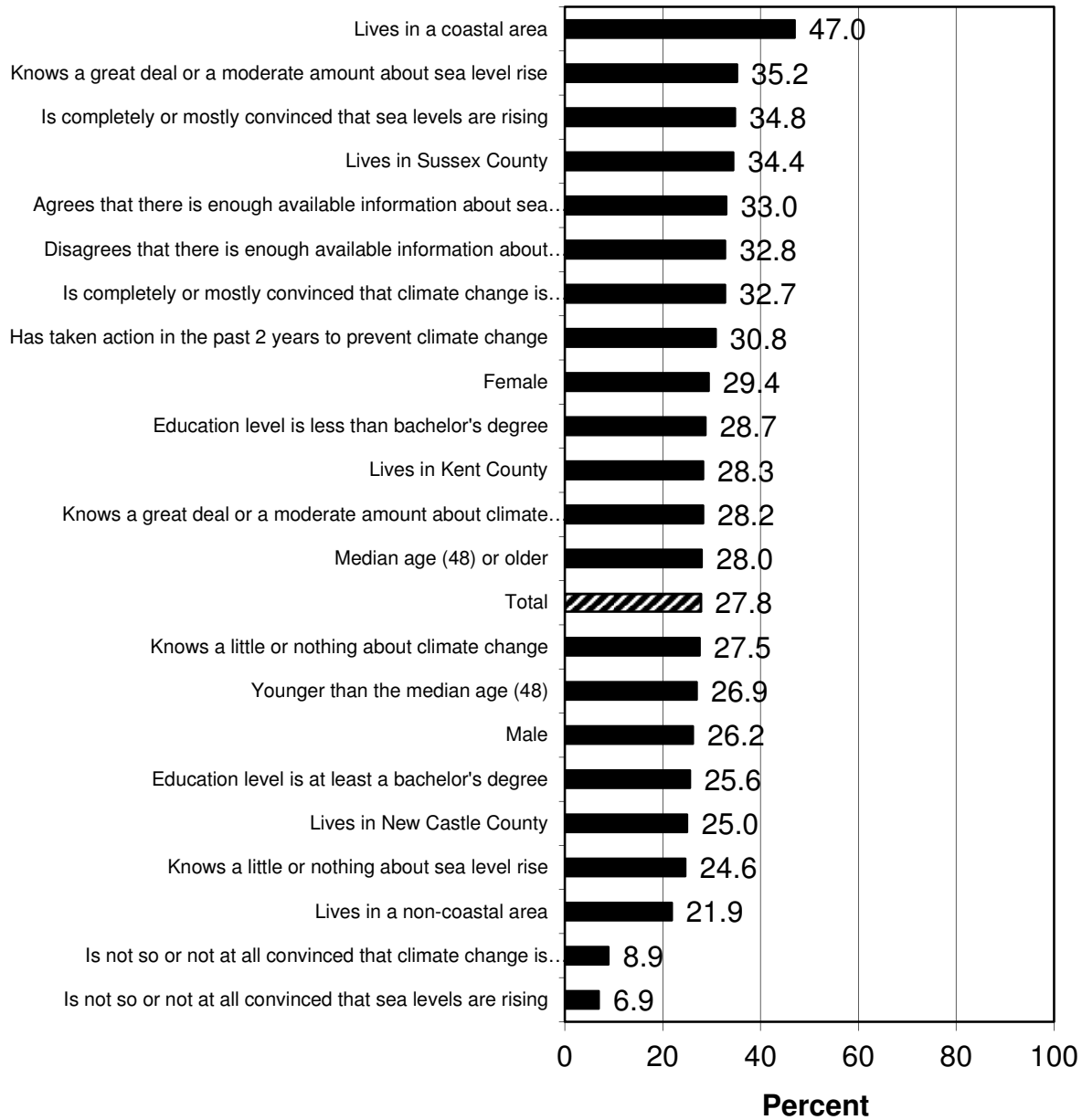
**Q99. I have personally experienced the impacts of sea level rise. (Do you agree or disagree with this statement?)**



**Q99. I have personally experienced the impacts of sea level rise. (Do you agree or disagree with this statement?)**



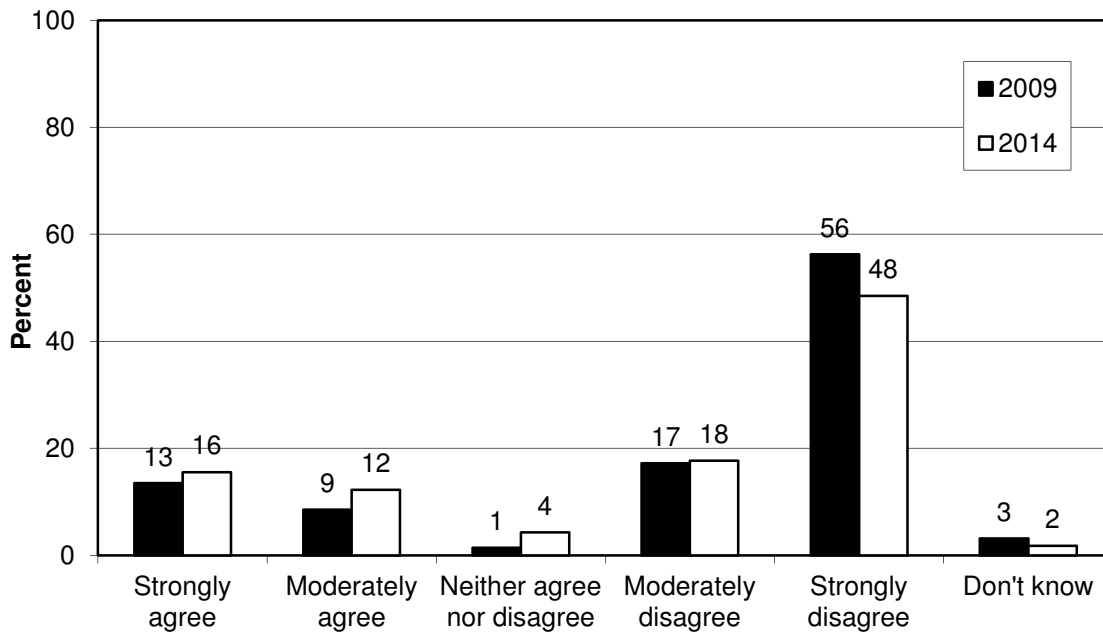
**Percent of each of the following groups who agree (strongly or moderately) that s/he has personally experienced the impacts of sea level rise:**



The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to agree that they have personally experienced the impacts of sea level rise, relative to residents as a whole. Overall, 27.8% of Delaware residents agree (striped bar). Those groups more inclined to agree are above that bar (for instance, 47.0% of those who live in a coastal area agree); those groups less inclined to agree are below that bar (for instance, only 26.2% of males agree).



**Q99. Do you agree or disagree with this statement: I have personally experienced the impacts of sea level rise.**



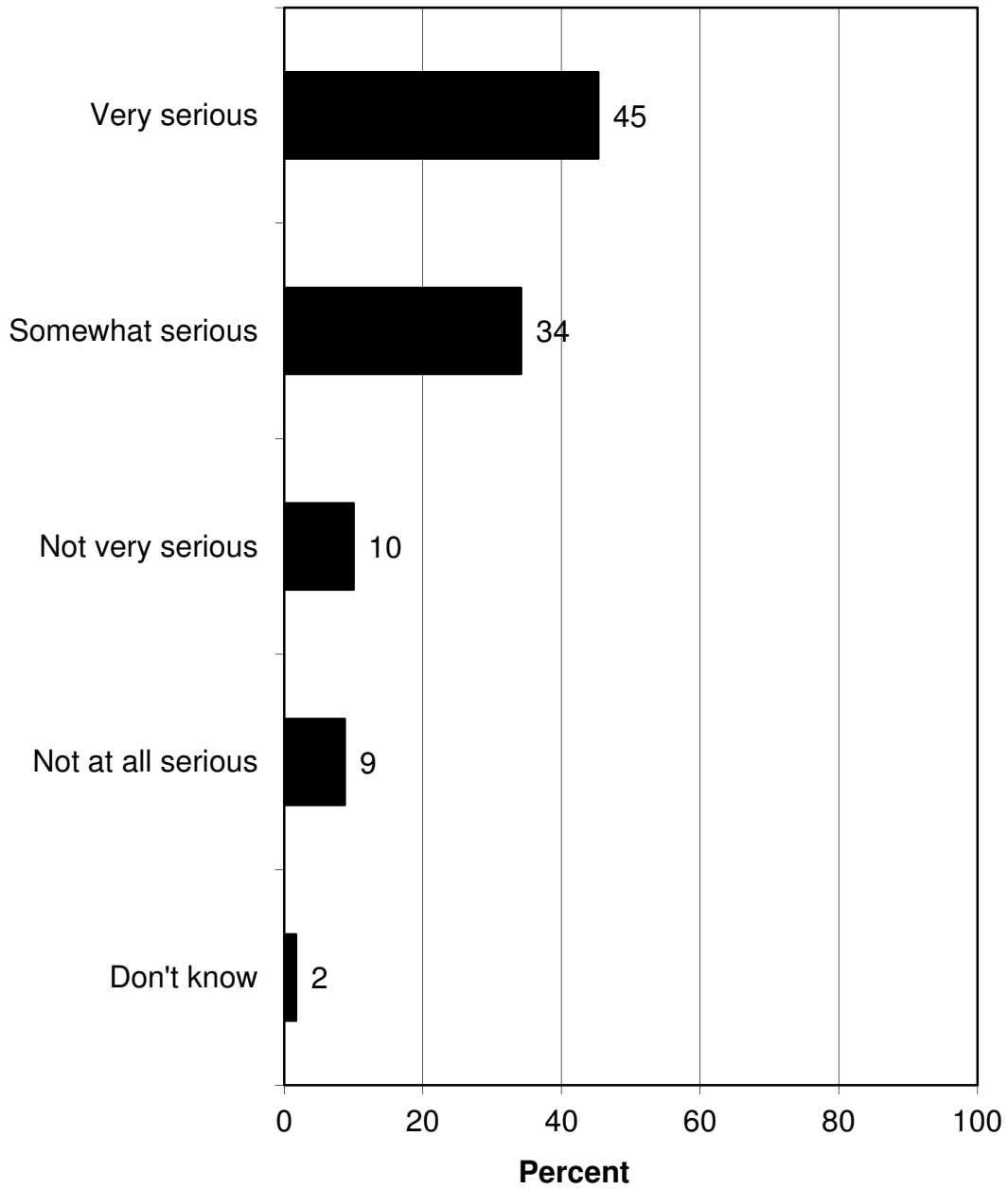
## PERCEPTIONS OF CLIMATE CHANGE AND SEA LEVEL RISE AS A THREAT

- About a fifth of Delaware residents (19%) are complacent about climate change, saying that climate change as a threat is *not very serious* or *not at all serious*. At the other end of the scale, 34% say it is a *somewhat serious* threat, and 45% say it is a *very serious* threat.
  - The trends analysis shows a substantial increase in the percentage of those who say climate change is a *very serious* threat, increasing from 38% in 2009 to 45% in 2014; this increase is significant at  $p \leq 0.01$ , meaning the correlation would happen by chance only 1 out of 100 times. The percentage of those who think climate change is a *somewhat serious* threat decreased, while opinions that climate change is not very or not at all serious and “don’t know” responses remained relatively stable, suggesting that perhaps those who already thought climate change was a *somewhat serious* threat now progressed to believing it is a *very serious* threat.
  
- A question asked about level of worry about sea level rise: 31% of residents are *not at all* worried about sea level rise. Moving up the scale, 24% are *only a little* worried, 31% are worried *a moderate amount*, and 13% are worried *a great deal*.
  - In the trends analysis, the percentages of residents who worry about sea level rise *a great deal* and *a moderate amount* both increased slightly, resulting in a combined increase from 39% who were worried a great deal or a moderate amount in 2009 to 44% in 2014. The combined increase is significant at  $p \leq 0.05$ , meaning the correlation would happen by chance only 5 out of 100 times.
  
- The survey presented ten items and asked respondents to rate how much of a threat climate change was to each. The items fall into four tiers:
  - The top tier consists of *people’ health* and *Delaware’s agriculture*: 45% and 44%, respectively, say that climate change is a *very serious* threat to the items.
  - The next tier consists of *people’s safety* and the *natural resources of Delaware*: 38% and 34% say it is a *very serious* threat to them.

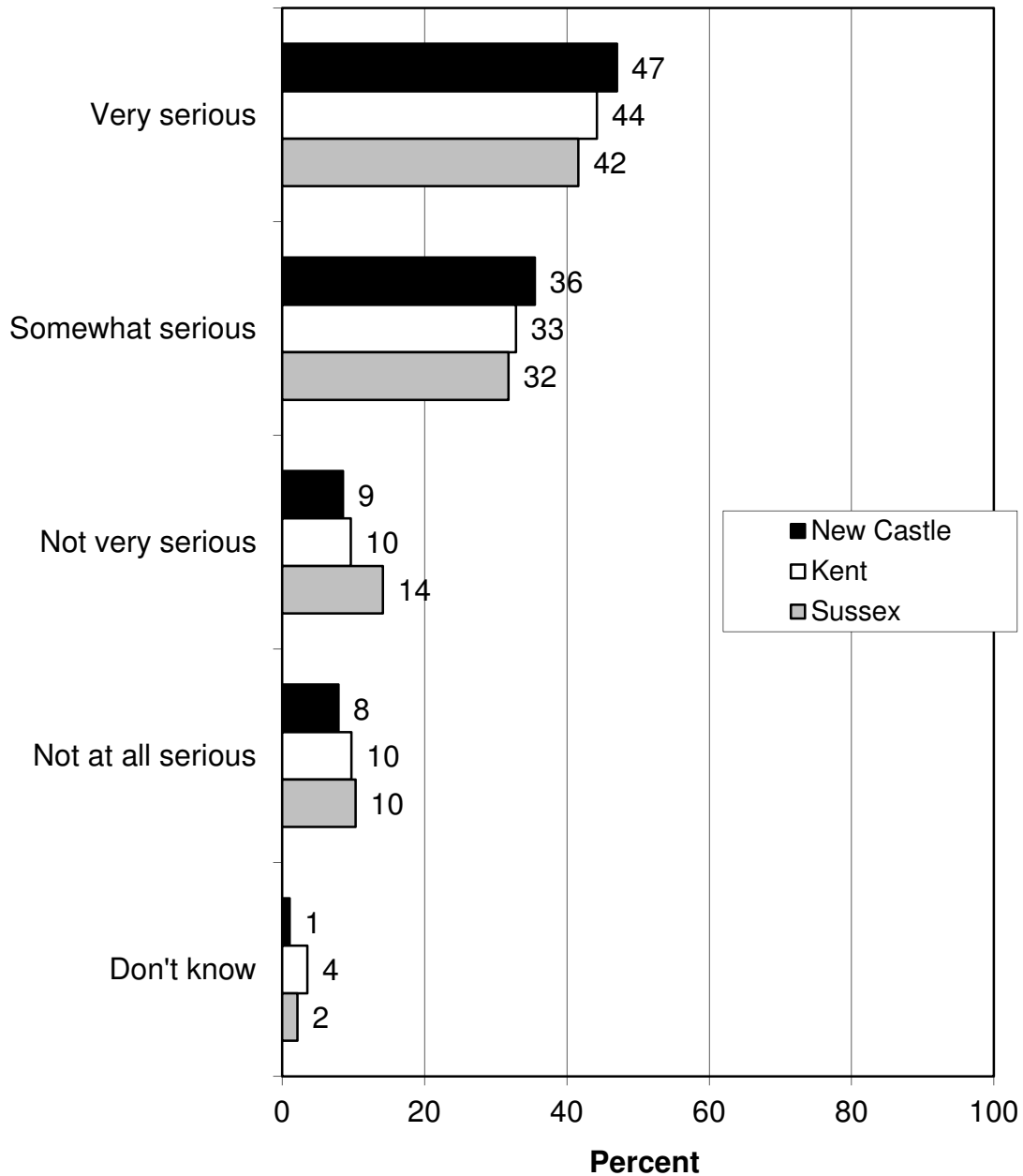
- The third tier is made up of *Delaware's economy*, *Delaware's infrastructure*, and *outdoor recreation in Delaware*: 30%, 29%, and 28%, respectively, say climate change is a *very serious threat* to these.
  - The bottom tier consists of *national security*, the *local community*, and *people's homes*: less than 25% think climate change is a *very serious threat* to these.
- Similar to the above series, another series presented 15 items to residents and asked them to say how much of a threat sea level rise is to each. In looking at the percentages who think that sea level rise is a *very serious threat*, three tiers emerge:
- Two items are at the top substantially ahead of the rest of the items: *Delaware's beaches* and *ocean-front cities and towns in Delaware*. On these, 57% and 56%, respectively, think sea level rise is a *very serious threat*.
  - A middle tier consists of 9 of the 15 items, with a quarter to just under half saying sea level rise is a *very serious threat*: these include *marsh and wetlands areas* and *riverfront cities and towns* in Delaware, as well as Delaware's *public works systems*, its *wildlife populations*, its *economy*, and *outdoor recreation* in Delaware.
  - The bottom tier is people's *local community*, *themselves*, their *property*, and their *families*. Each of these has less than 25% saying that sea level rise is a *very serious threat* to it.
    - In the trends analysis, the percentages of residents who think sea level rise is a *very serious threat* increased the most for *river-front cities and towns in Delaware* (from 34% in 2009 to 43% in 2014), *the State of Delaware* (from 33% to 42%), *the mid-Atlantic U.S.* (from 30% to 38%), *ocean-front cities and towns in Delaware* (from 48% to 56%), and *outdoor recreation in Delaware* (from 24% to 29%). These increases were each significant at  $p \leq 0.01$ , meaning the correlations would happen by chance only 1 out of 100 times. The percentages of residents who think sea level rise is a *very serious threat* also increased slightly for nearly every other item on the list except for *Delaware's economy* and residents *themselves*.

- Two questions examined perceptions of the timing of climate change and sea level rise.
  - Residents were asked when they think climate change will have an impact on their area. The most common response is that it is having impacts *now* (41% give this response). Another 33% give a time of 25 years or less. However, 18% consist of those saying 50 or 100 years or saying never (i.e., climate change is not happening).
  - Regarding sea level rise, 20% say *now*, 40% give a time of 25 years or less, and 29% saying 50 or 100 years or never.
    - In the trends analysis, the percentage of residents who say sea level rise is having impacts *now* in the area where they live increased from 14% in 2009 to 20% in 2014; this increase is significant at  $p \leq 0.01$ , meaning the correlation would happen by chance only 1 out of 100 times.
  
- The majority of Delaware residents choose Sussex County (74%) as the county that is most threatened by sea level rise, with only 7% choosing New Castle County and 7% choosing Kent County.
  - The trends analysis shows that the percentages of Delaware residents who think one of Delaware's three counties is the county most threatened by sea level rise changed slightly for each county, but these changes are *not* statistically significant.

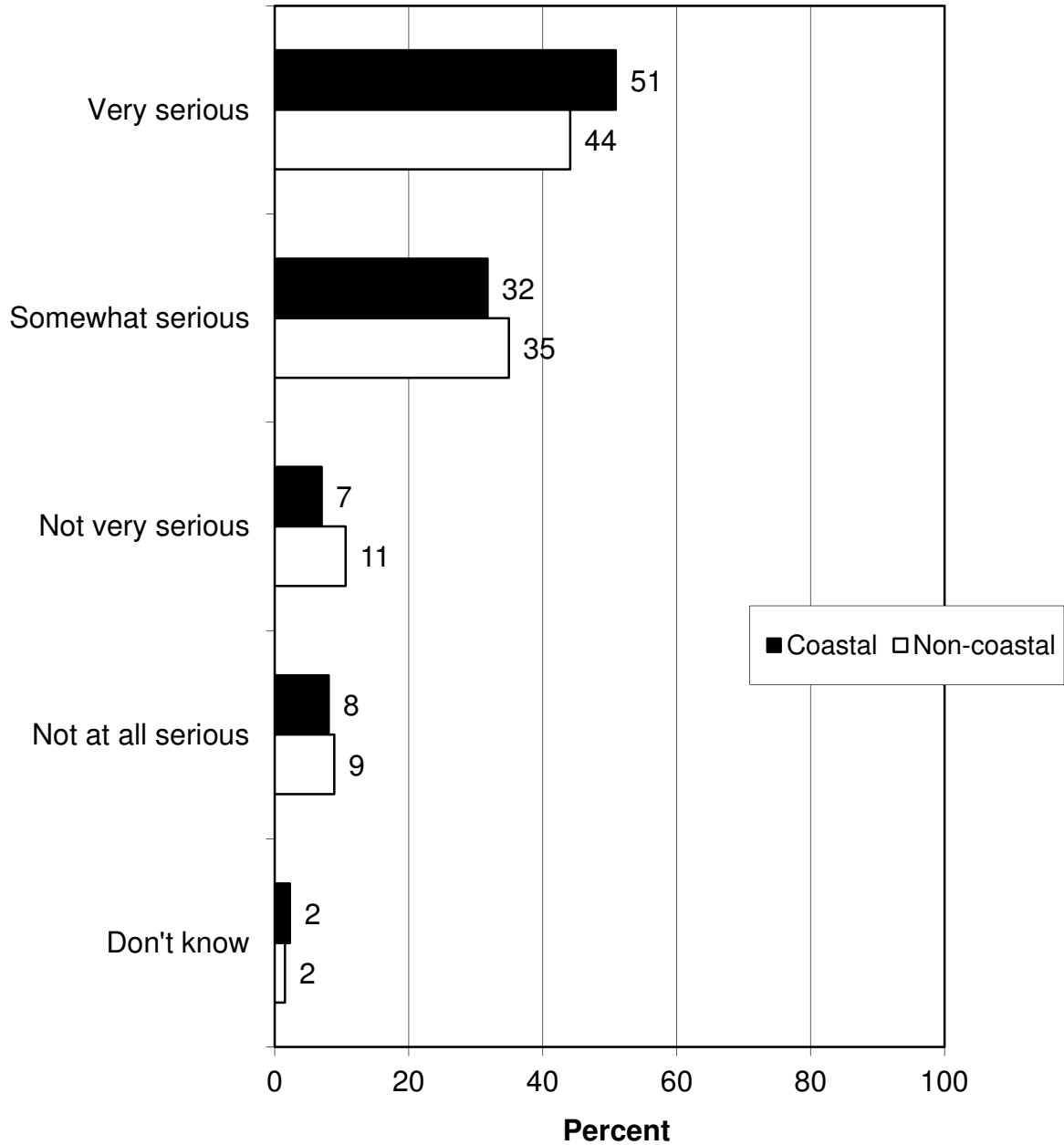
**Q36. How serious a threat do you think climate change is?**



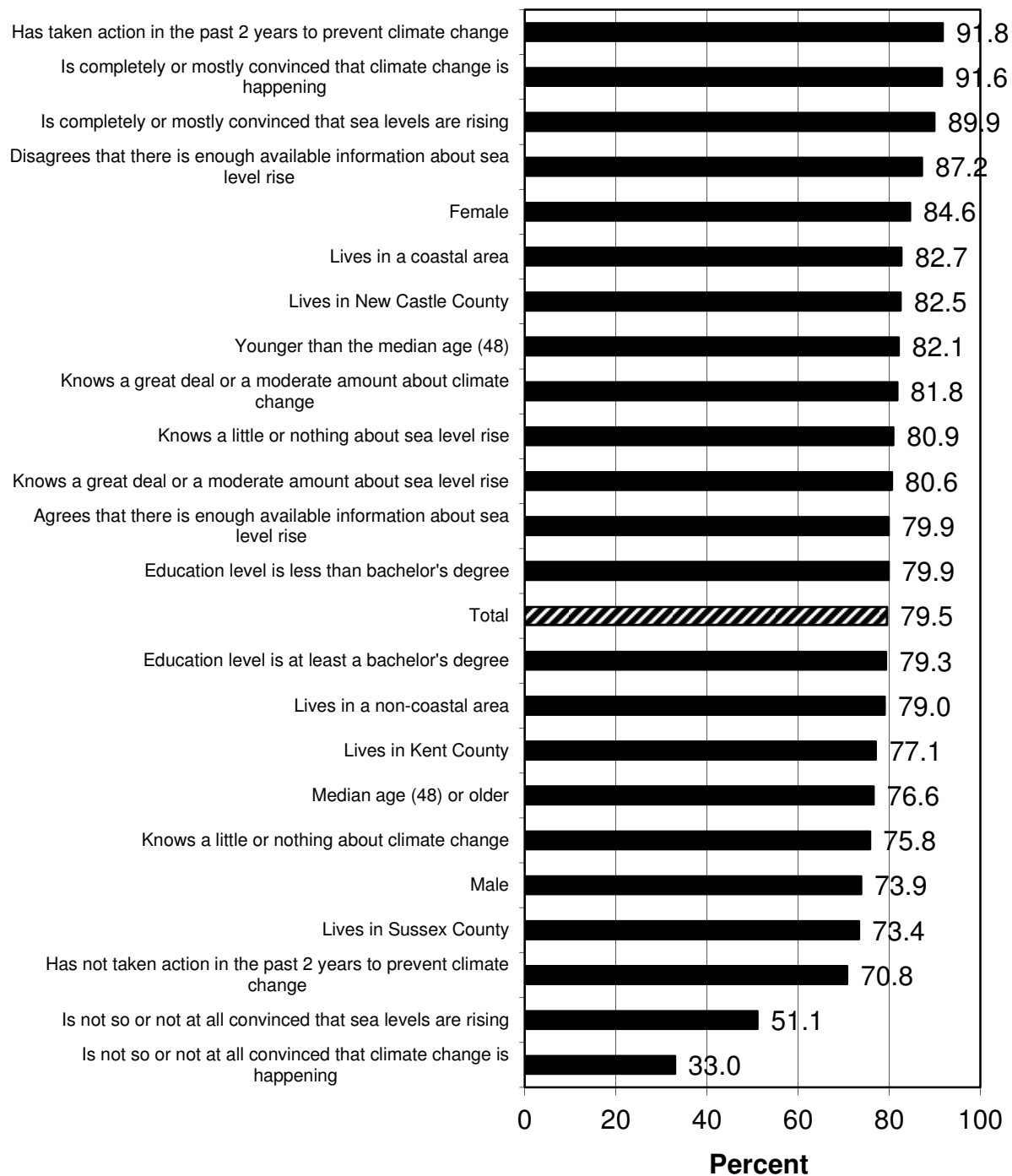
### Q36. How serious a threat do you think climate change is?



### Q36. How serious a threat do you think climate change is?

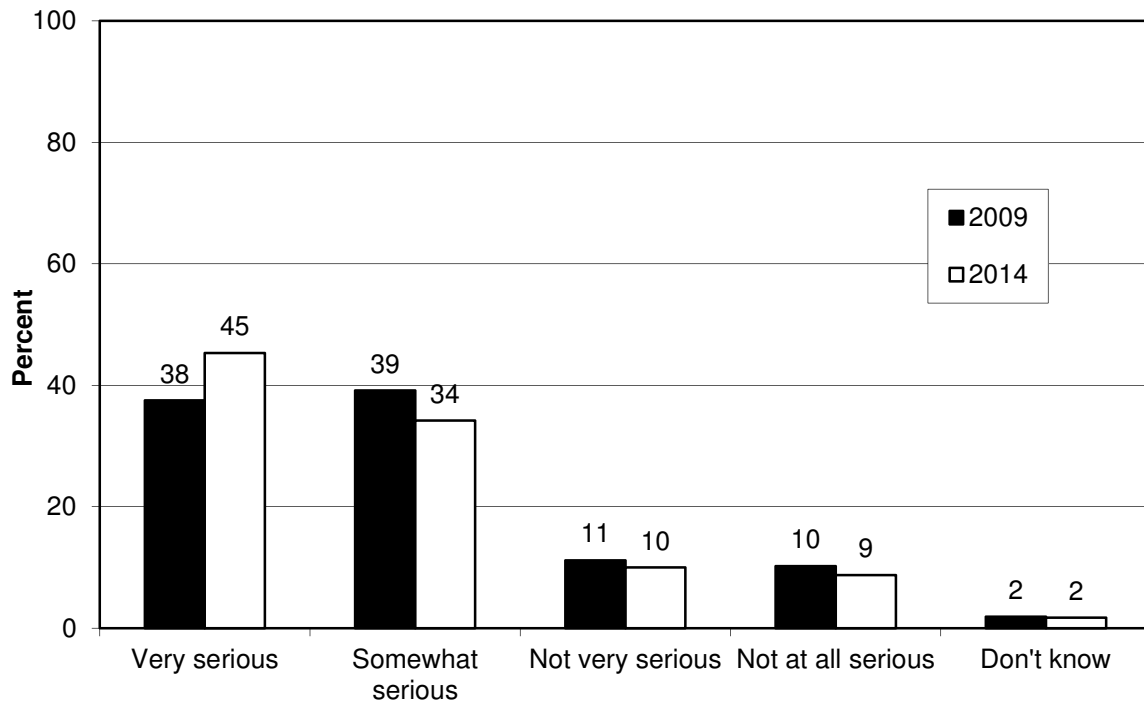


## Percent who think that climate change is a very or somewhat serious threat:

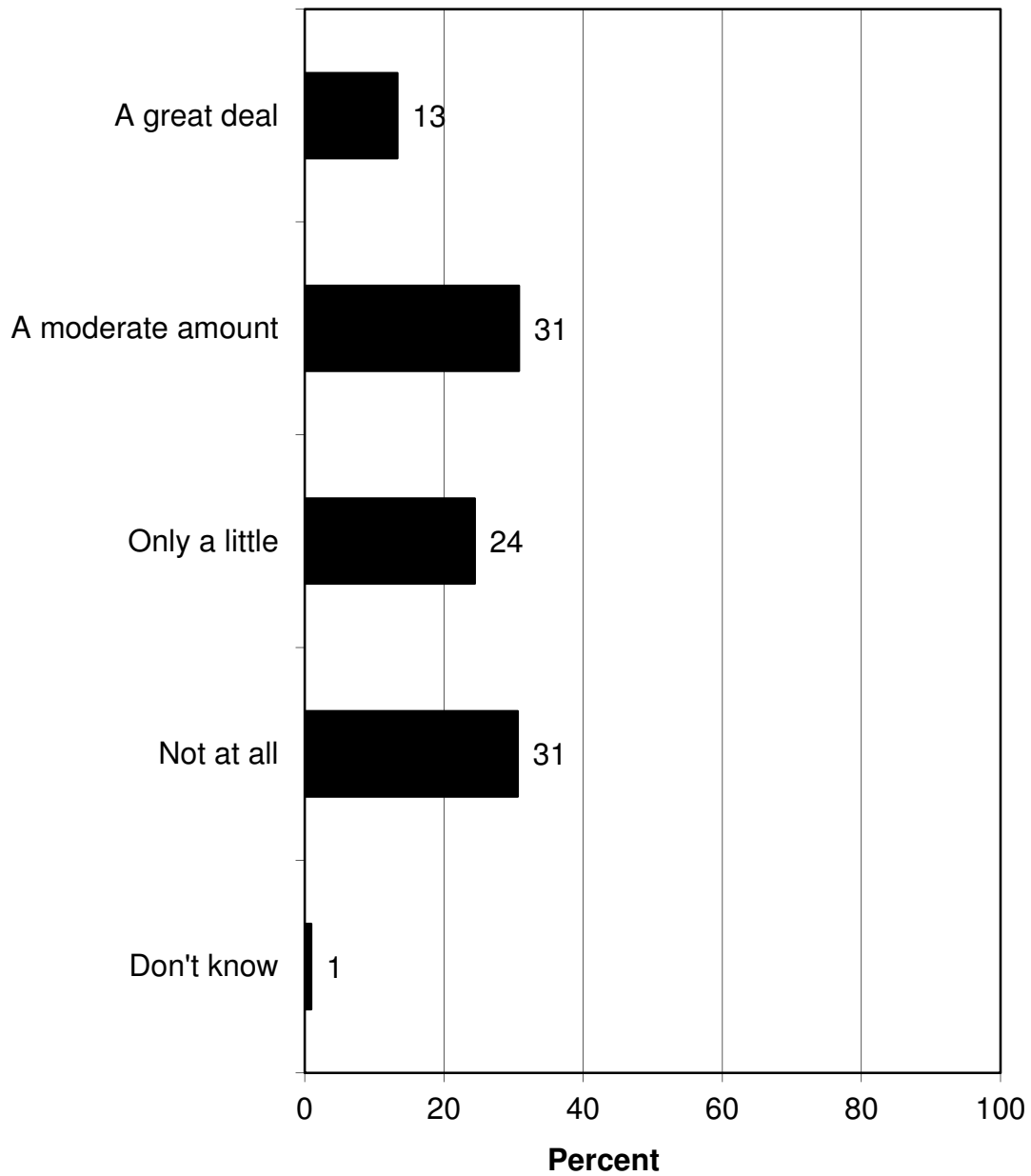




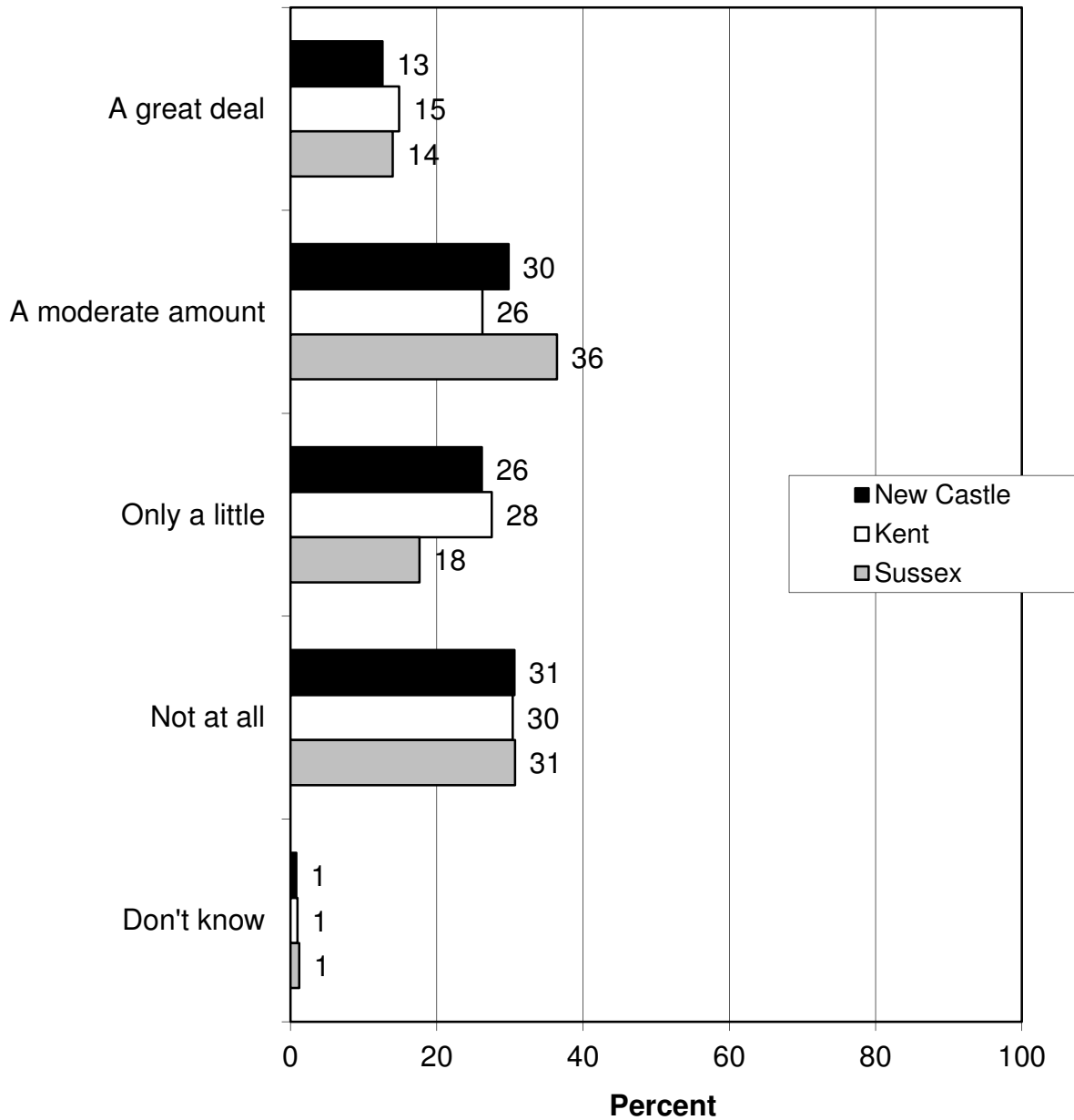
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to say that climate change is a very or serious threat, relative to residents as a whole. Overall, 79.5% of Delaware residents say that climate change is a very or somewhat serious threat (striped bar). Those groups more inclined to say so are above that bar (for instance, 84.6% of females say this); those groups less inclined to say so are below that bar (for instance, only 73.9% of males say this).

**Q36. How serious a threat do you think climate change is?**

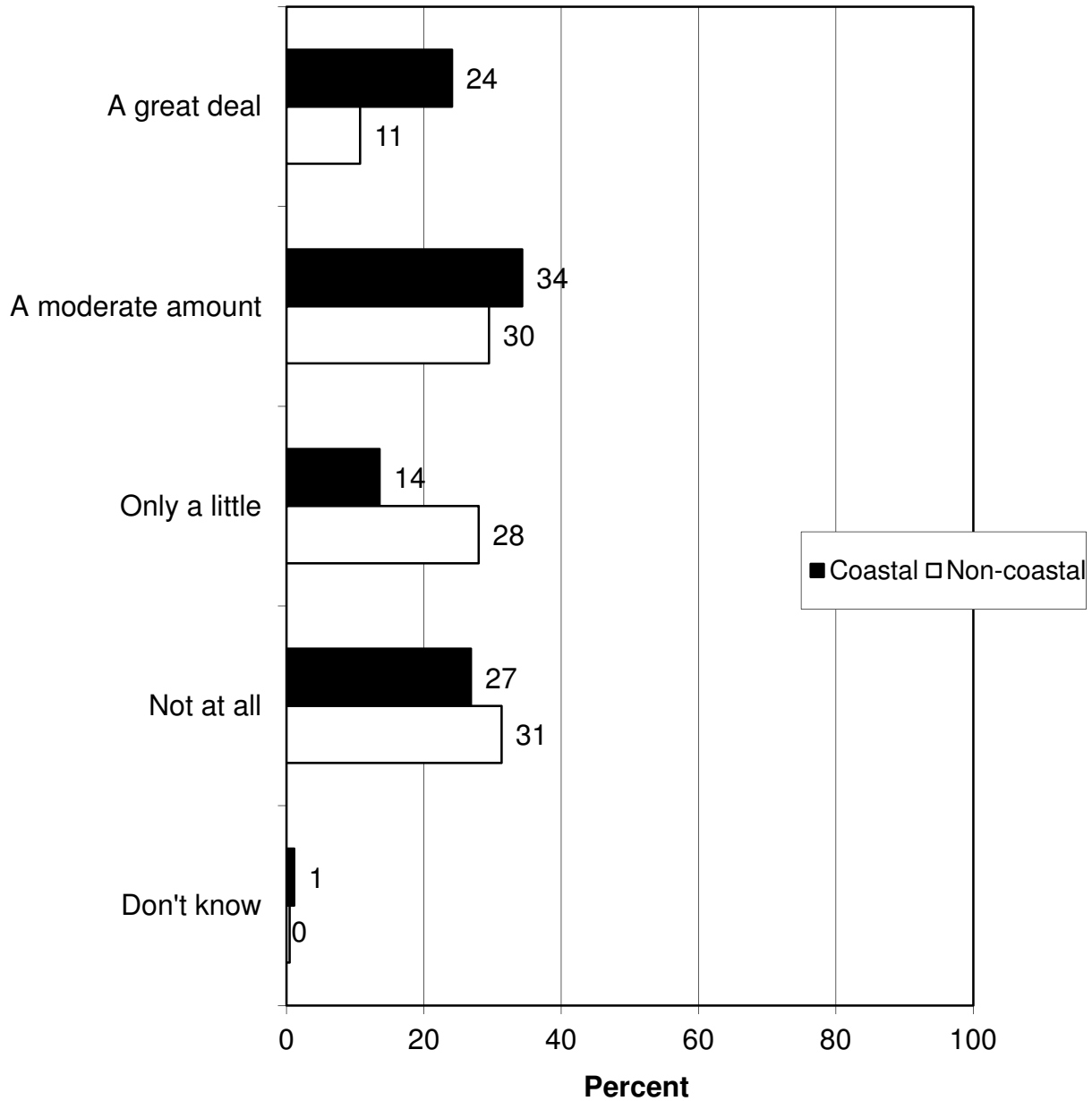
**Q59. How much do you personally worry about sea level rise? Would you say a great deal, a moderate amount, only a little, or not at all?**



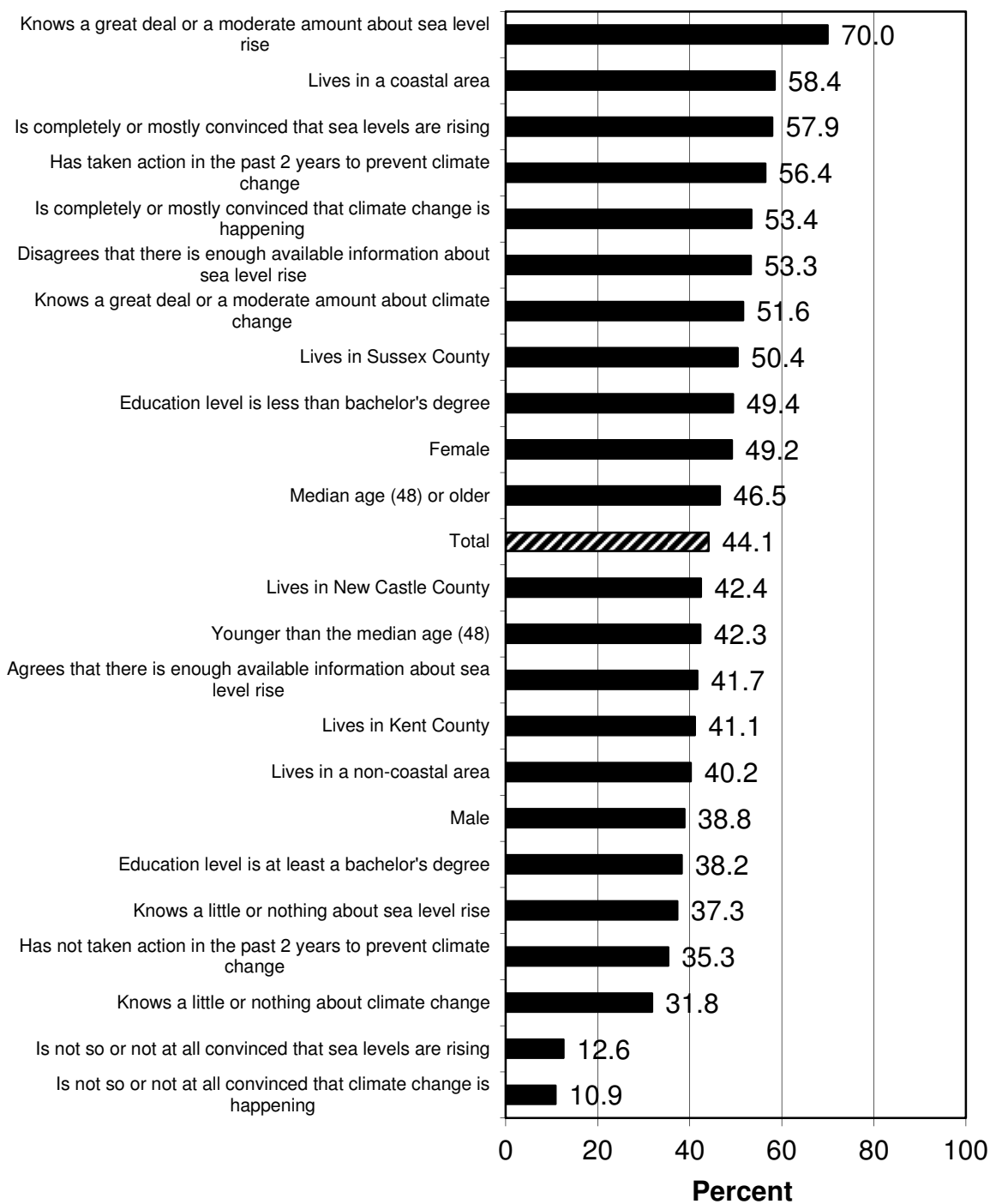
**Q59. How much do you personally worry about sea level rise? Would you say a great deal, a moderate amount, only a little, or not at all?**



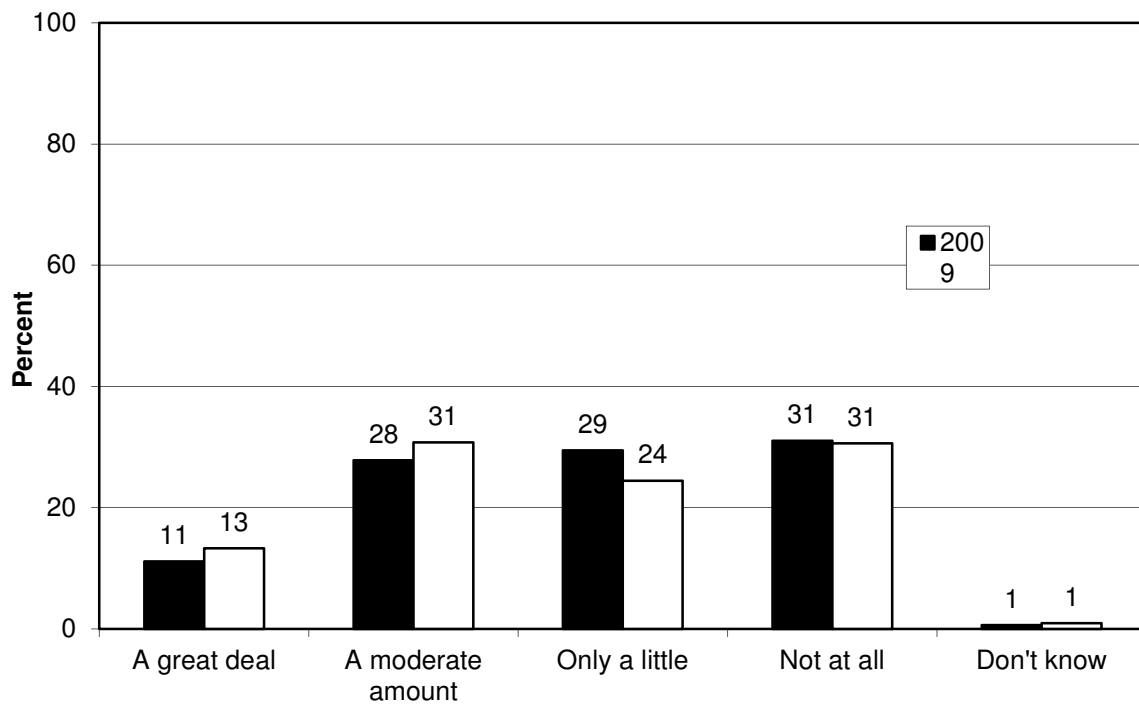
**Q59. How much do you personally worry about sea level rise? Would you say a great deal, a moderate amount, only a little, or not at all?**



## Percent who worry a great deal or moderate amount about sea level rise:

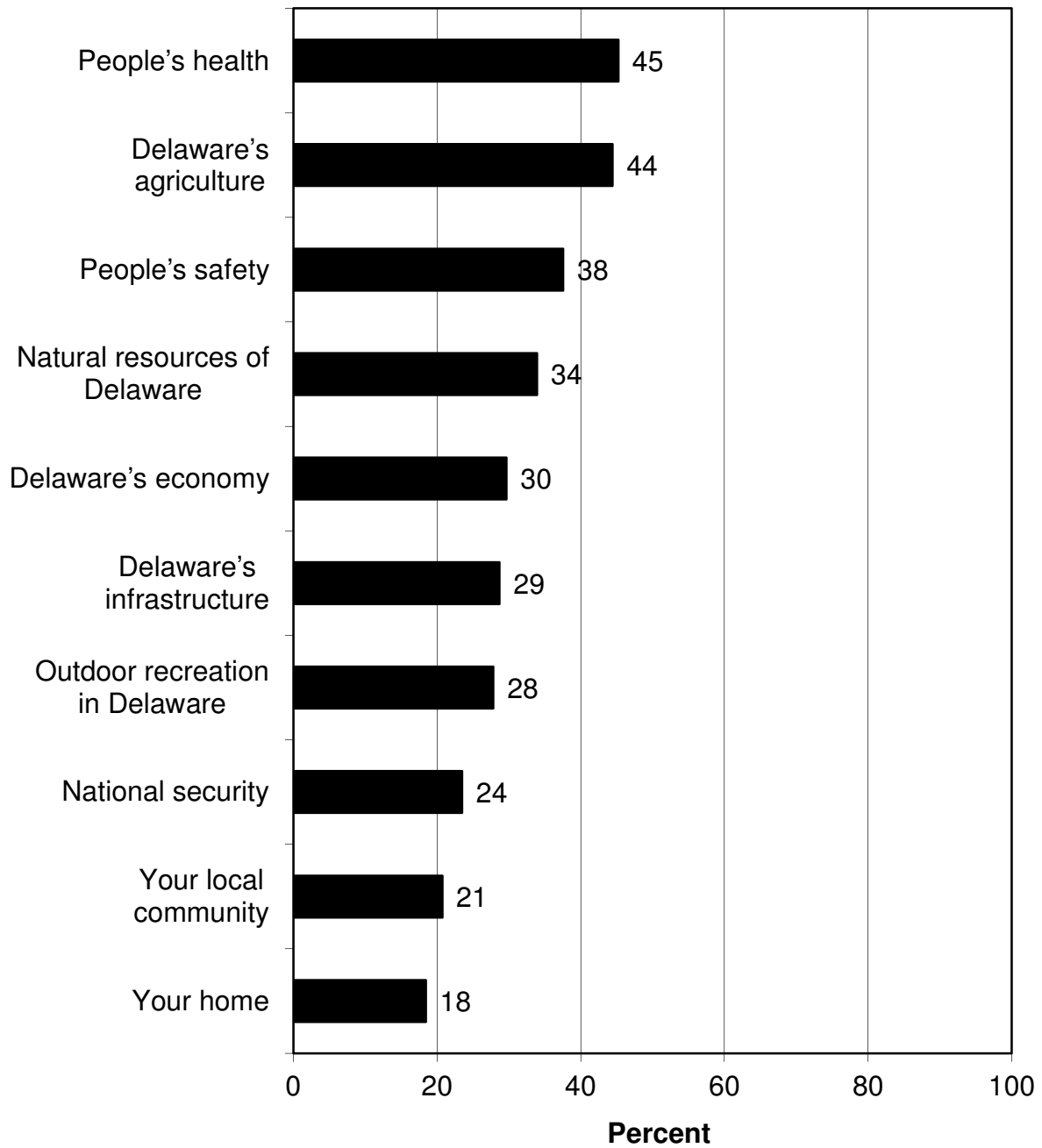


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to say that they worry a great deal or moderate amount about sea level rise, relative to residents as a whole. Overall, 44.1% of Delaware residents worry a great deal or moderate amount (striped bar). Those groups more inclined to worry are above that bar (for instance, 58.4% of those who live in a coastal area are worried a great deal or moderate amount); those groups less inclined to be worried are below that bar (for instance, only 38.8% of males are worried a great deal or moderate amount).

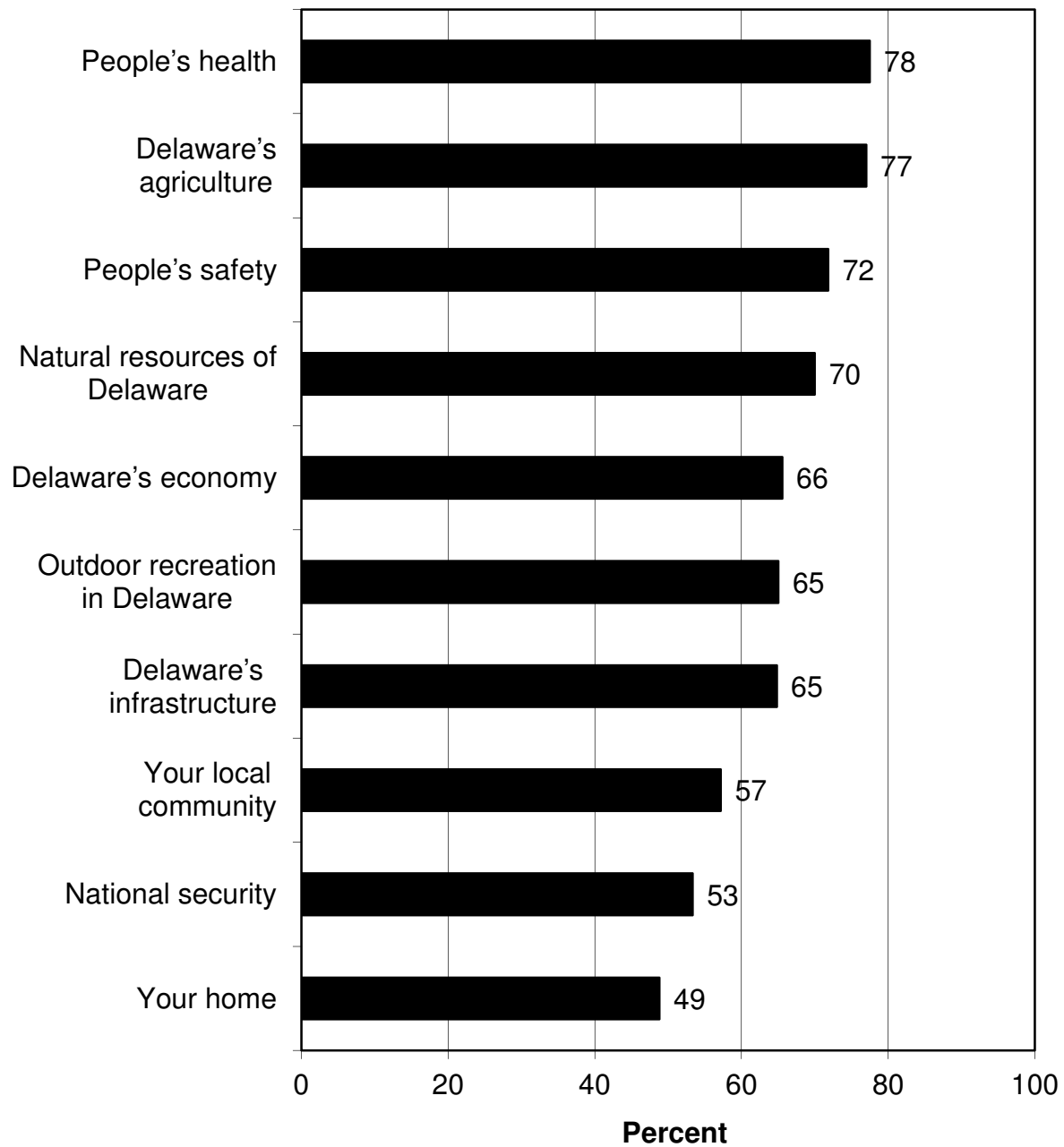
**Q59. How much do you personally worry about sea level rise?**



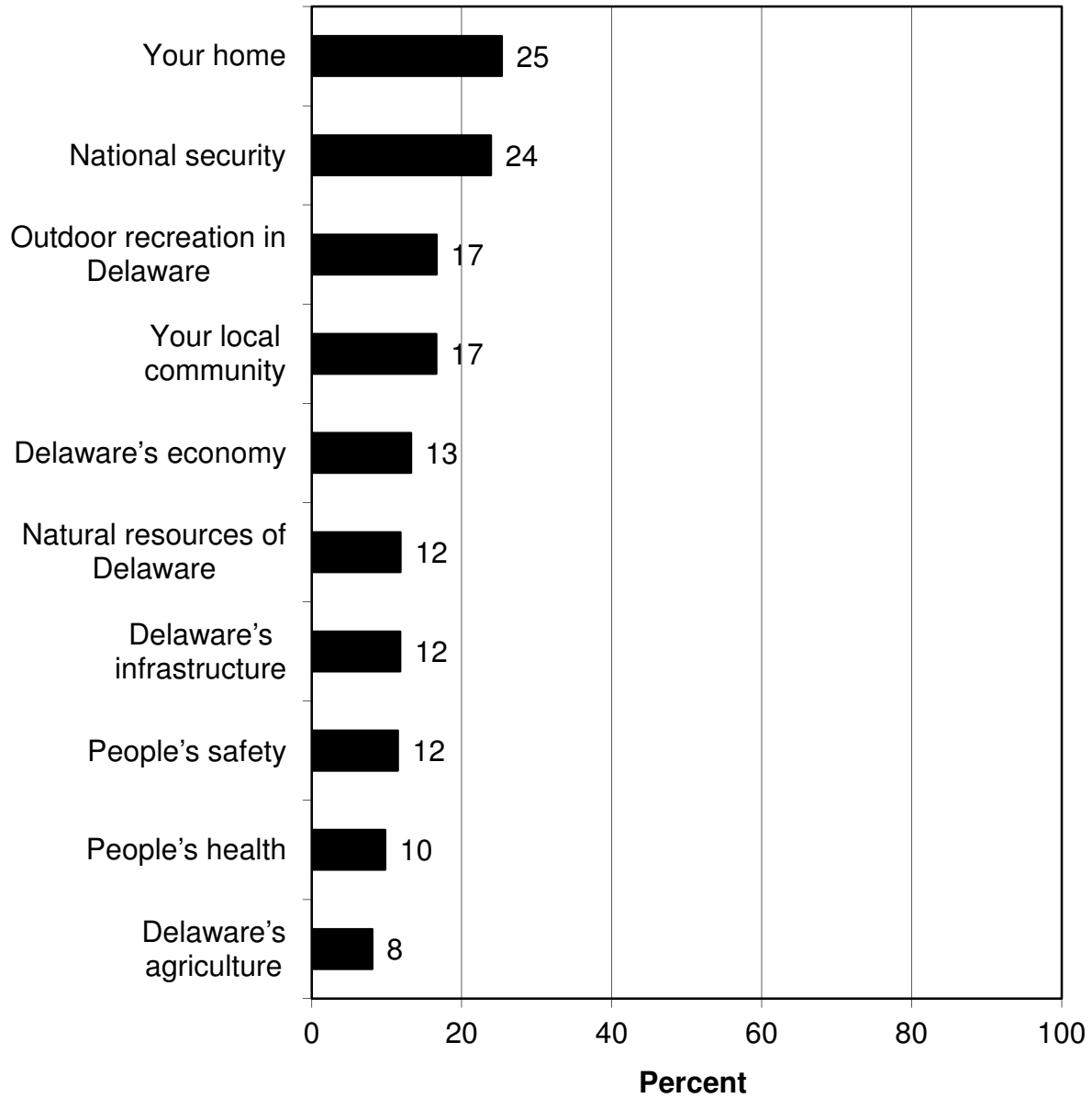
**Q44-Q53. Percent of respondents who think climate change is a very serious threat to each of the following.**



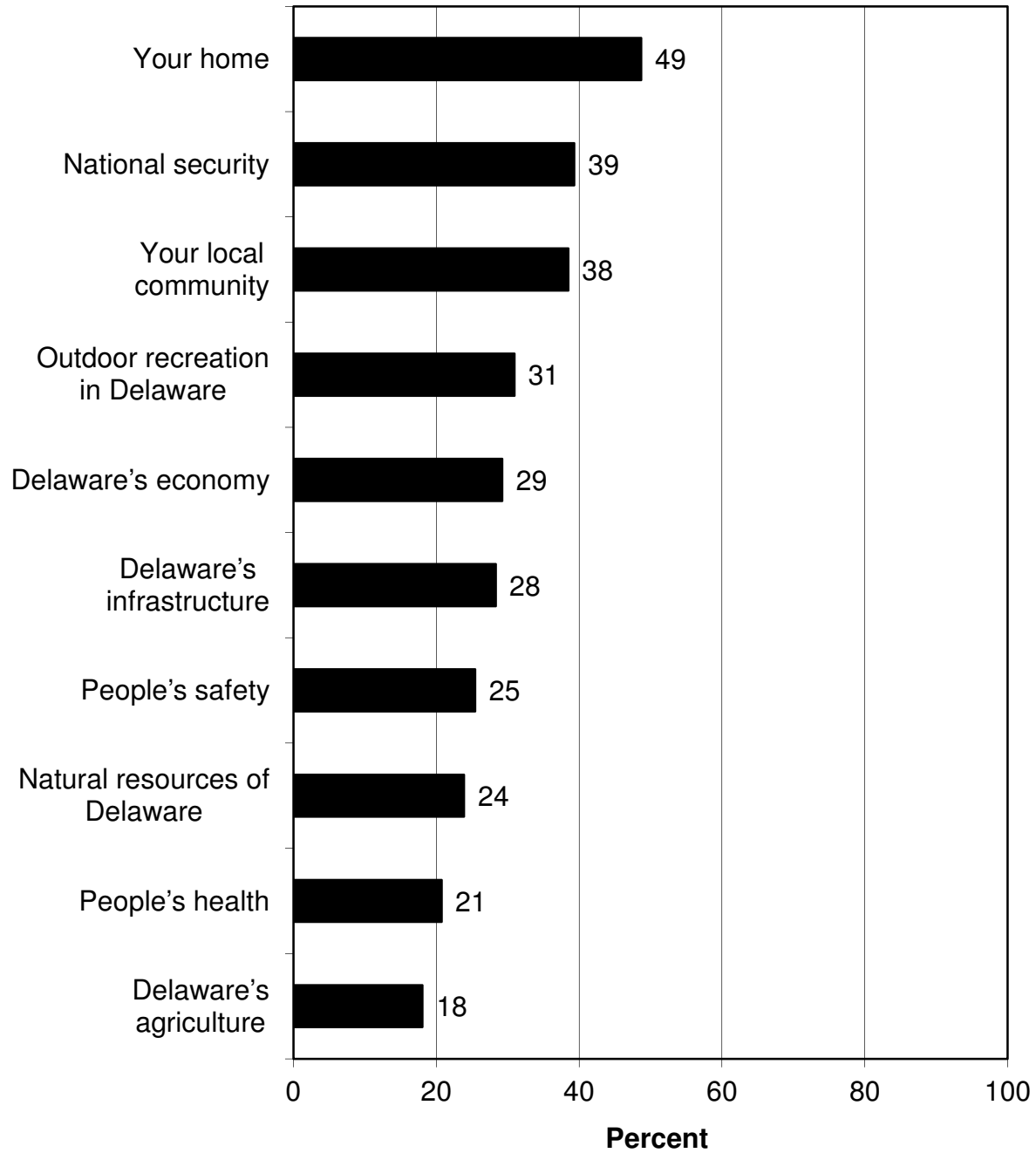
**Q44-Q53. Percent of respondents who think climate change is a very or somewhat serious threat to each of the following.**



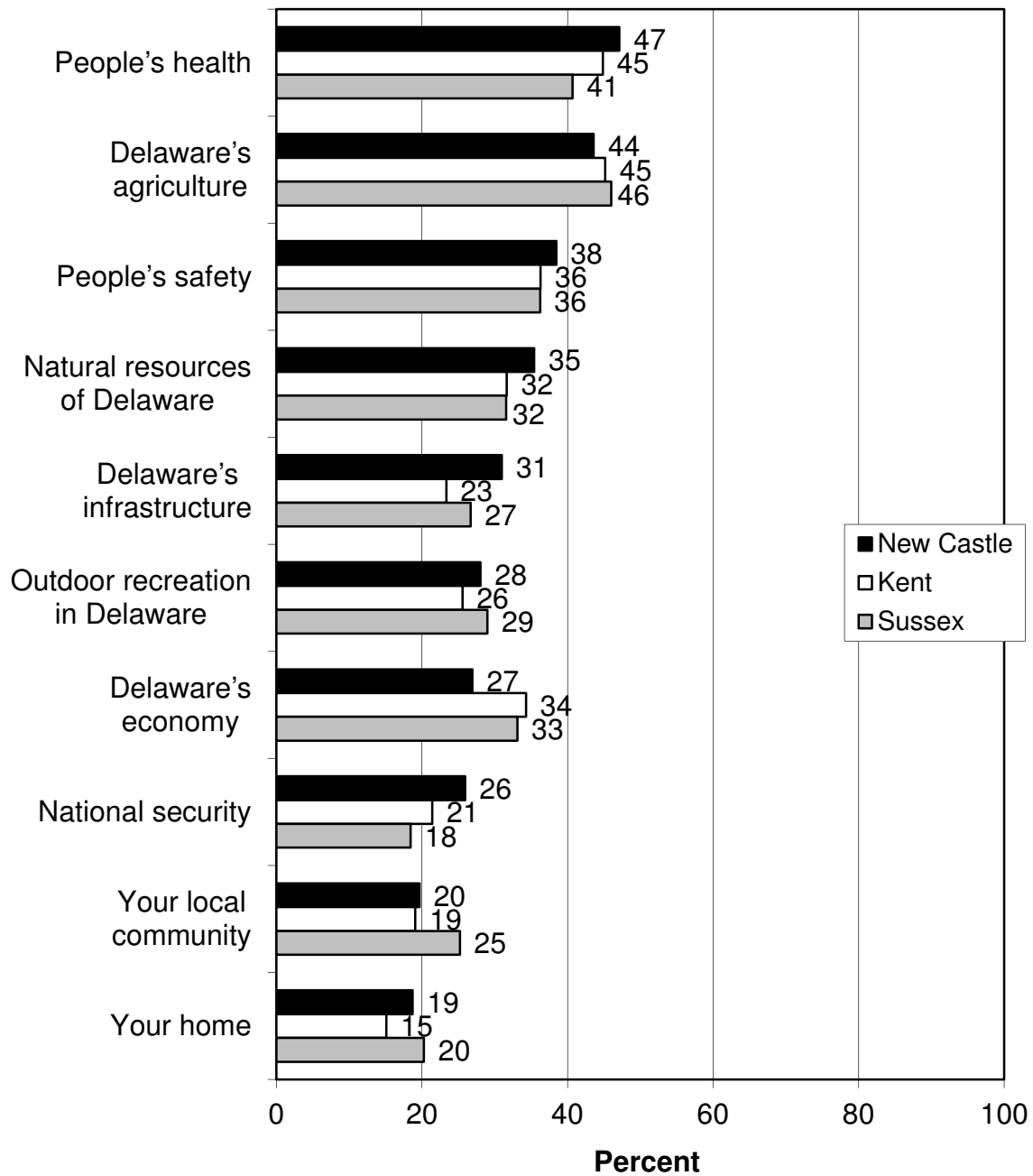
**Q44-Q53. Percent of respondents who think climate change is not at all a threat to each of the following.**



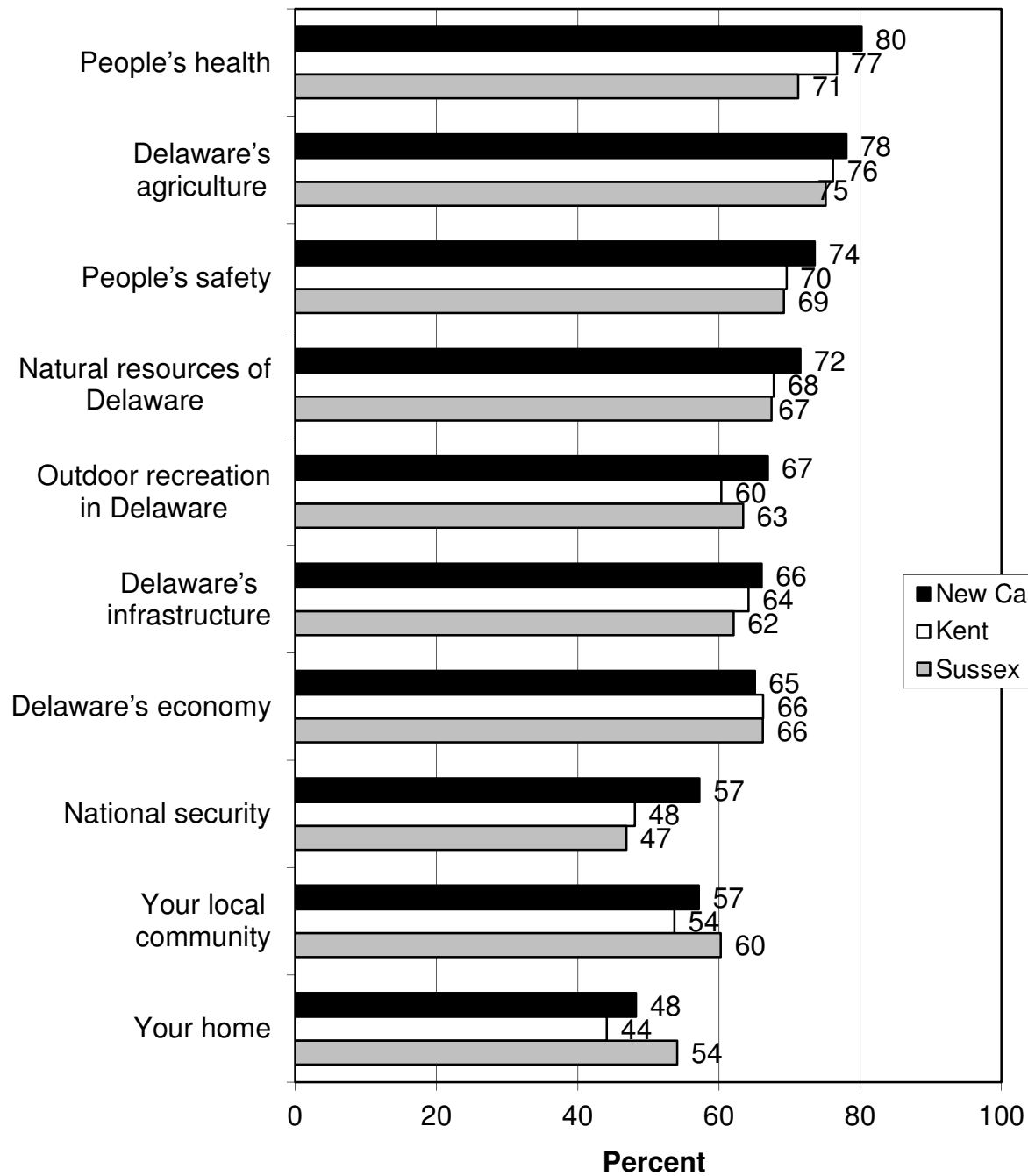
**Q44-Q53. Percent of respondents who think climate change is not at all a threat or not a very serious threat to each of the following.**



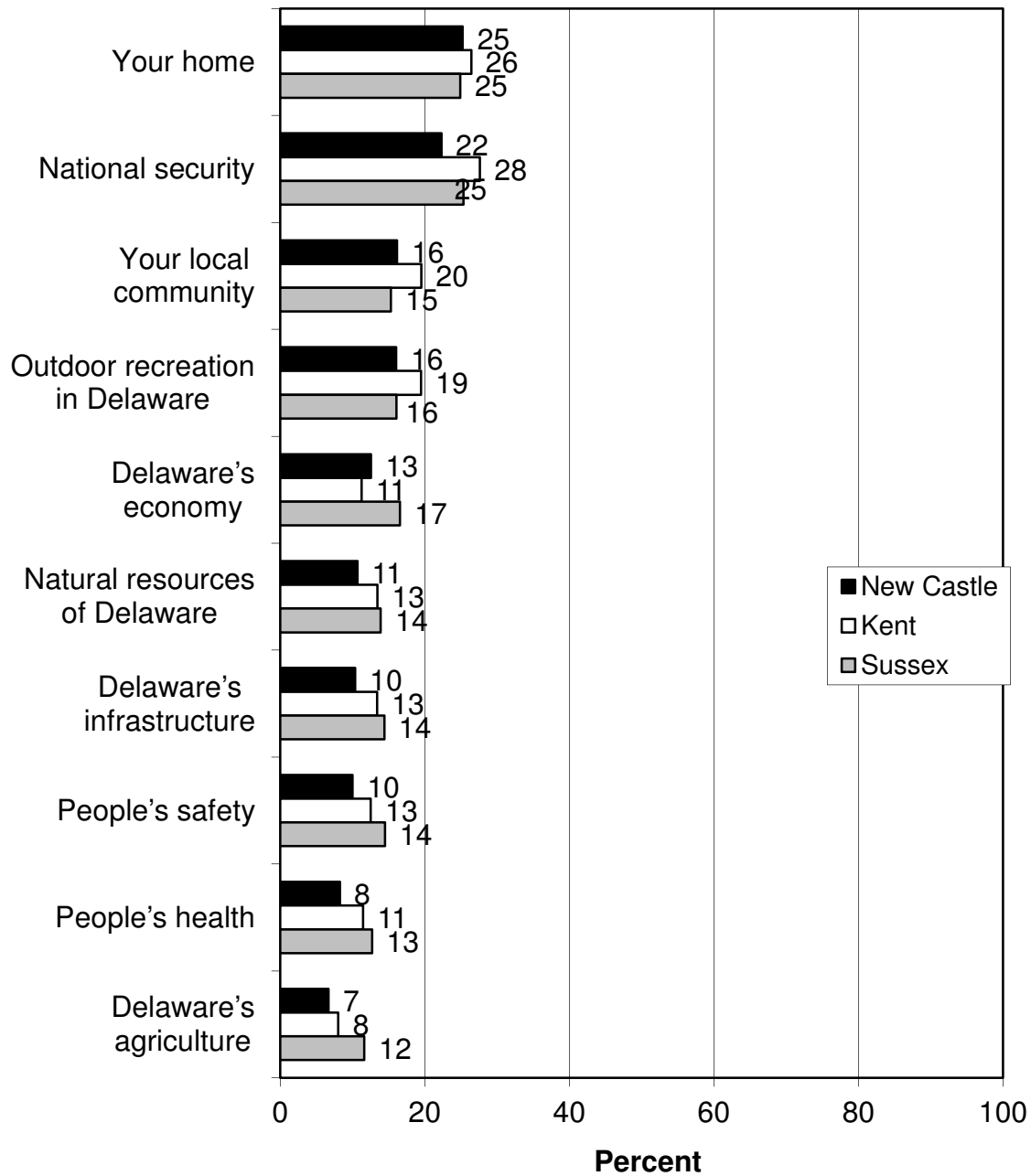
**Q44-Q53. Percent of respondents who think climate change is a very serious threat to each of the following.**



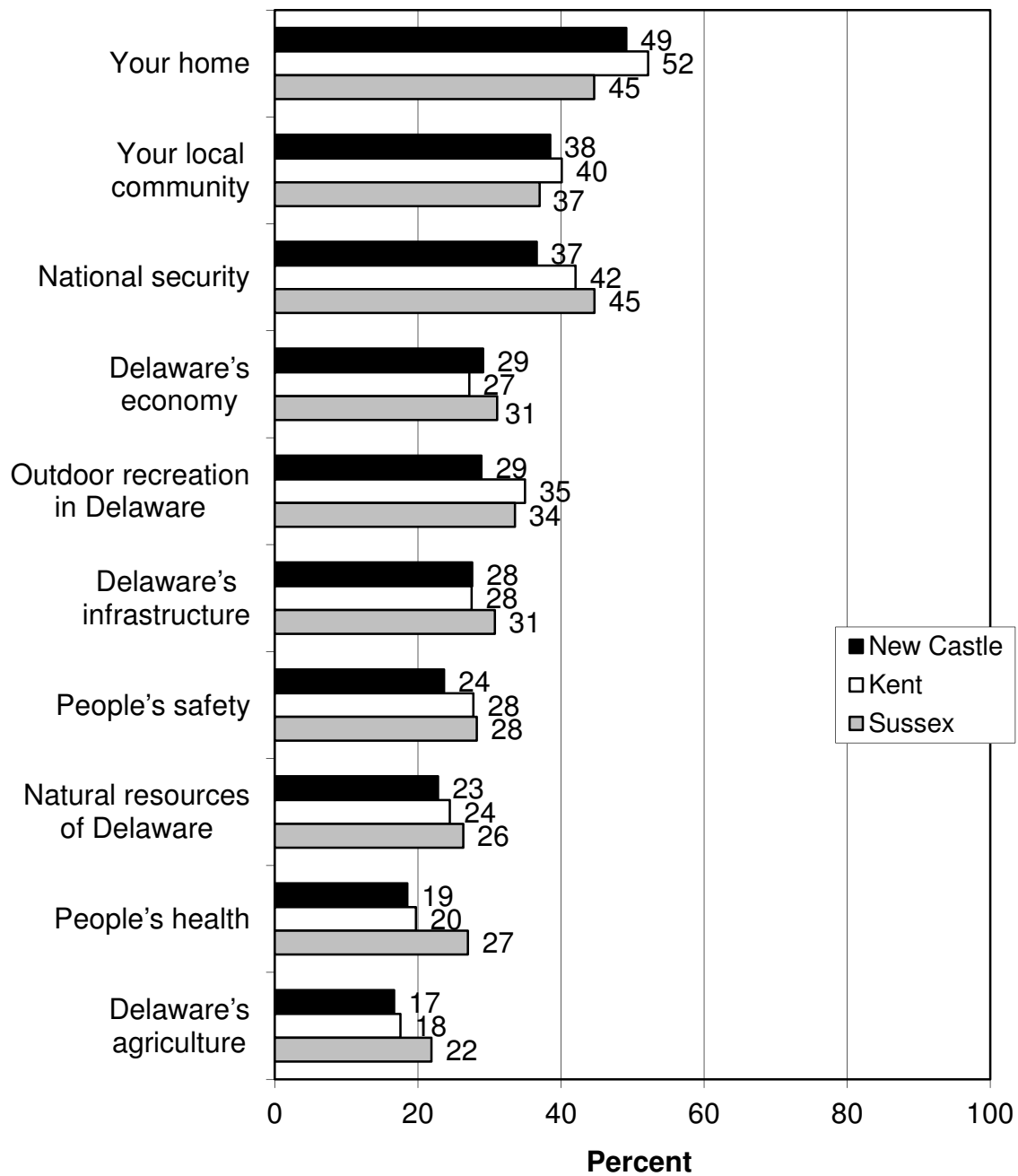
**Q44-Q53. Percent of respondents who think climate change is a very or somewhat serious threat to each of the following.**



**Q44-Q53. Percent of respondents who think climate change is not at all a threat to each of the following.**

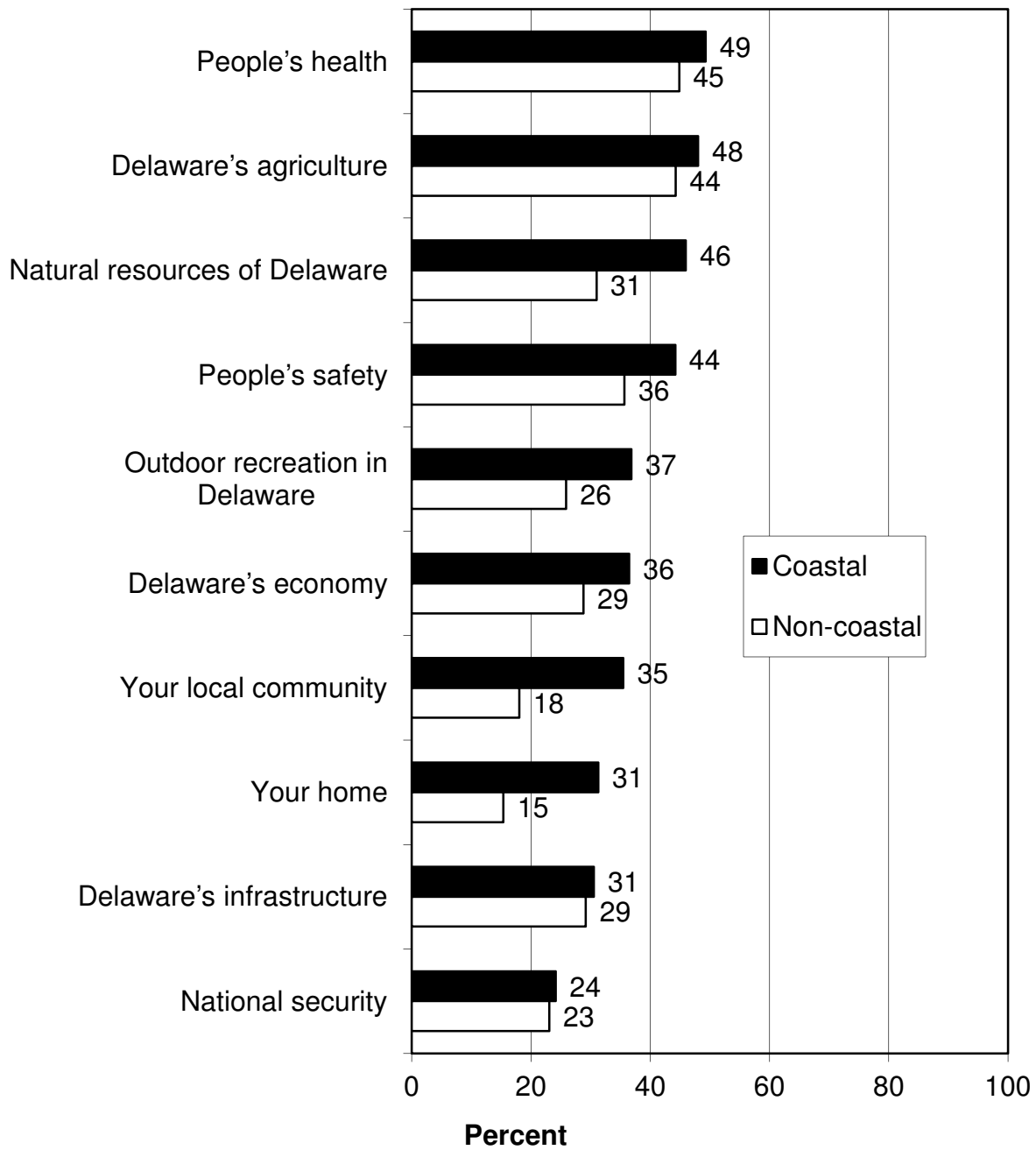


**Q44-Q53. Percent of respondents who think climate change is not at all a threat or not a very serious threat to each of the following.**

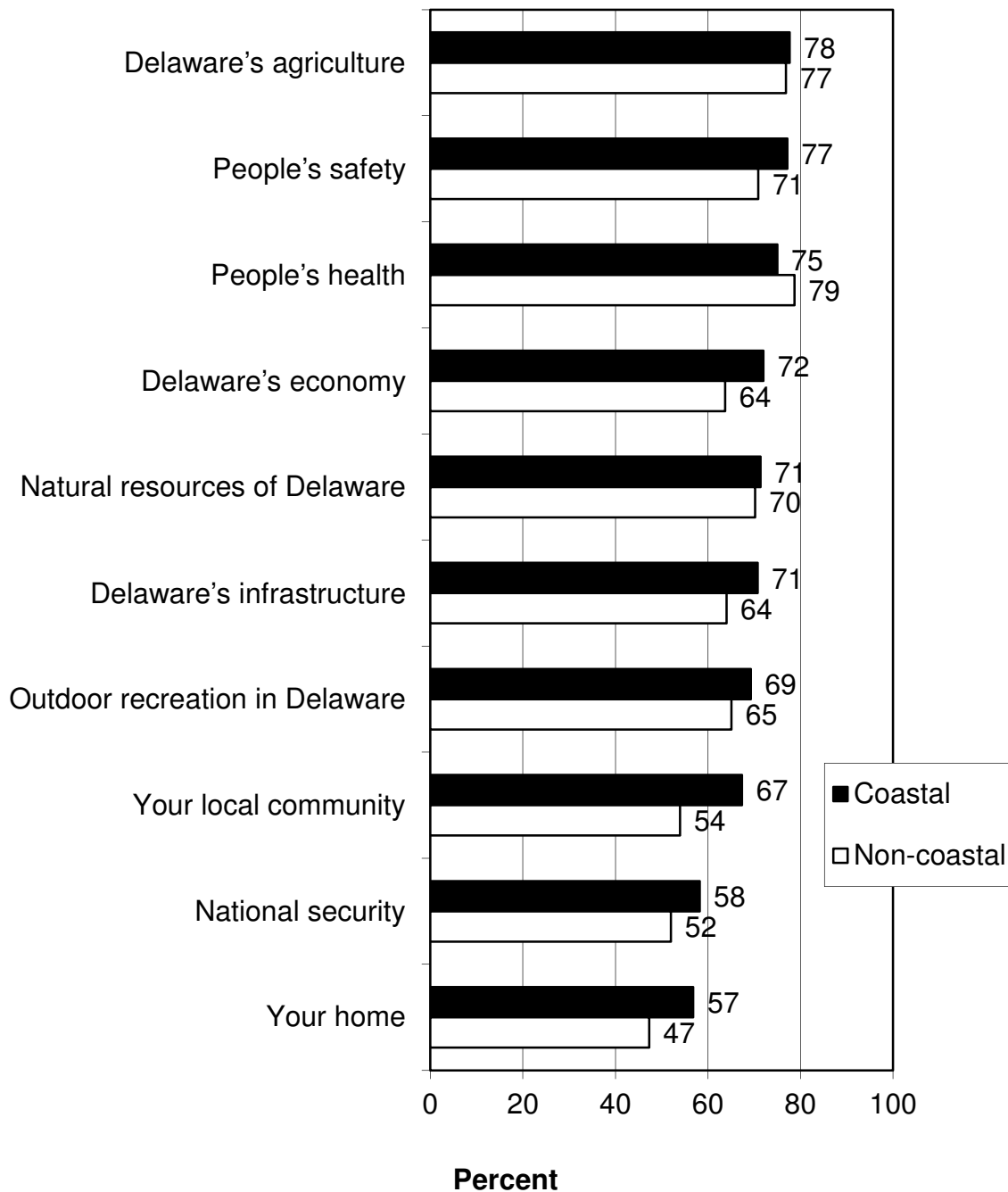




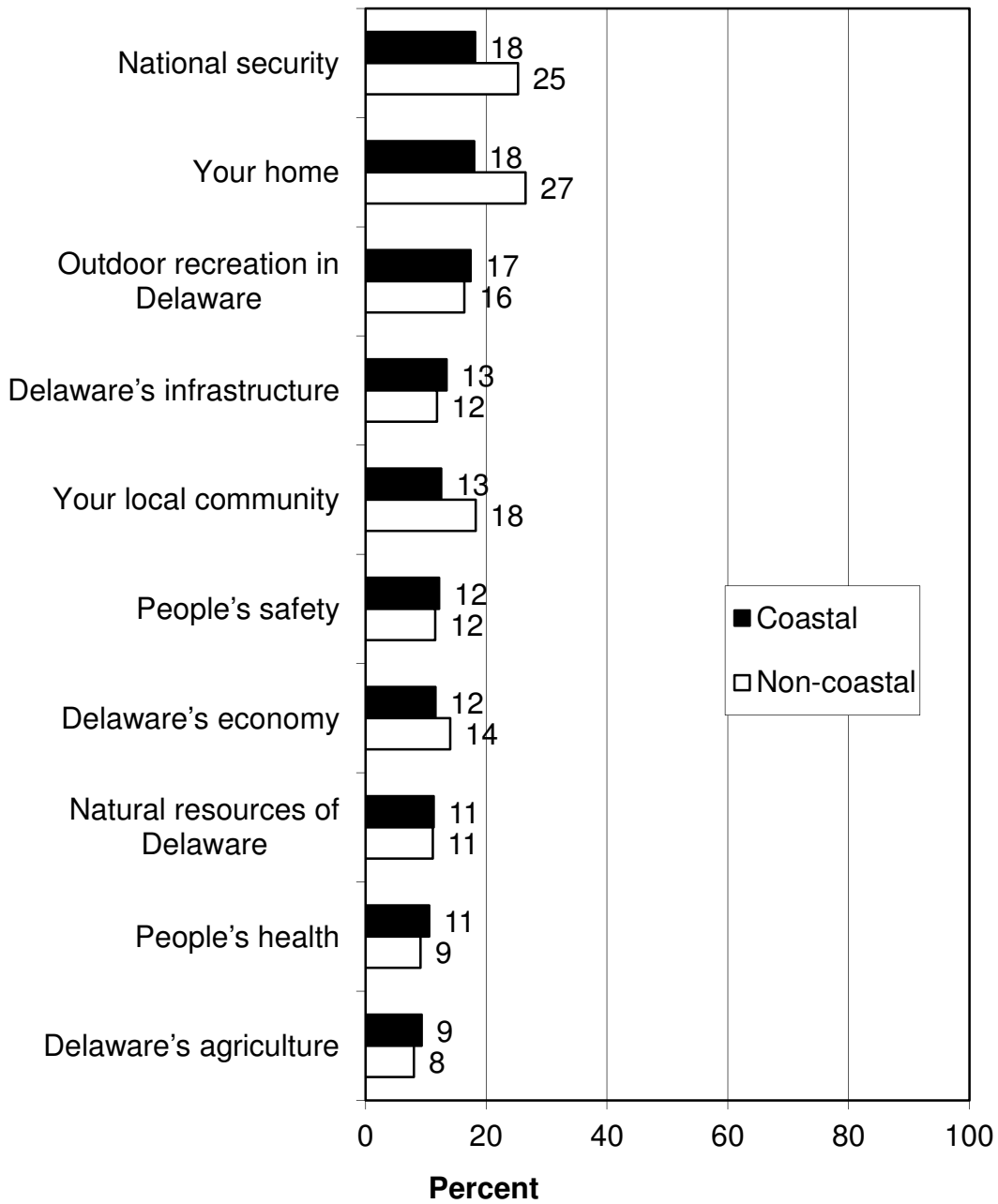
**Q44-Q53. Percent of respondents who think climate change is a very serious threat to each of the following.**



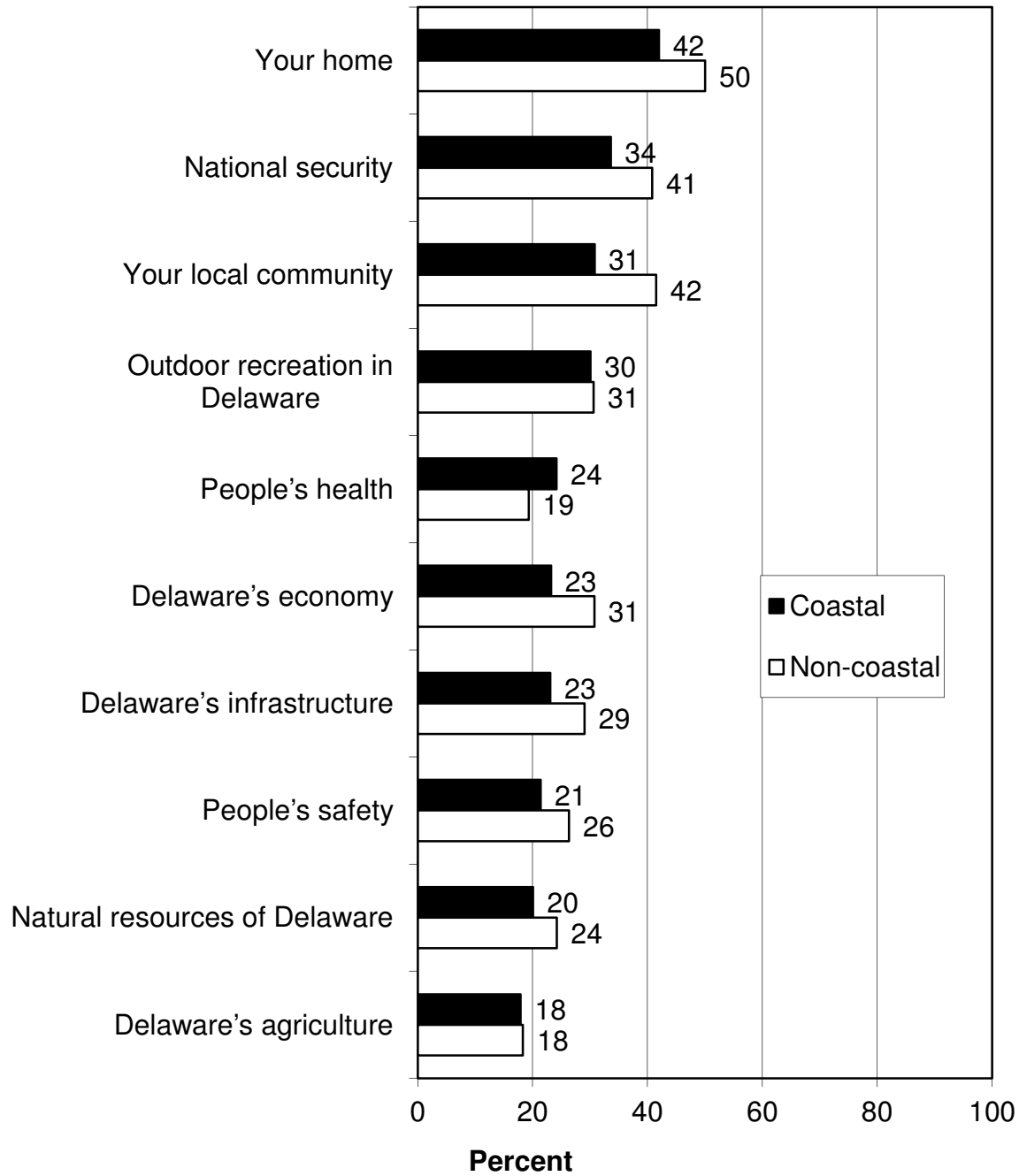
**Q44-Q53. Percent of respondents who think climate change is a very or somewhat serious threat to each of the following.**



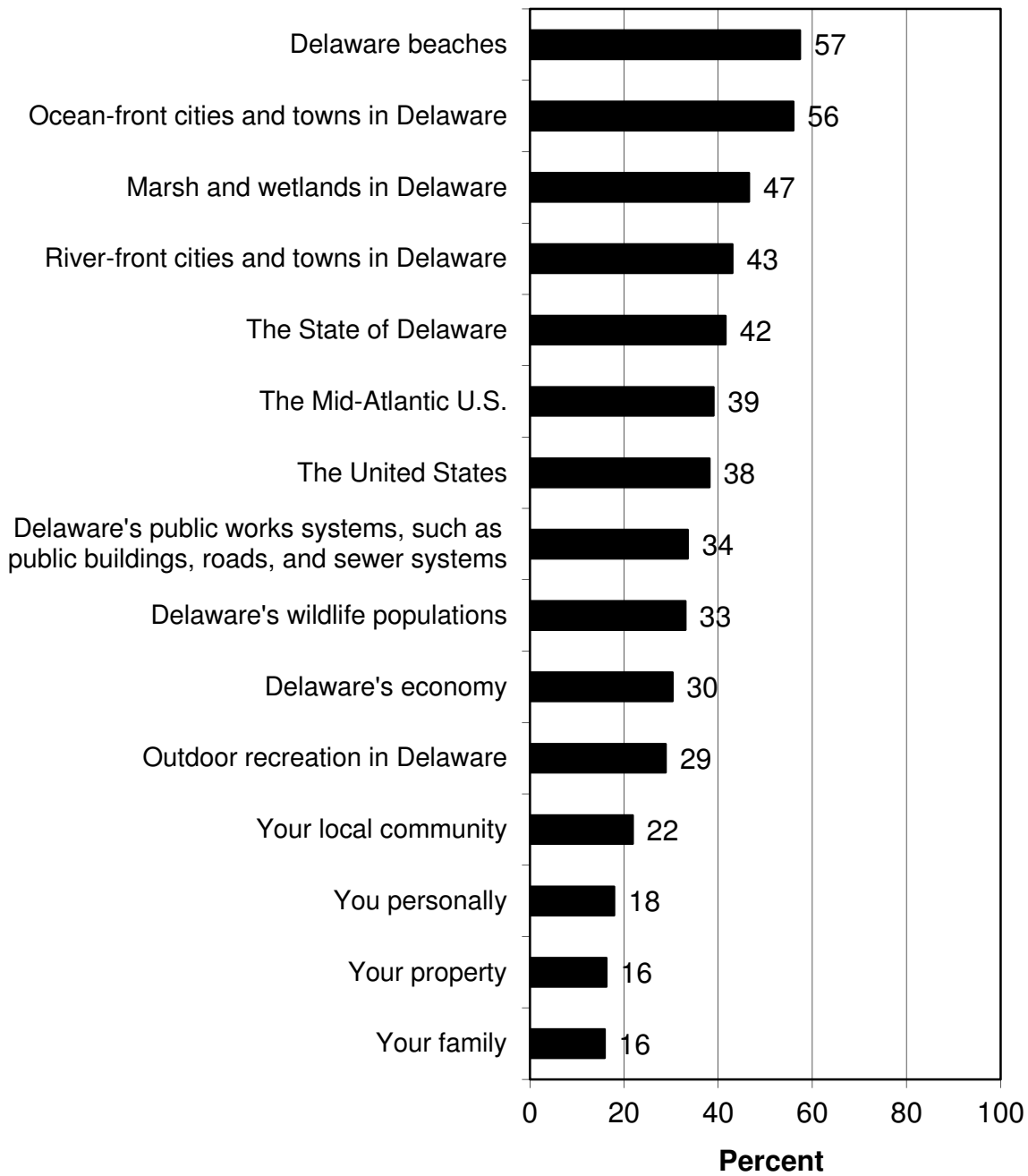
**Q44-Q53. Percent of respondents who think climate change is not at all a threat to each of the following.**



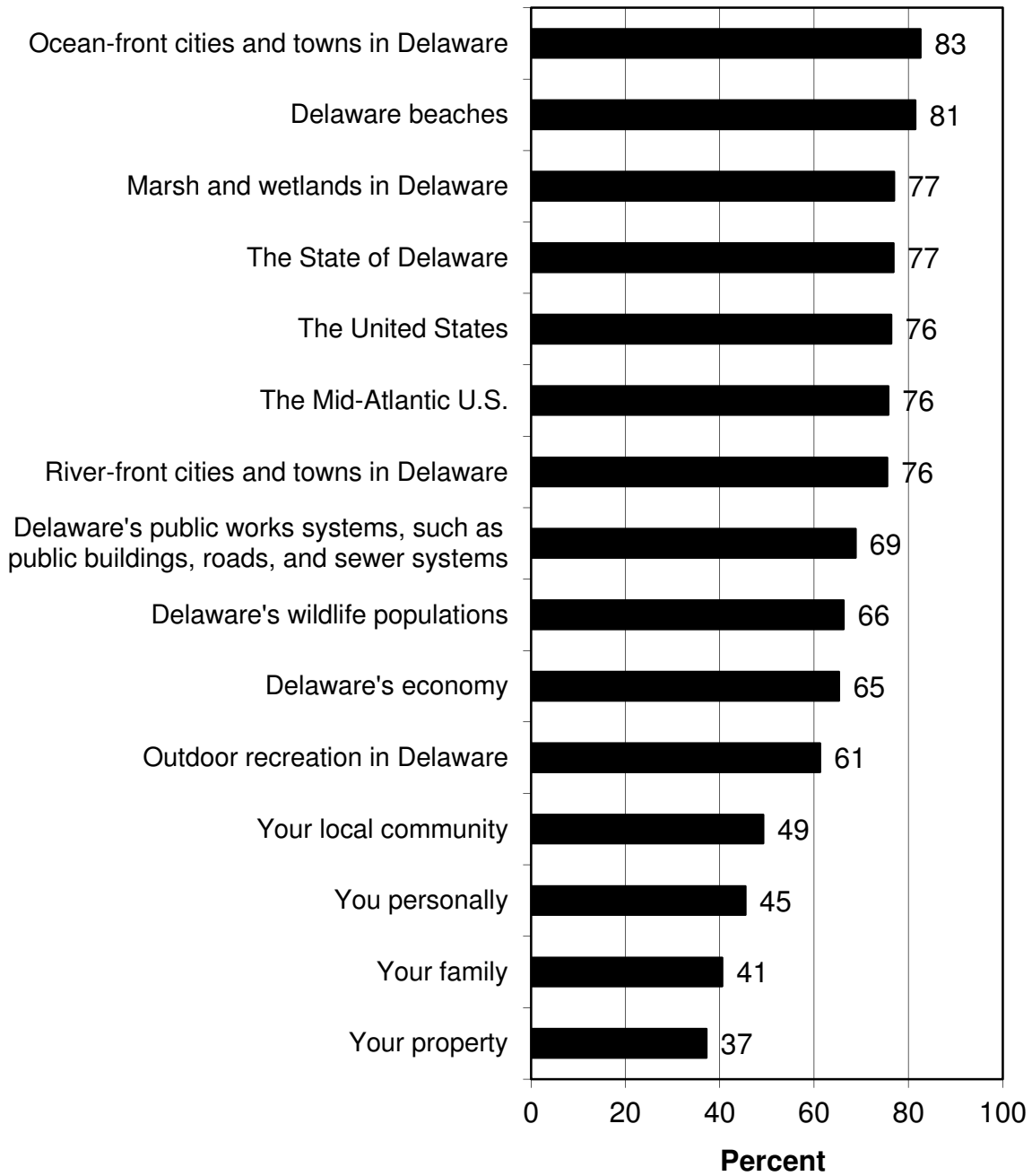
**Q44-Q53. Percent of respondents who think climate change is not at all a threat or not a very serious threat to each of the following.**



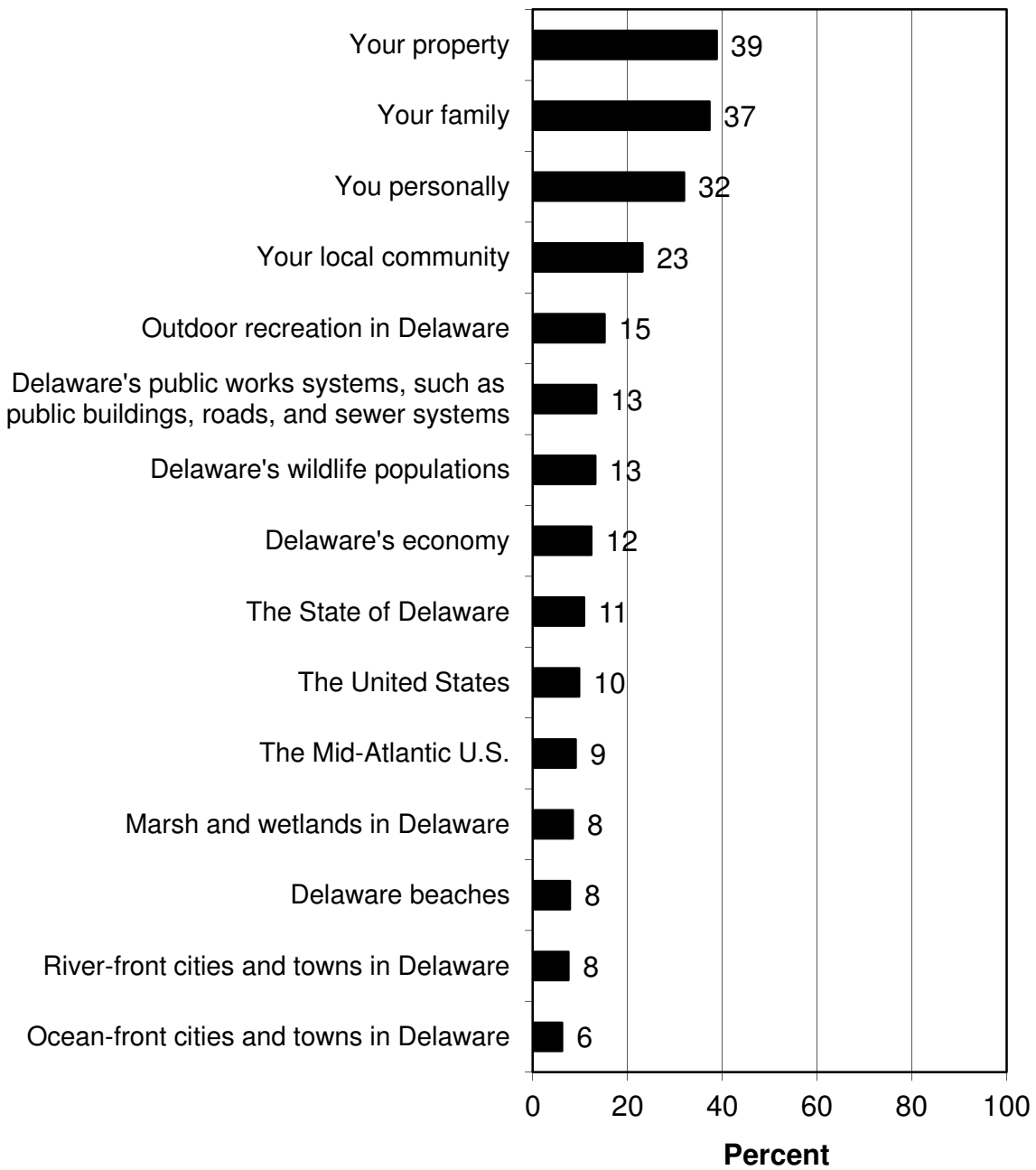
**Q62-Q76. Percent of respondents who think sea level rise is a very serious threat to each of the following.**



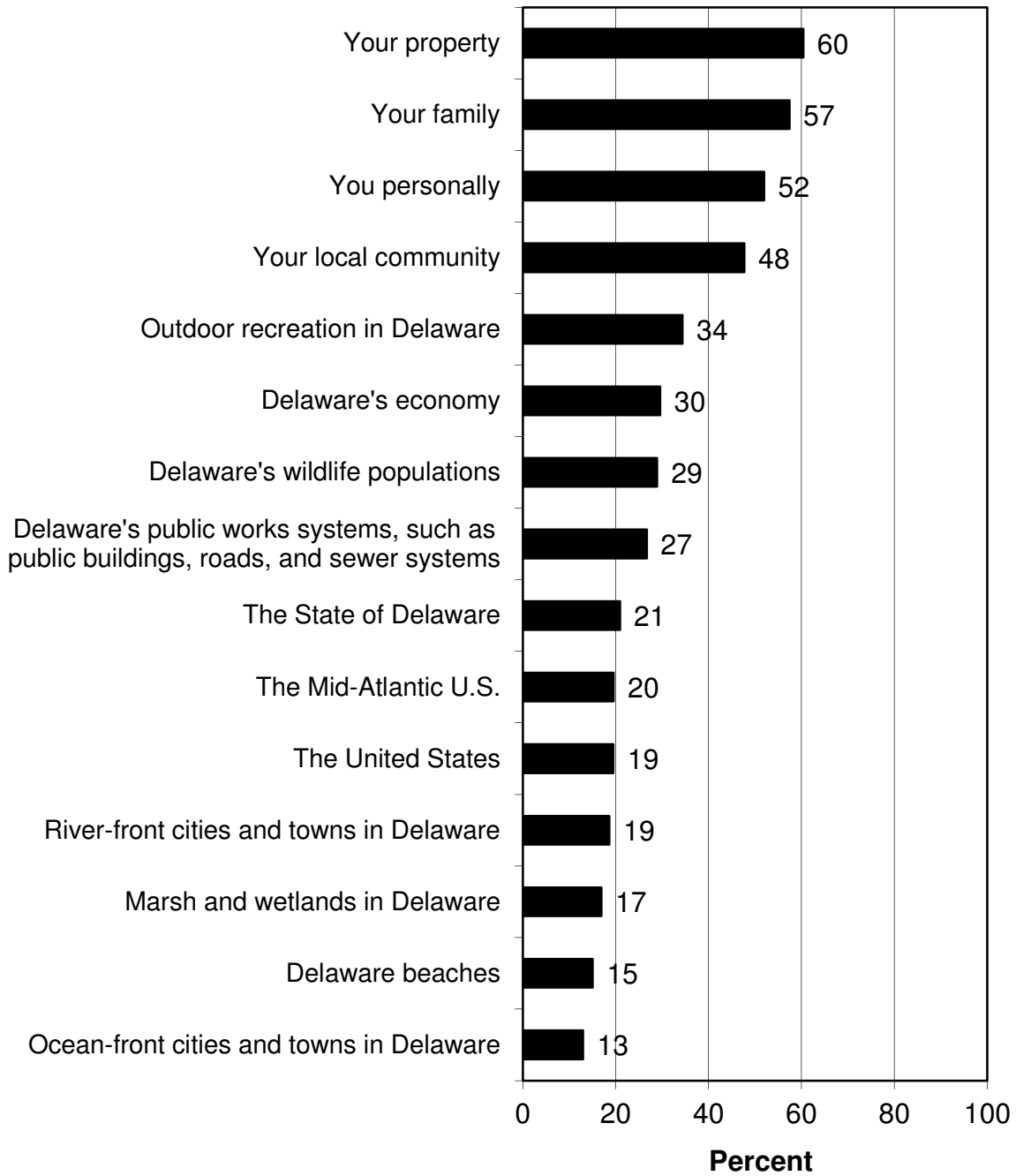
**Q62-Q76. Percent of respondents who think sea level rise is a very or somewhat serious threat to each of the following.**



**Q62-Q76. Percent of respondents who think sea level rise is not at all a threat to each of the following.**

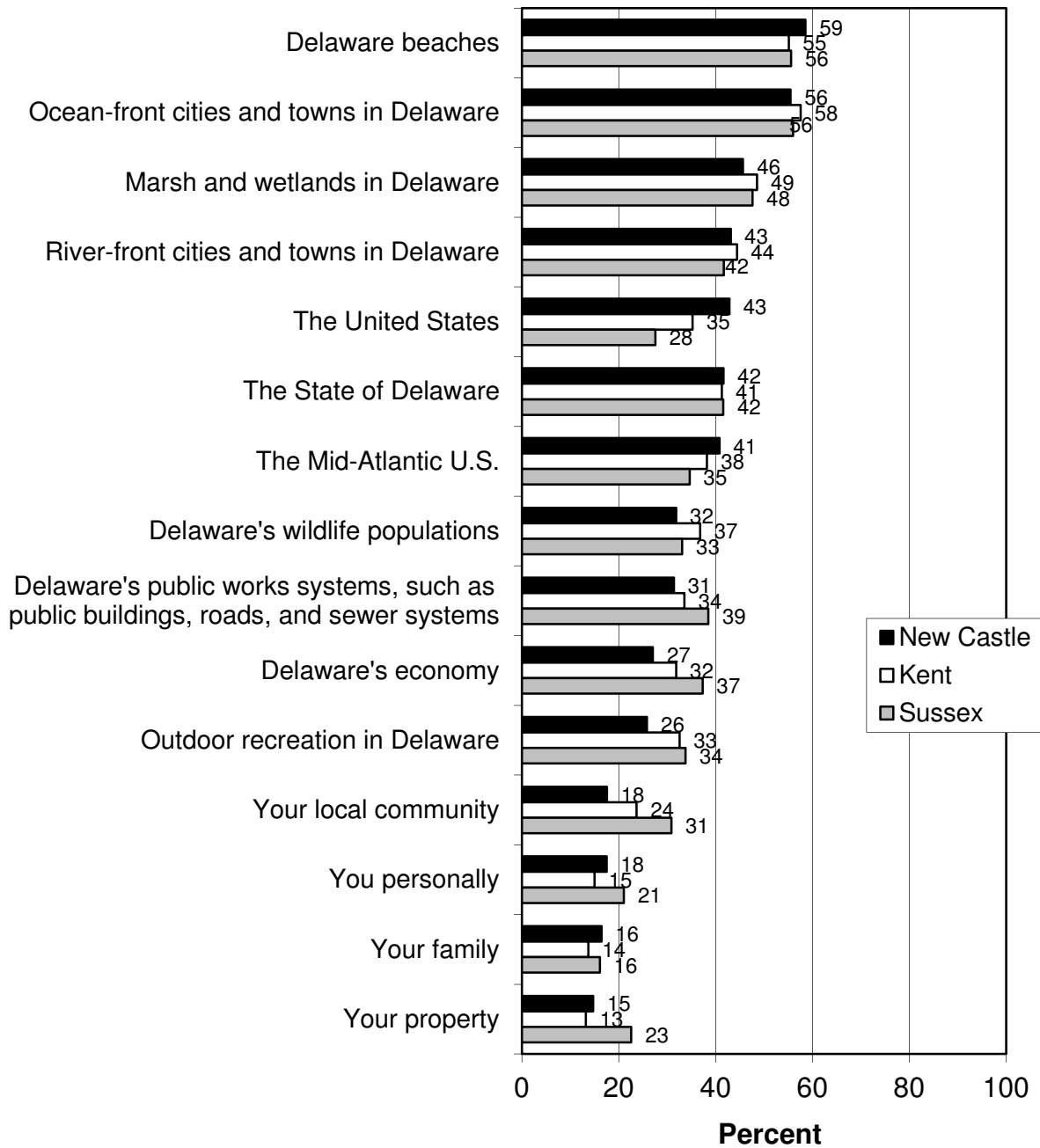


**Q62-Q76. Percent of respondents who think sea level rise is not at all a threat or not a very serious threat to each of the following.**

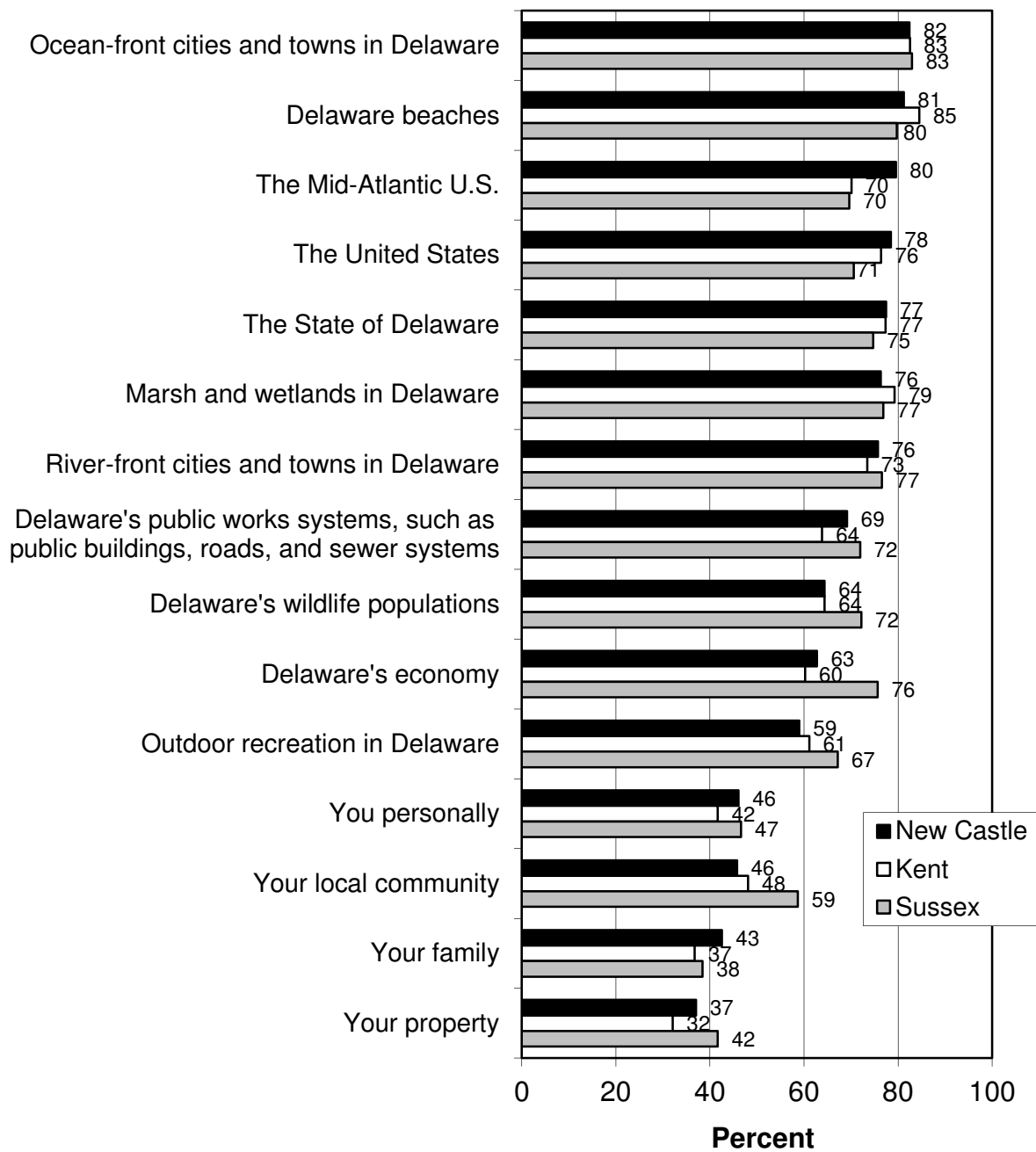




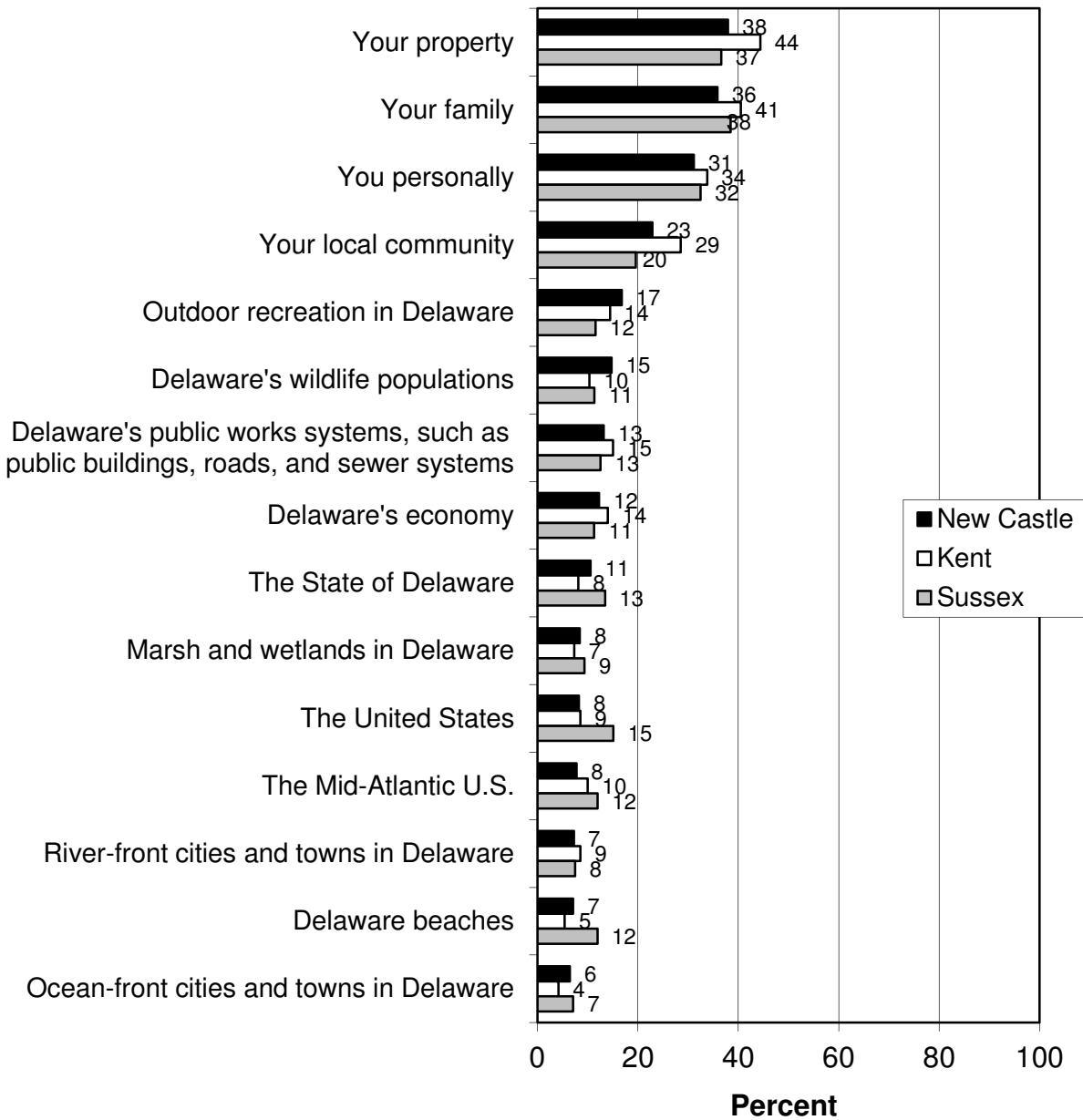
**Q62-Q76. Percent of respondents who think sea level rise is a very serious threat to each of the following.**



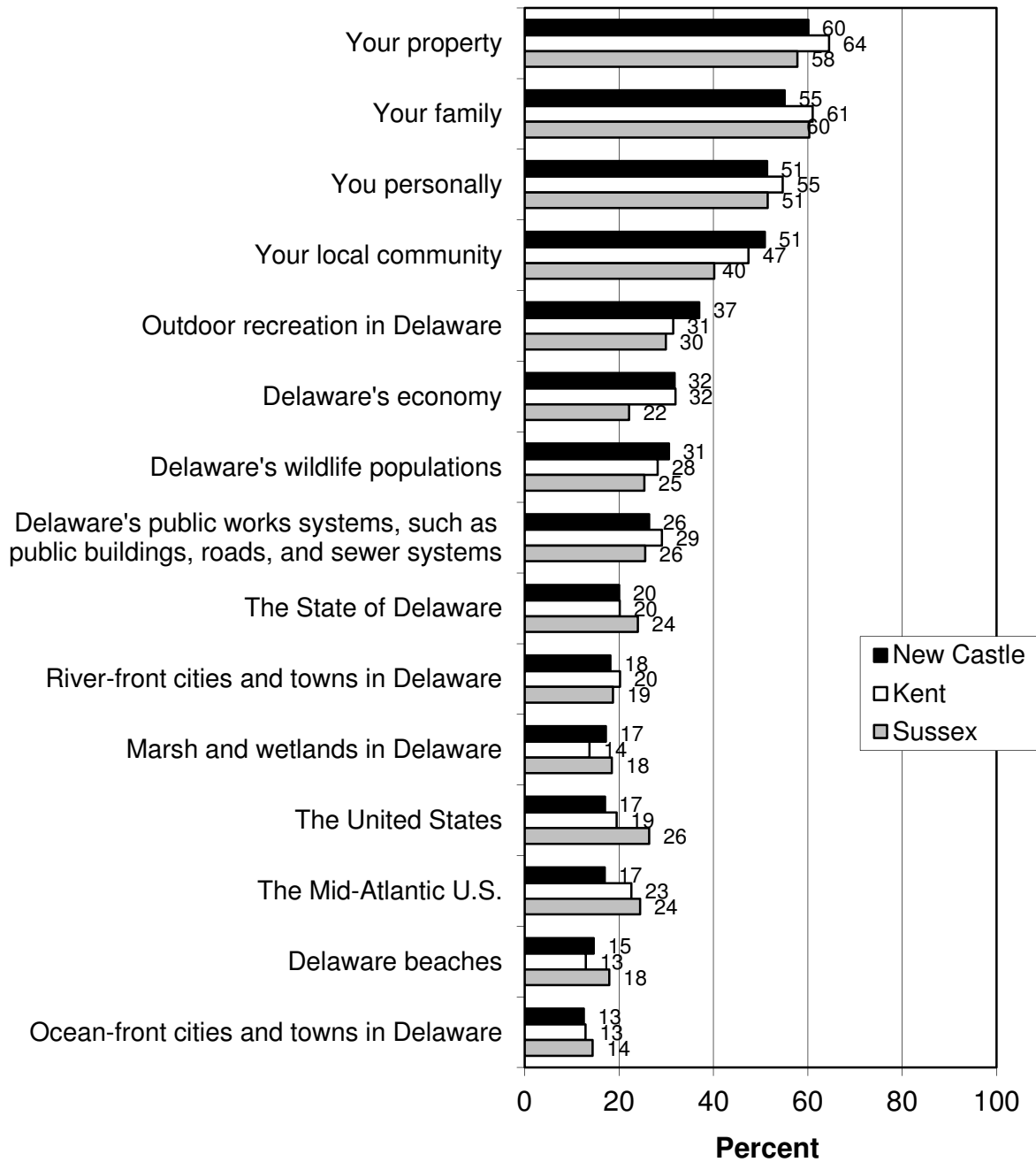
**Q62-Q76. Percent of respondents who think sea level rise is a very or somewhat serious threat to each of the following.**



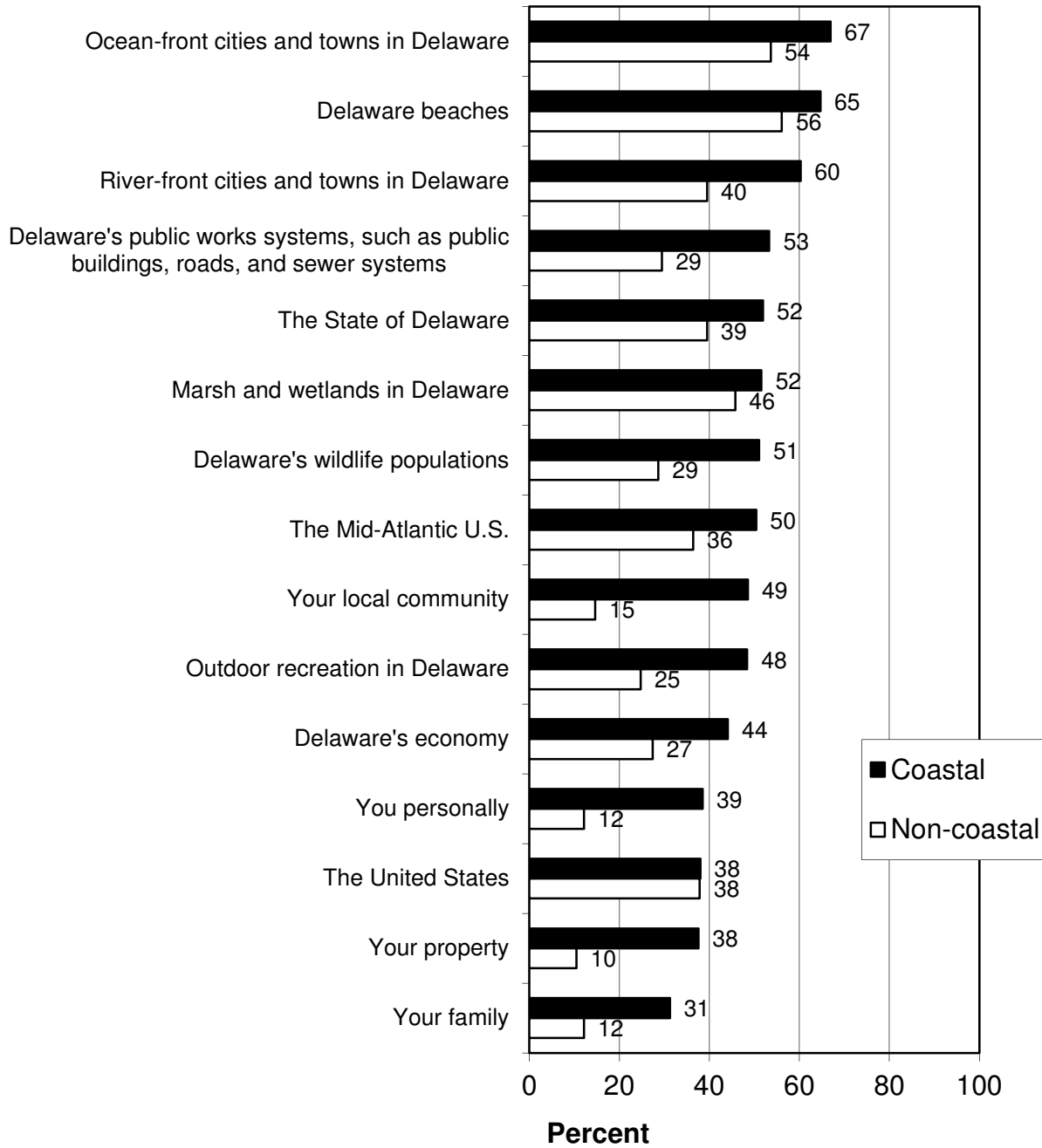
**Q62-Q76. How serious a threat do you think sea level rise is to each of the following?**



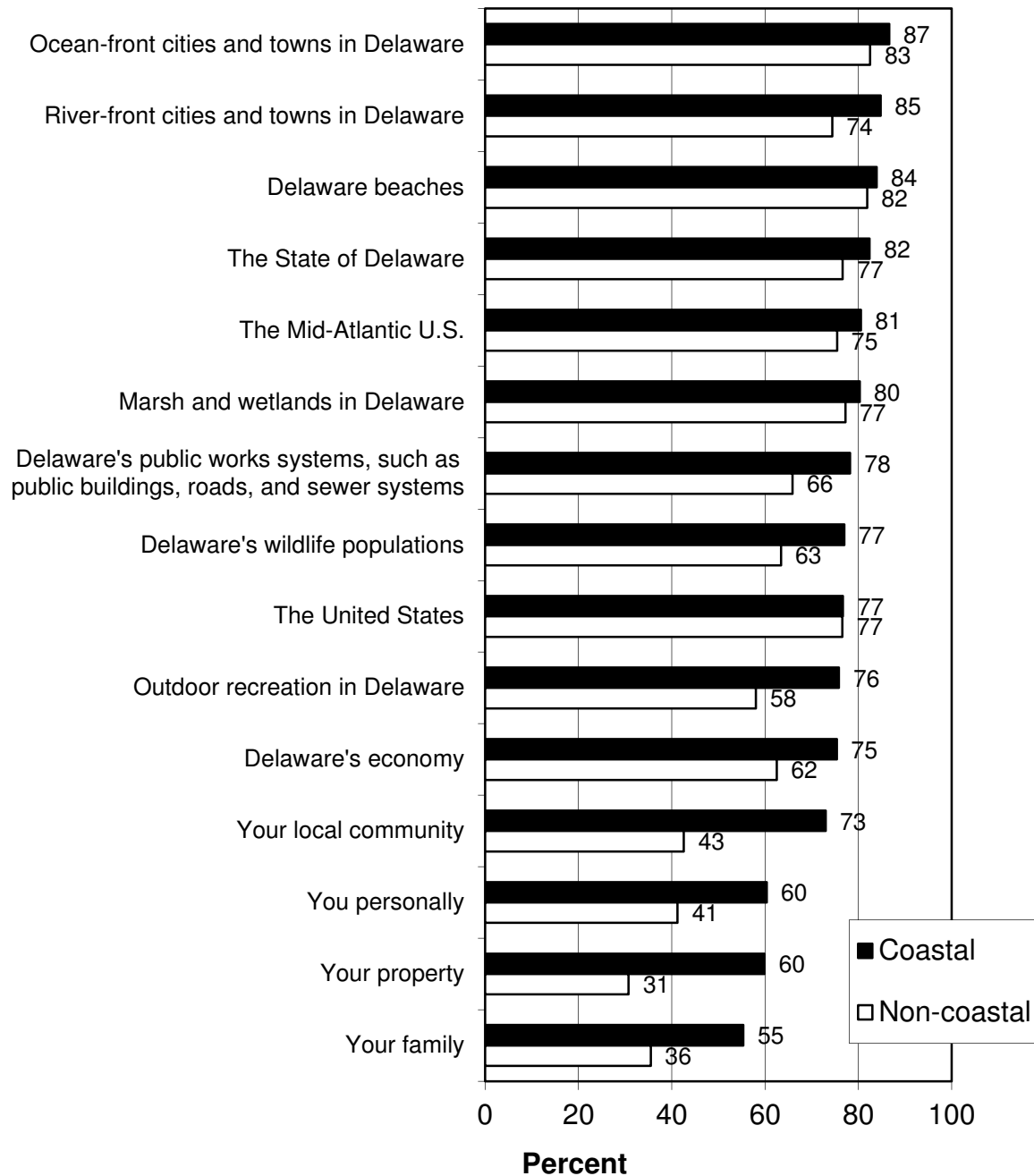
**Q62-Q76. Percent of respondents who think sea level rise is not at all a threat or not a very serious threat to each of the following.**



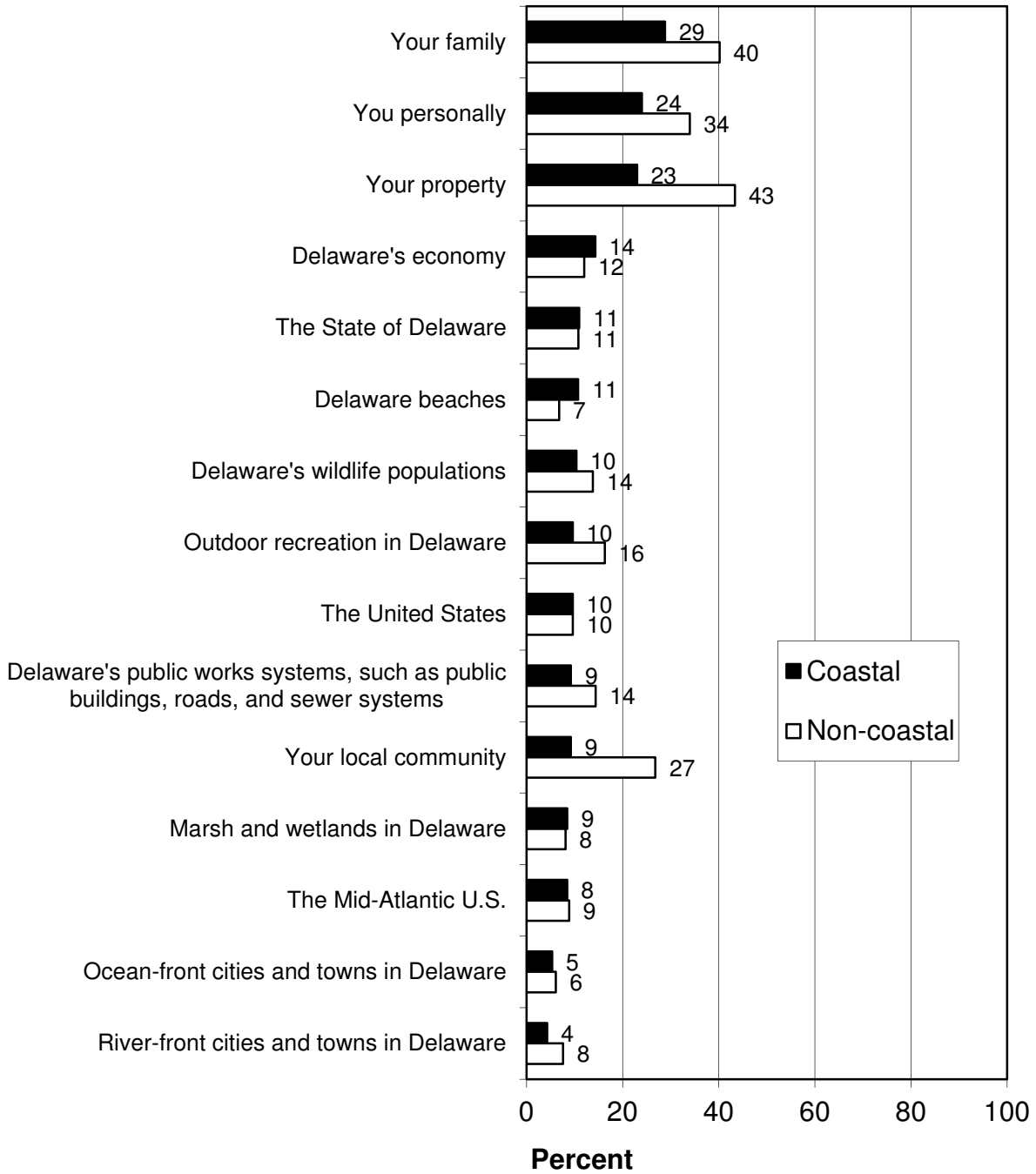
**Q62-Q76. Percent of respondents who think sea level rise is a very serious threat to each of the following.**



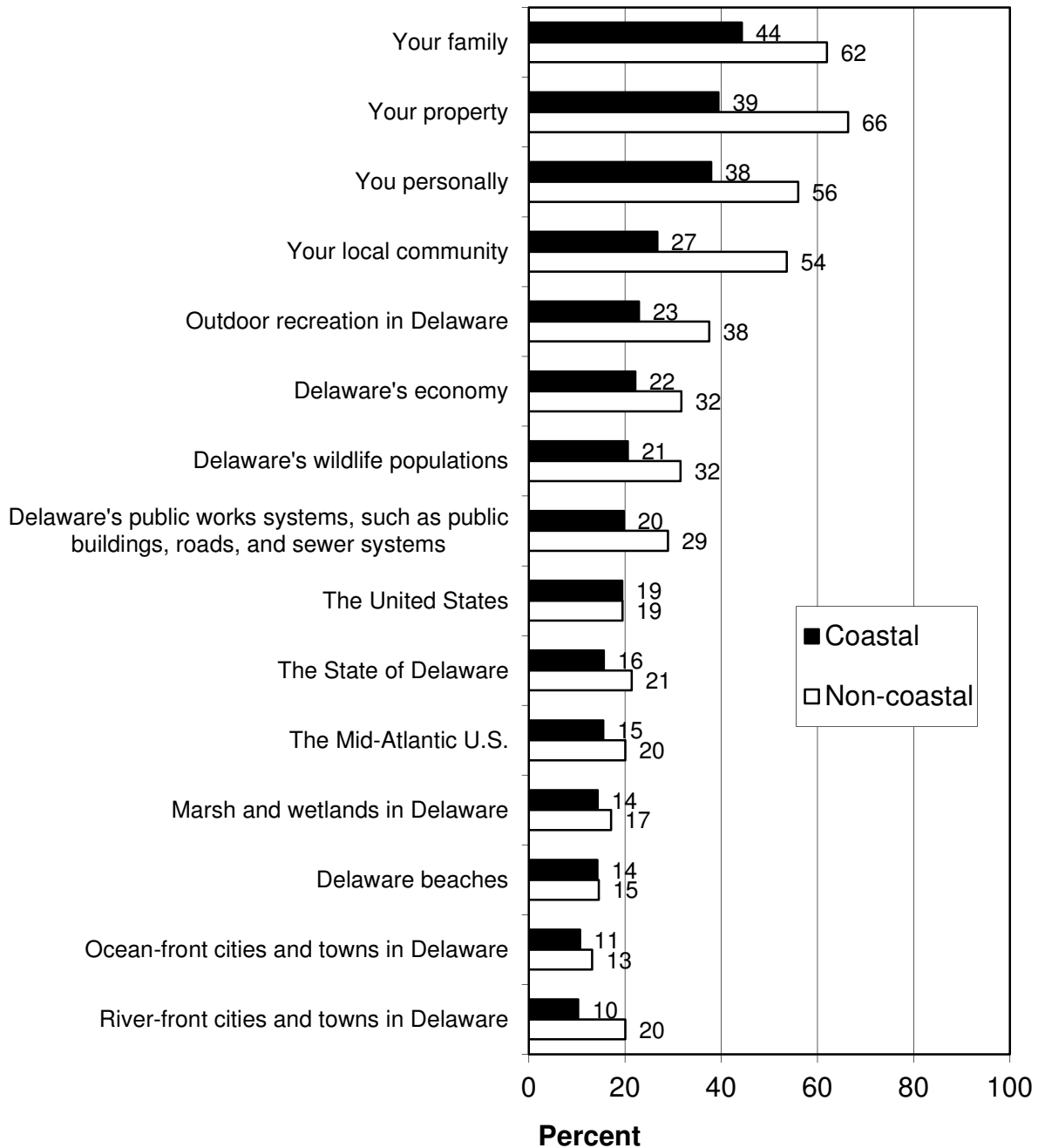
**Q62-Q76. Percent of respondents who think sea level rise is a very or somewhat serious threat to each of the following.**



**Q62-Q76. Percent of respondents who think sea level rise is not at all a threat to each of the following.**

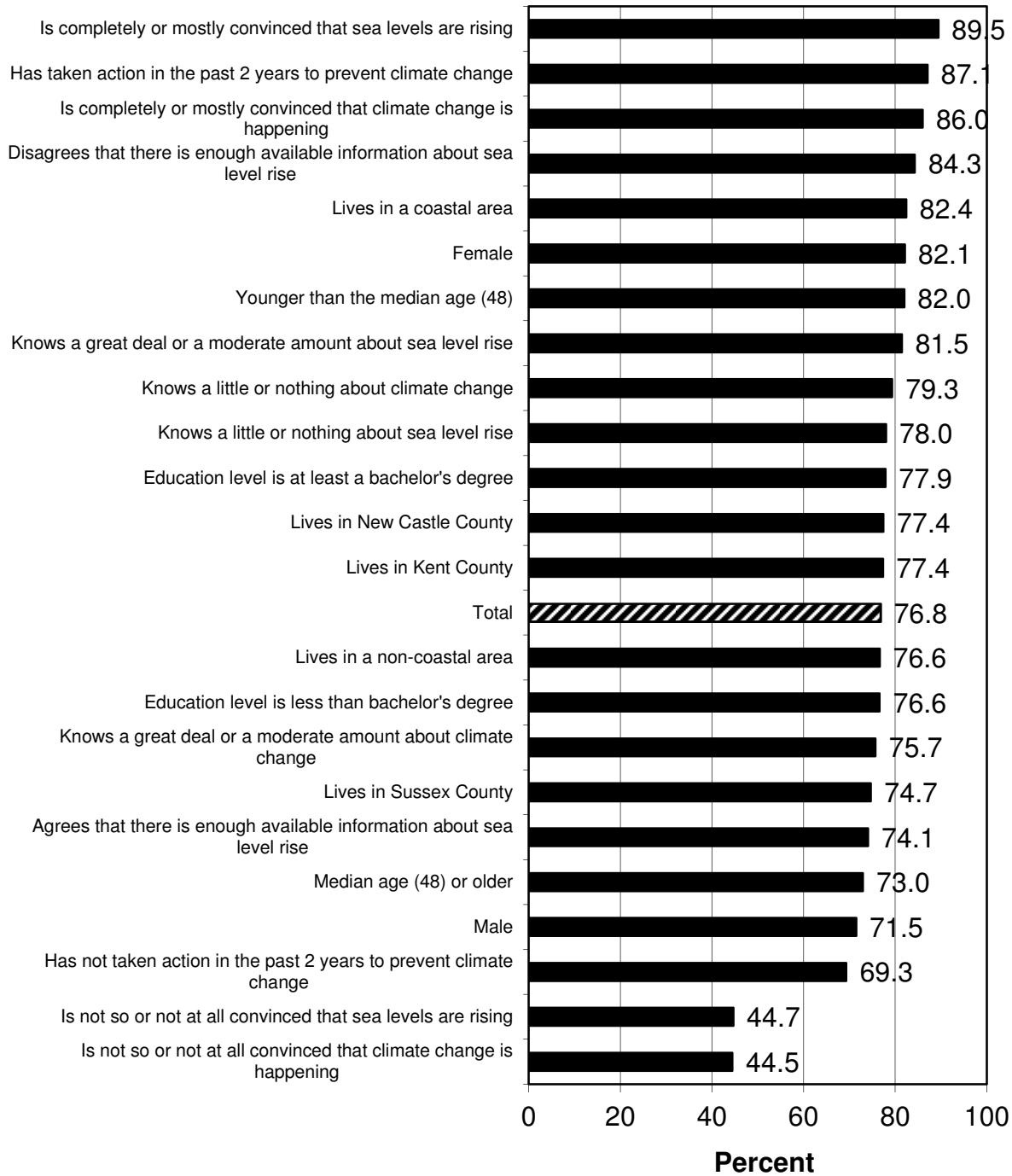


**Q62-Q76. Percent of respondents who think sea level rise is not at all a threat or not a very serious threat to each of the following.**



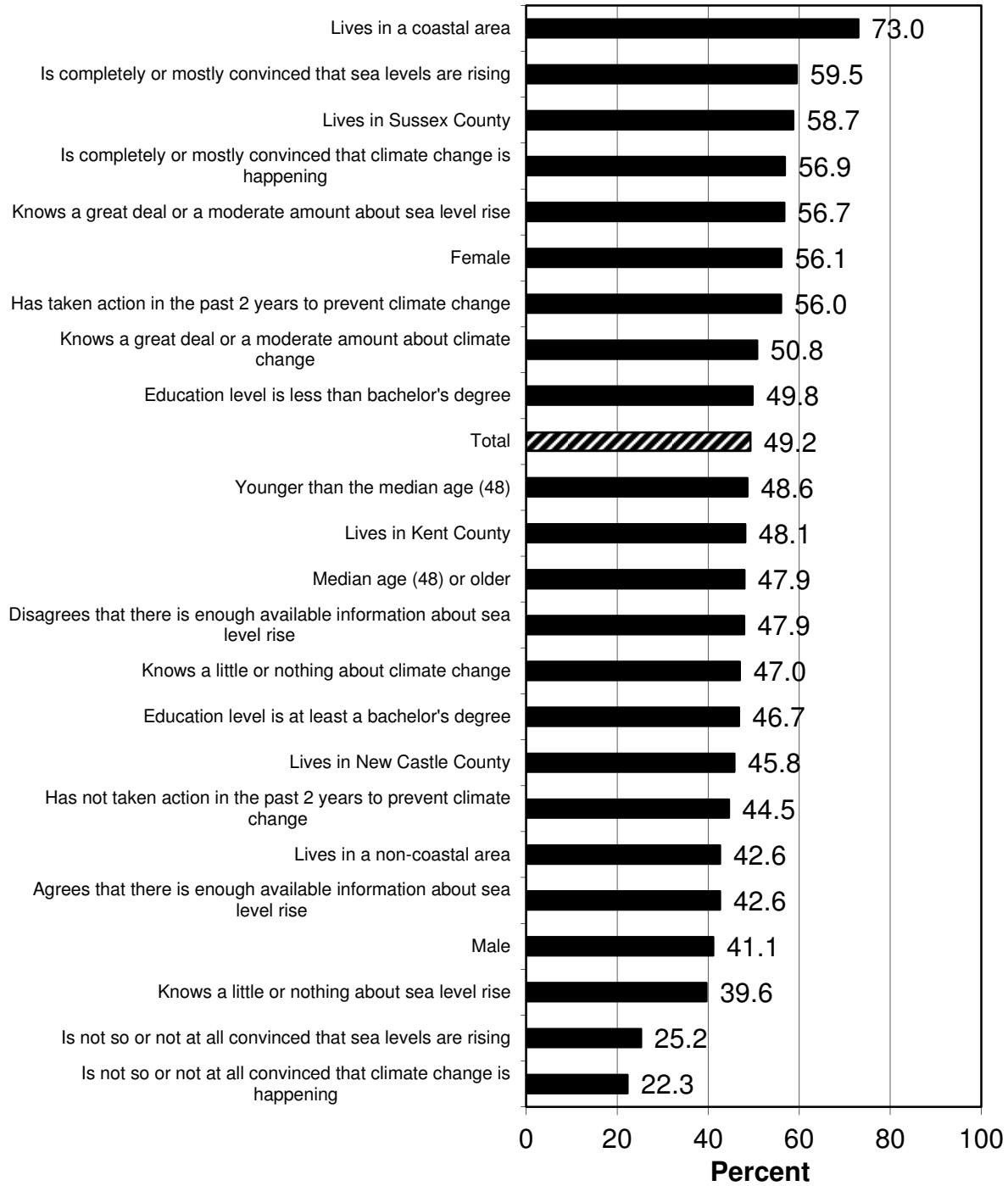


### Percent who think sea level rise is a very or somewhat serious threat to the state of Delaware:



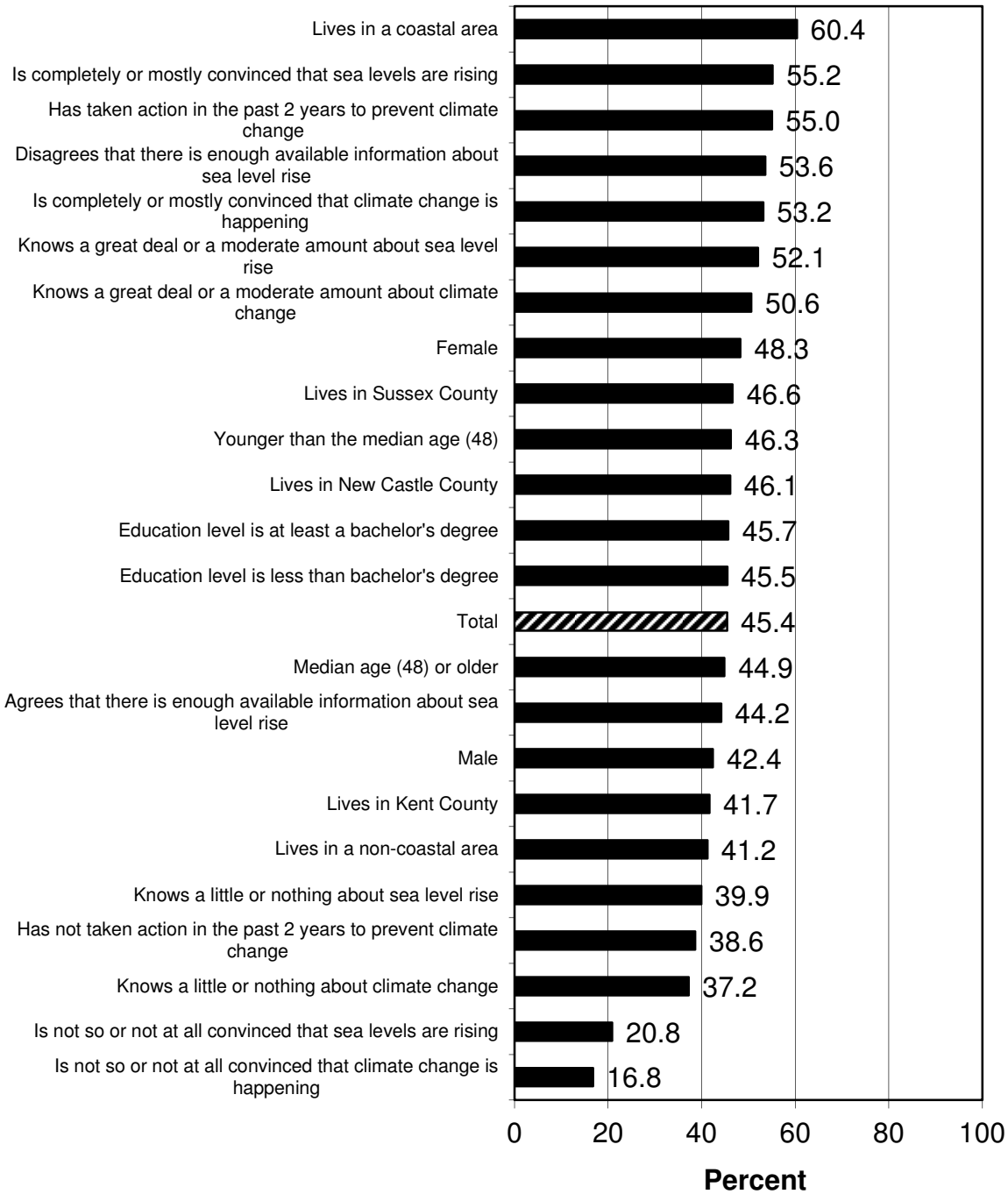
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to think that sea level rise is a very or somewhat serious threat to Delaware, relative to what residents as a whole think. Overall, 76.8% of Delaware residents think that sea level rise is a very or somewhat serious threat to Delaware (striped bar). Those groups more inclined to think this are above that bar (for instance, 82.1% of females think so); those groups less inclined to think so are below that bar (for instance, only 71.5% of males think so).

### Percent who think sea level rise is a (very or serious) threat to the local community:



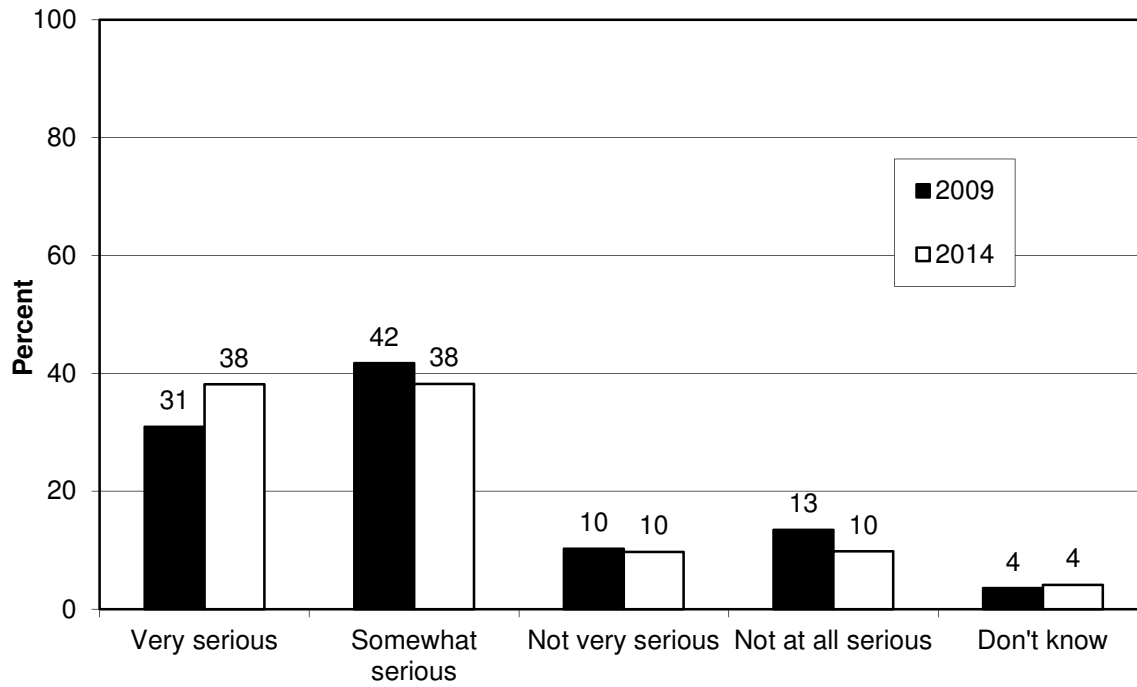
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to think that sea level rise is a very or somewhat serious threat to their local community, relative to what residents as a whole think. Overall, 49.2% of Delaware residents think that sea level rise is a very or somewhat serious threat to their local community (striped bar). Those groups more inclined to think this are above that bar (for instance, 73.0% of those who live in a coastal area think so); those groups less inclined to think so are below that bar (for instance, only 41.1% of males think so).

### Percent who think sea level rise is a (very or serious) threat to themselves:

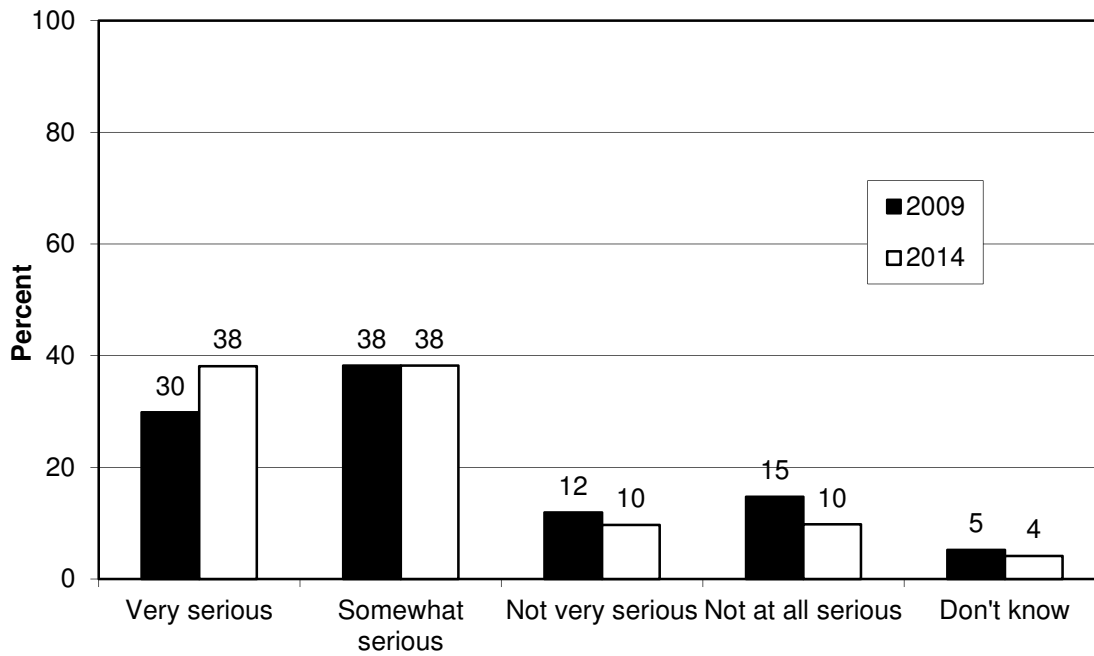


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to think that sea level rise is a very or somewhat serious threat to themselves, relative to what residents as a whole think. Overall, 45.4% of Delaware residents think that sea level rise is a very or somewhat serious threat to themselves (striped bar). Those groups more inclined to think this are above that bar (for instance, 48.3% of females think so); those groups less inclined to think so are below that bar (for instance, only 42.4% of males think so).

### Q62. How serious a threat do you think sea level rise is to the United States?

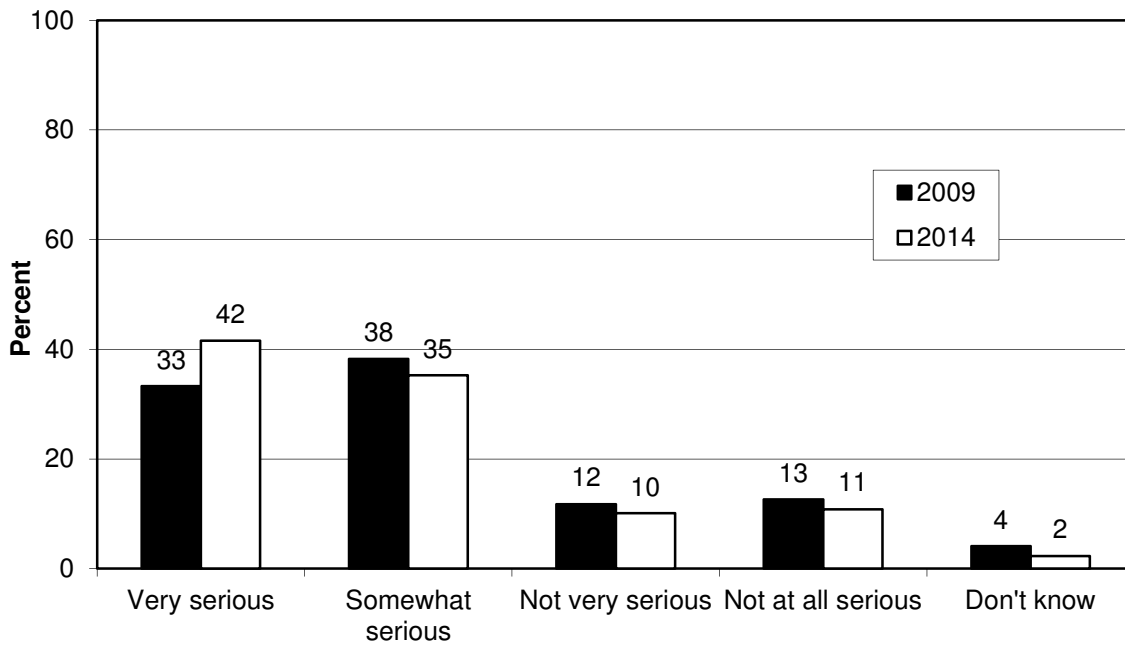


**Q63. How serious a threat do you think sea level rise is to the Mid-Atlantic U.S.?**

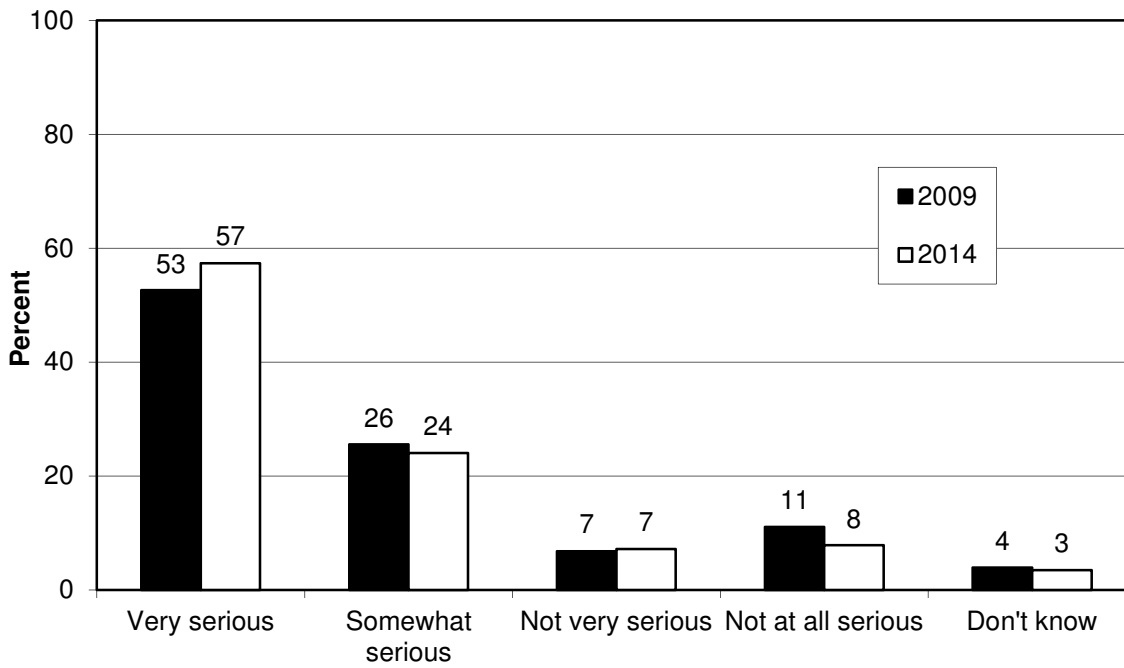




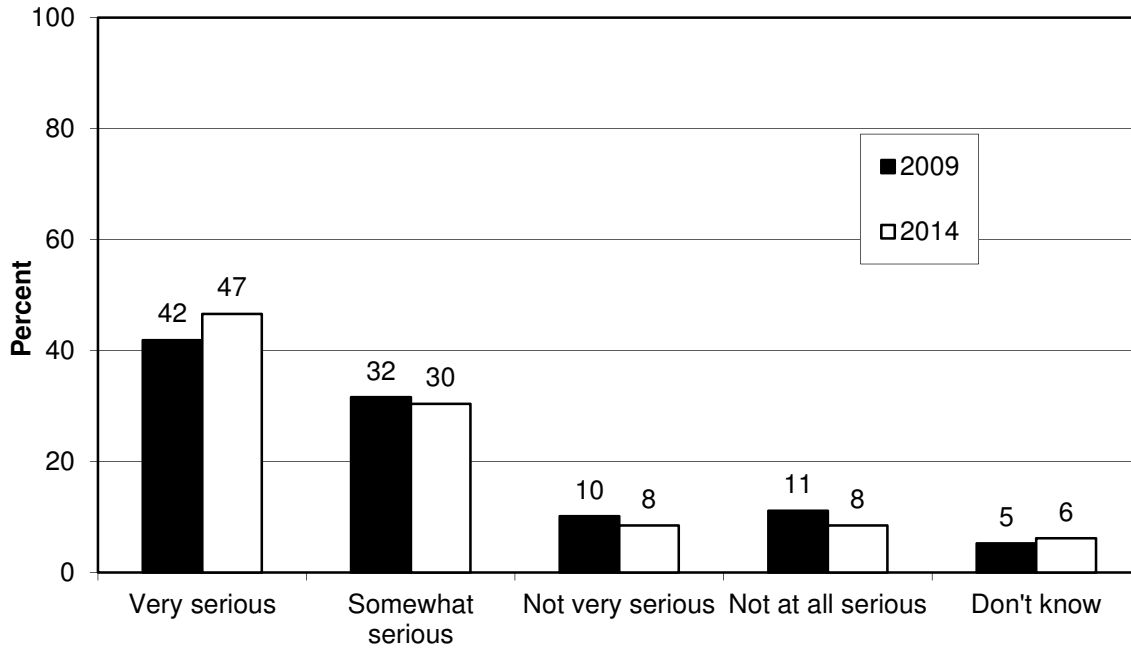
**Q64. How serious a threat do you think sea level rise is to the State of Delaware?**



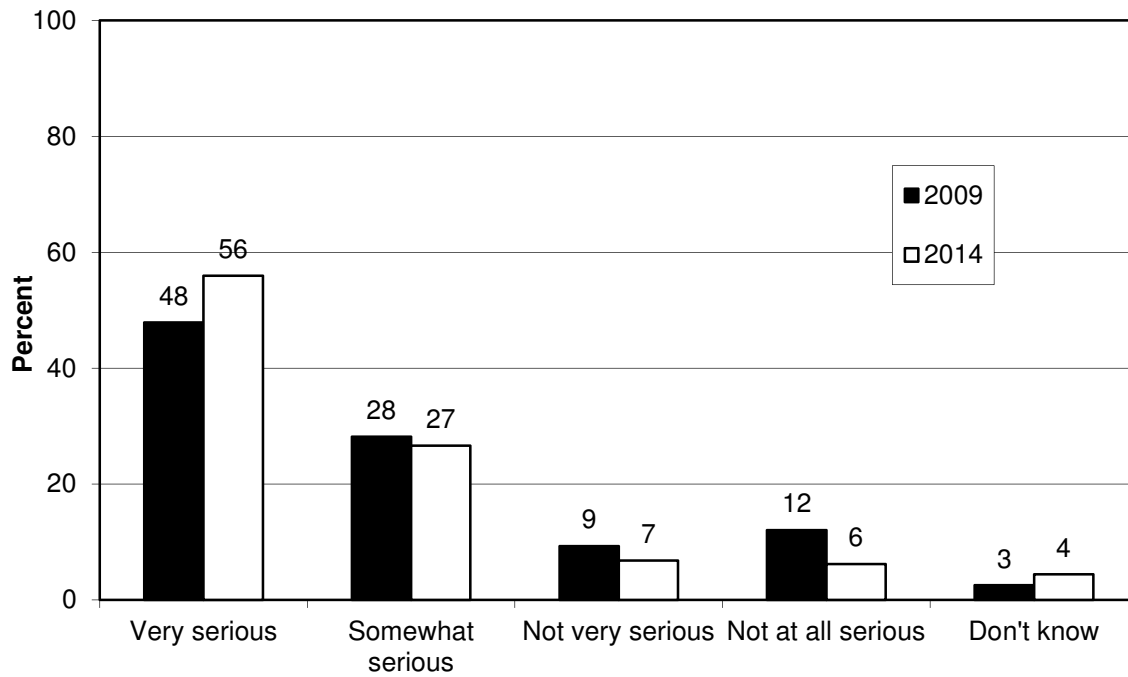
**Q65. How serious a threat do you think sea level rise is to Delaware beaches?**



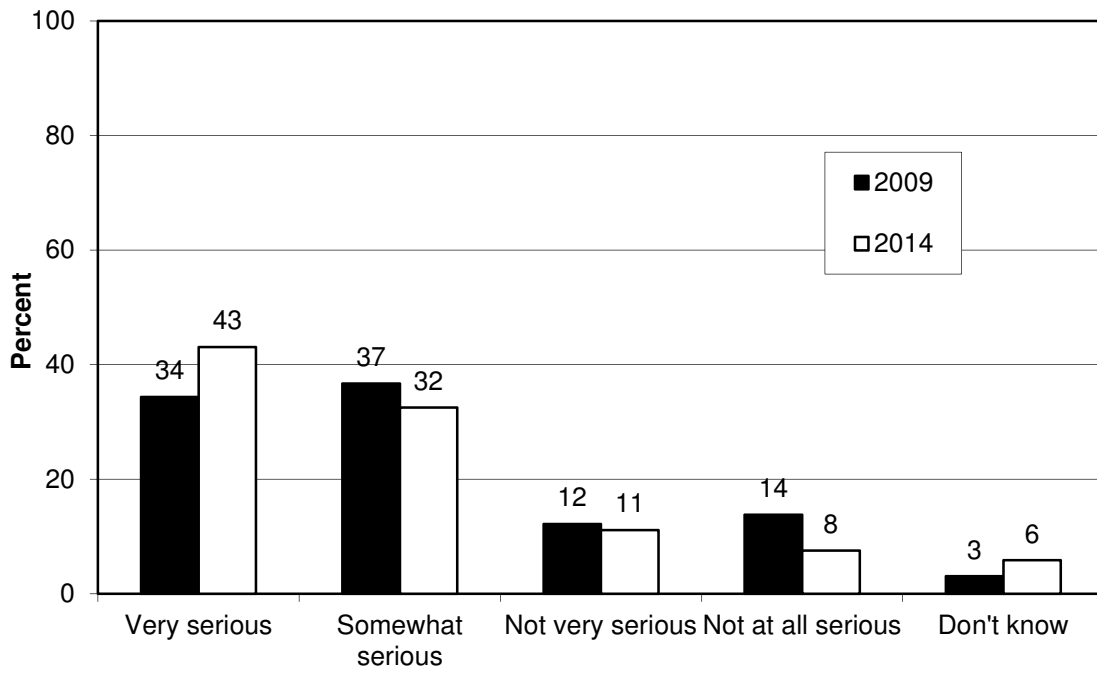
**Q66. How serious a threat do you think sea level rise is to marsh and wetlands in Delaware?**



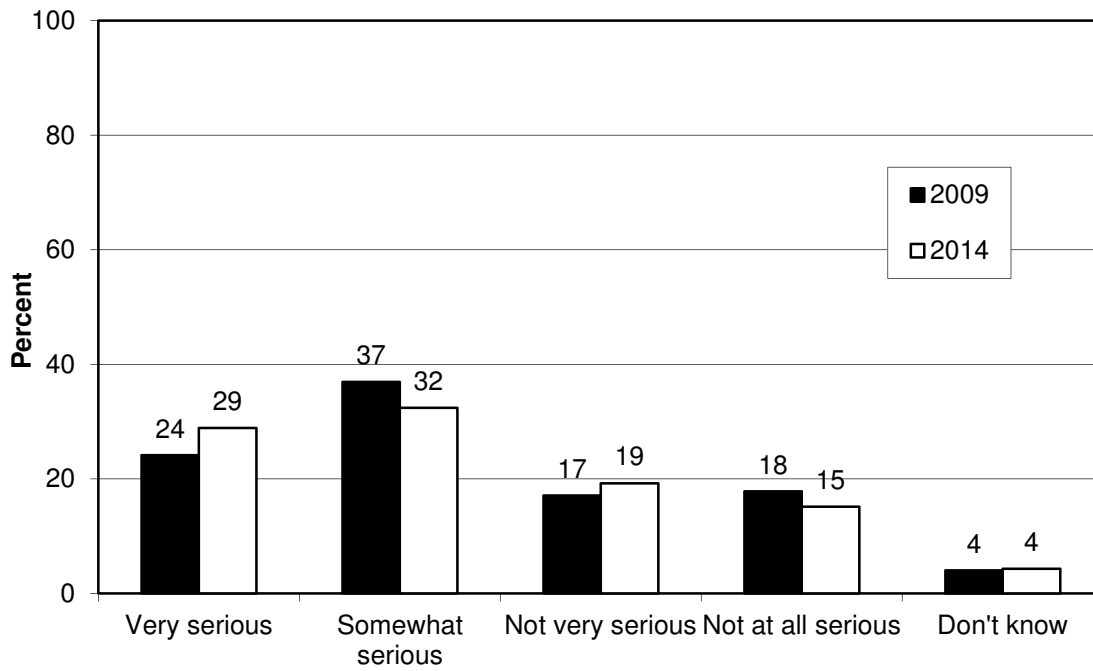
**Q67. How serious a threat do you think sea level rise is to ocean-front cities and towns in Delaware?**



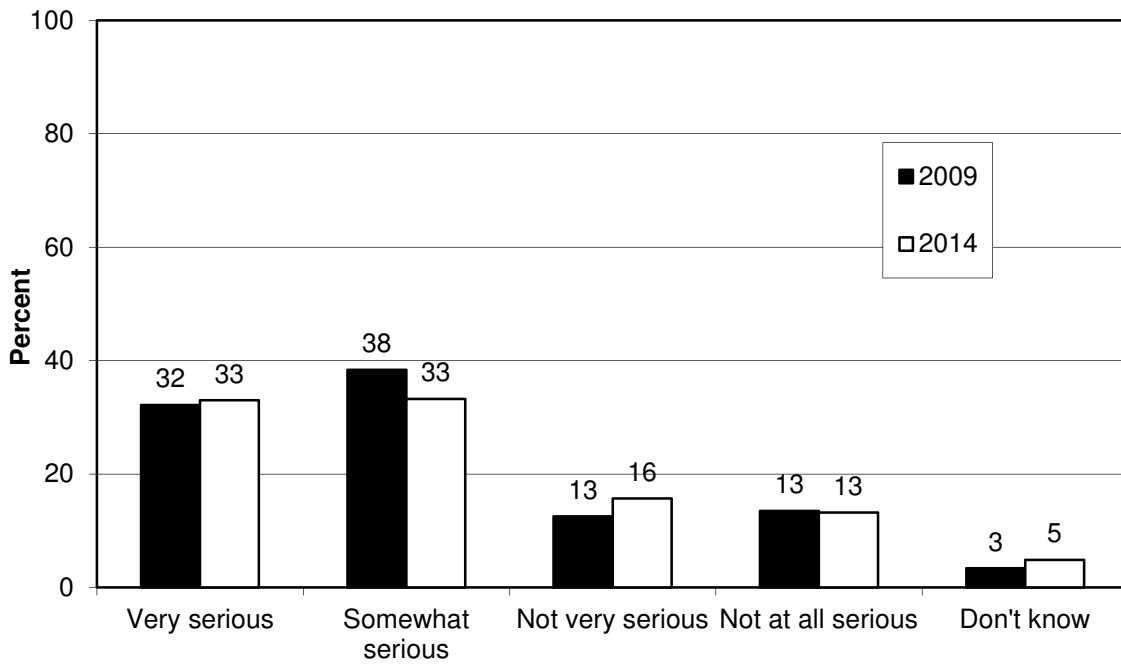
**Q68. How serious a threat do you think sea level rise is to river-front cities and towns in Delaware?**



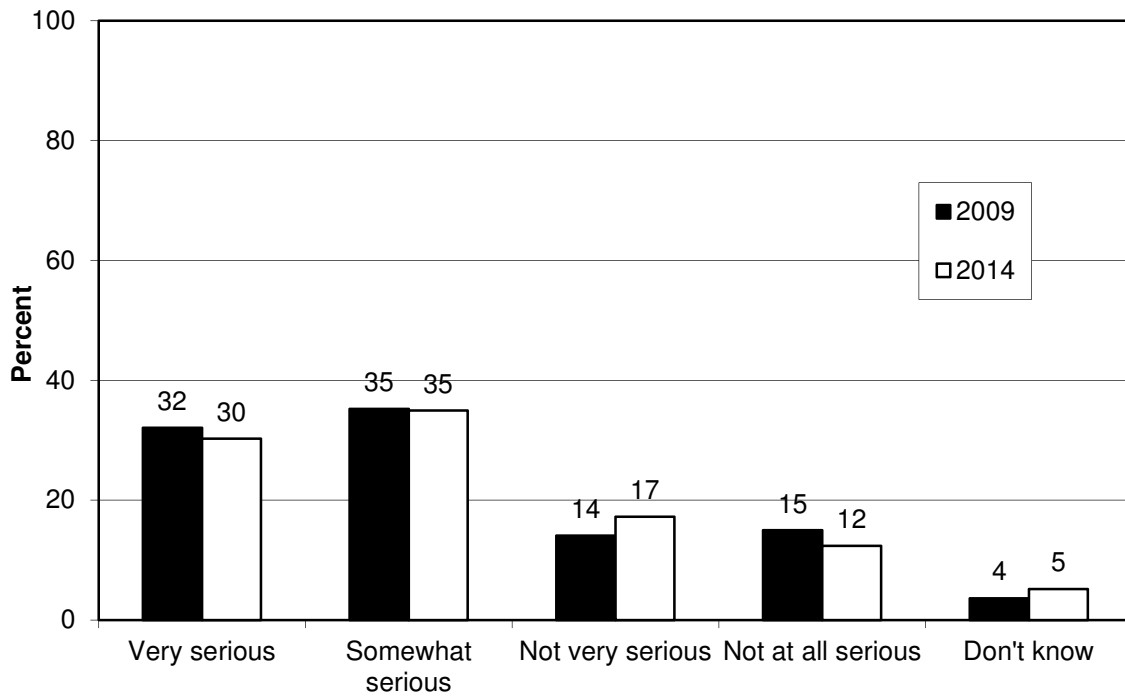
**Q69. How serious a threat do you think sea level rise is to outdoor recreation in Delaware?**



### Q70. How serious a threat do you think sea level rise is to Delaware's wildlife populations?

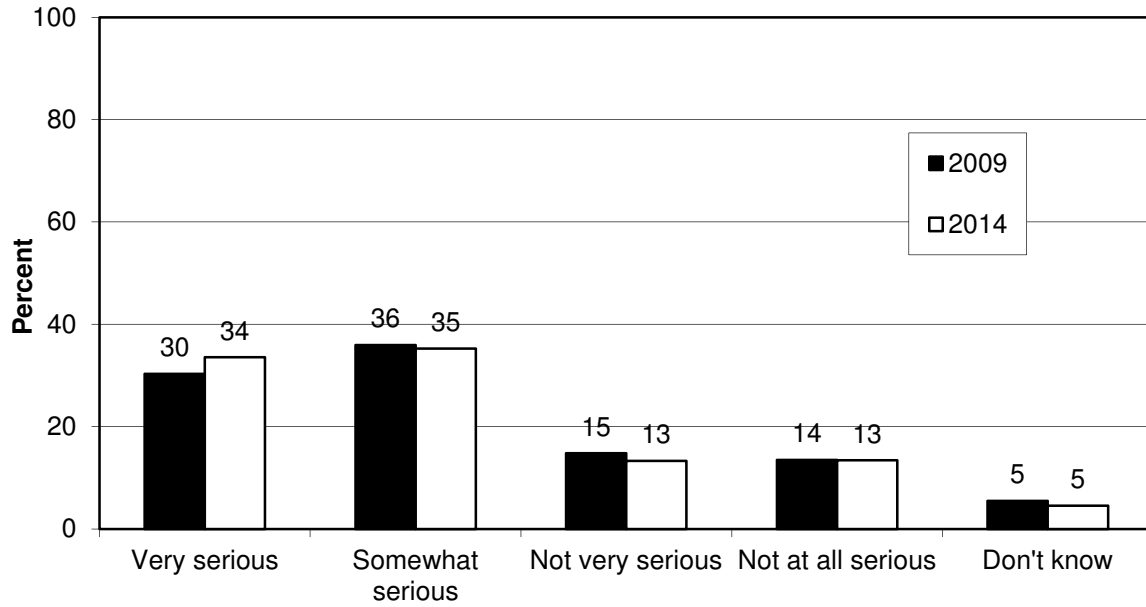


**Q71. How serious a threat do you think sea level rise is to Delaware's economy?**

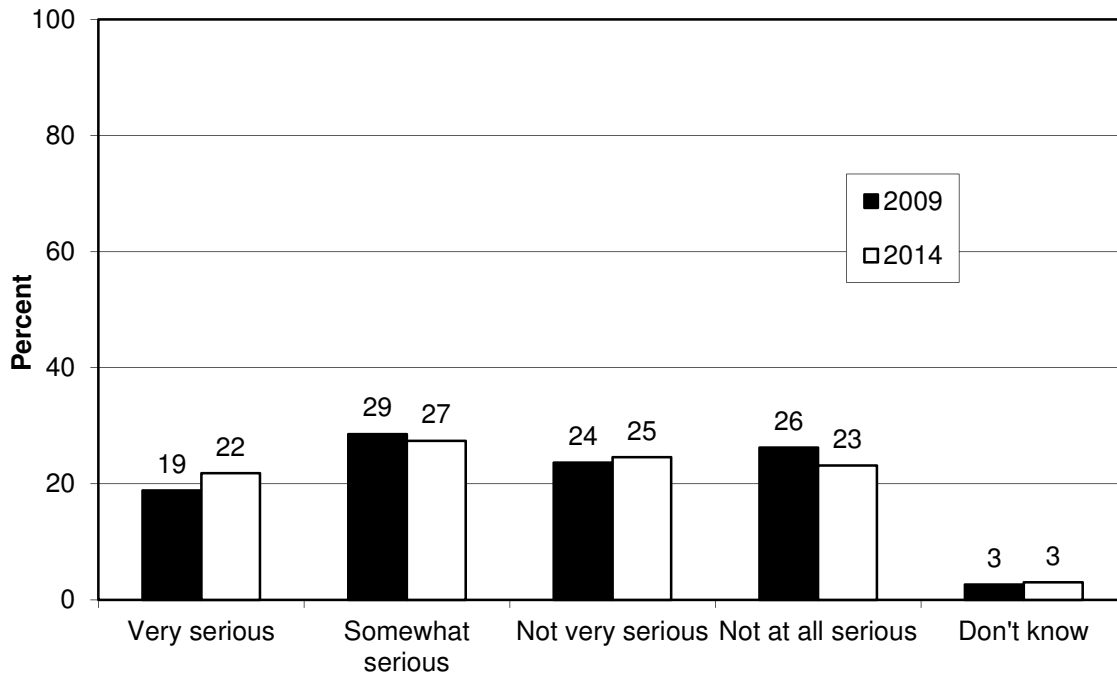




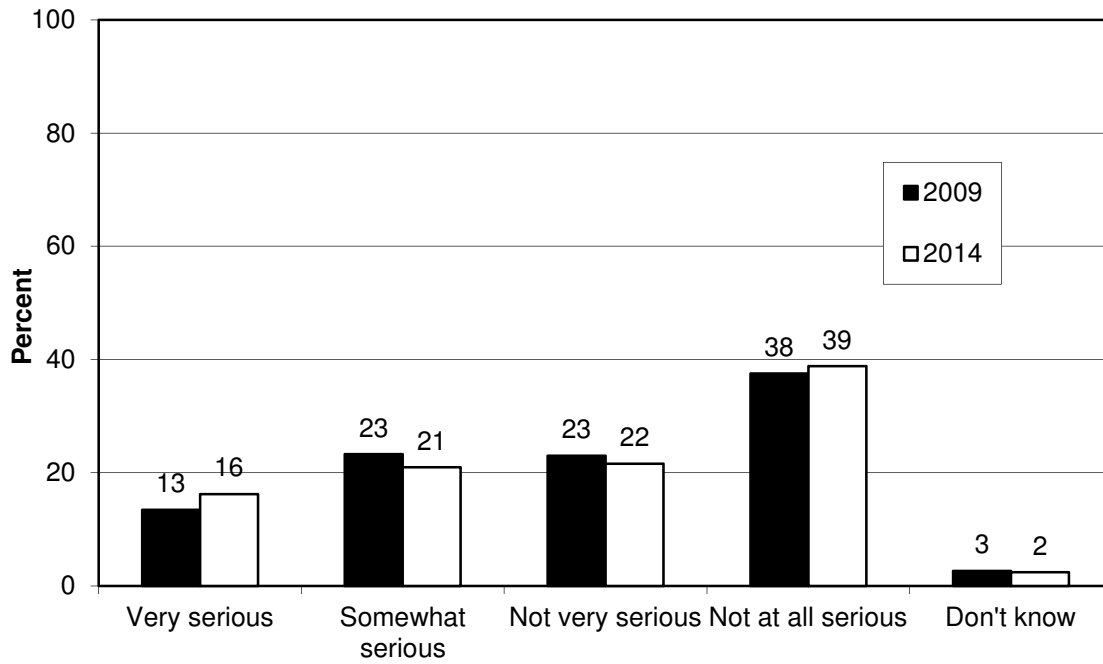
**Q72. How serious a threat do you think sea level rise is to Delaware's public works systems, such as public buildings, roads, and sewer systems?**



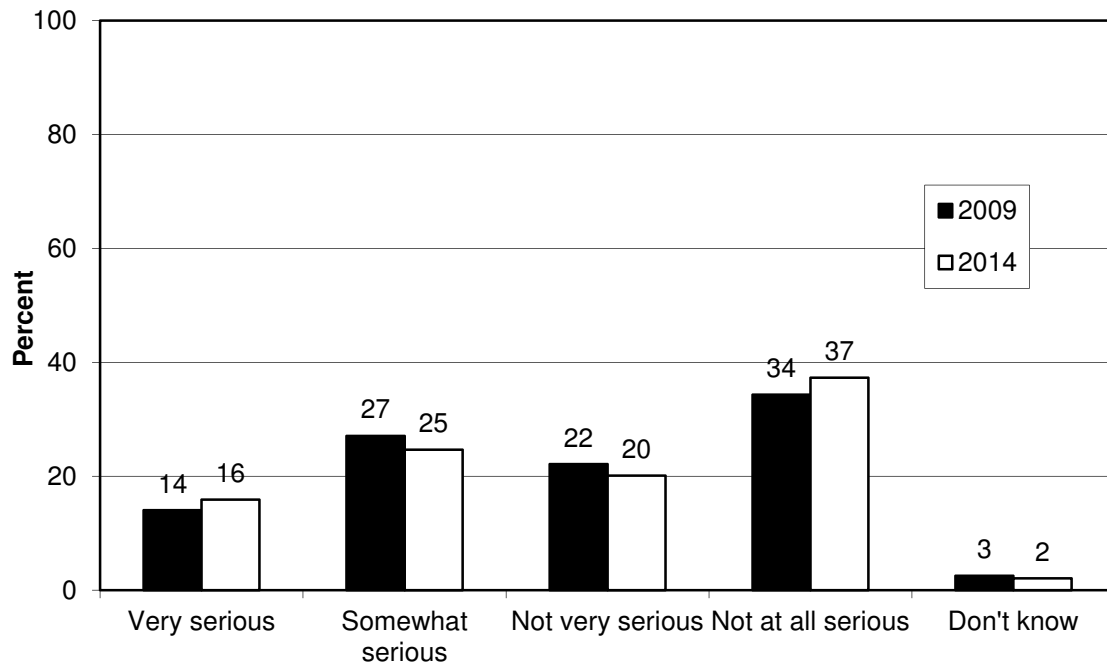
**Q73. How serious a threat do you think sea level rise is to your local community?**



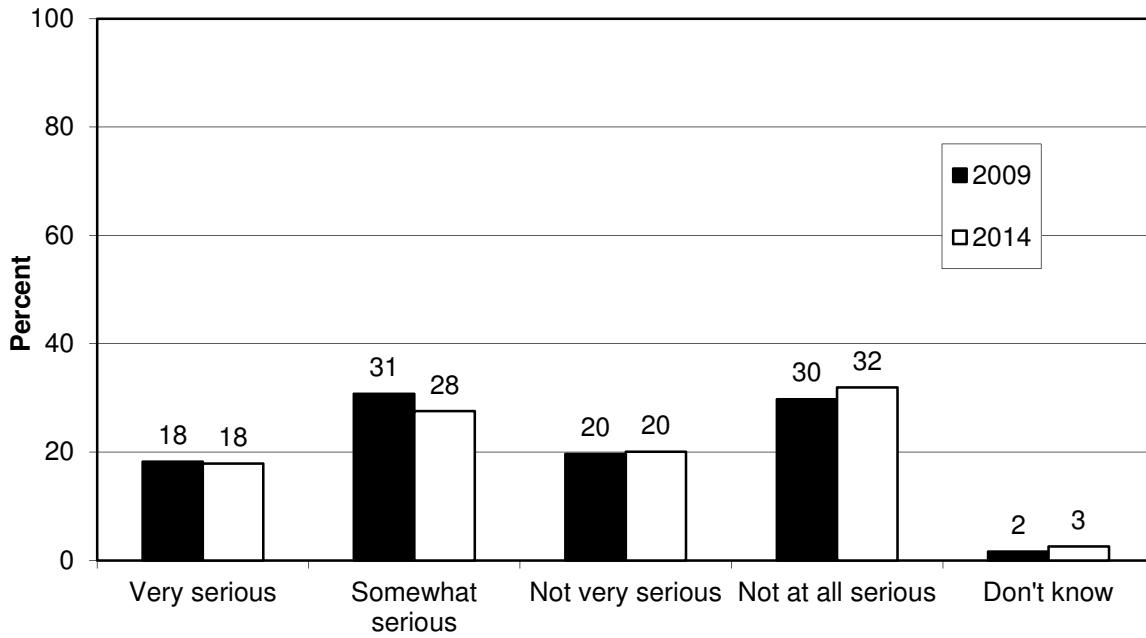
**Q74. How serious a threat do you think sea level rise is to your property?**



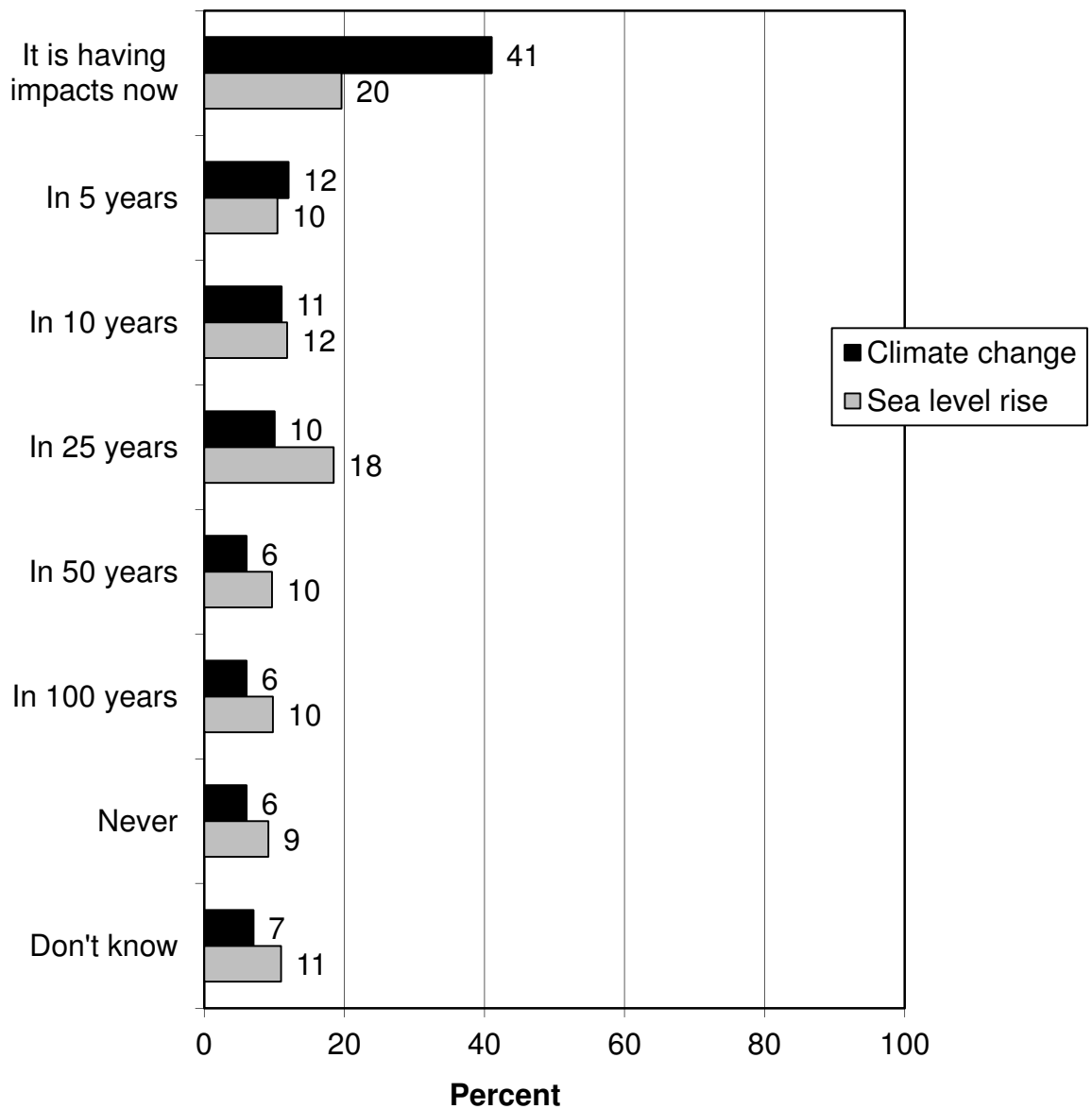
**Q75. How serious a threat do you think sea level rise is to your family?**



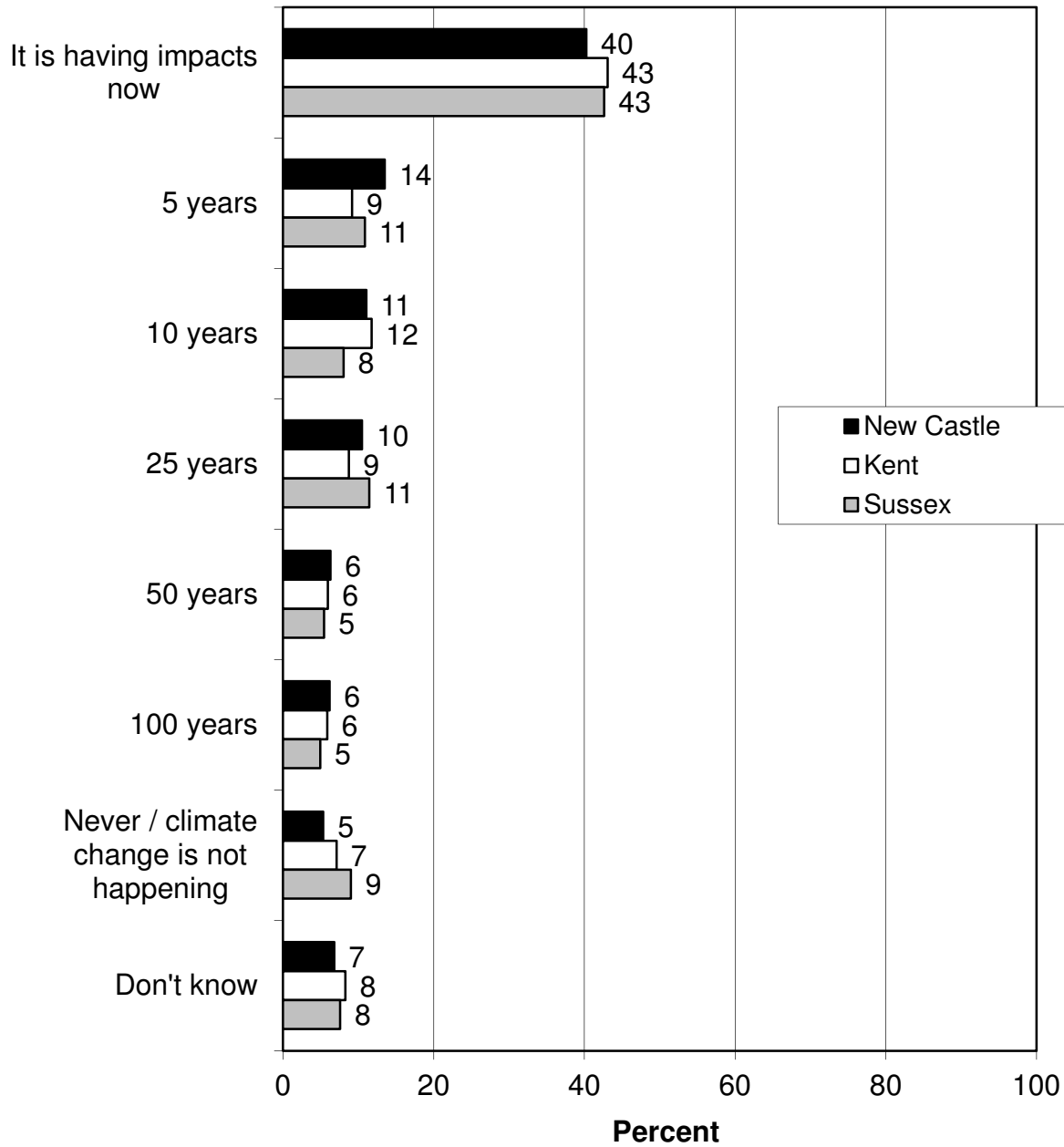
**Q76. How serious a threat do you think sea level rise is to you personally?**



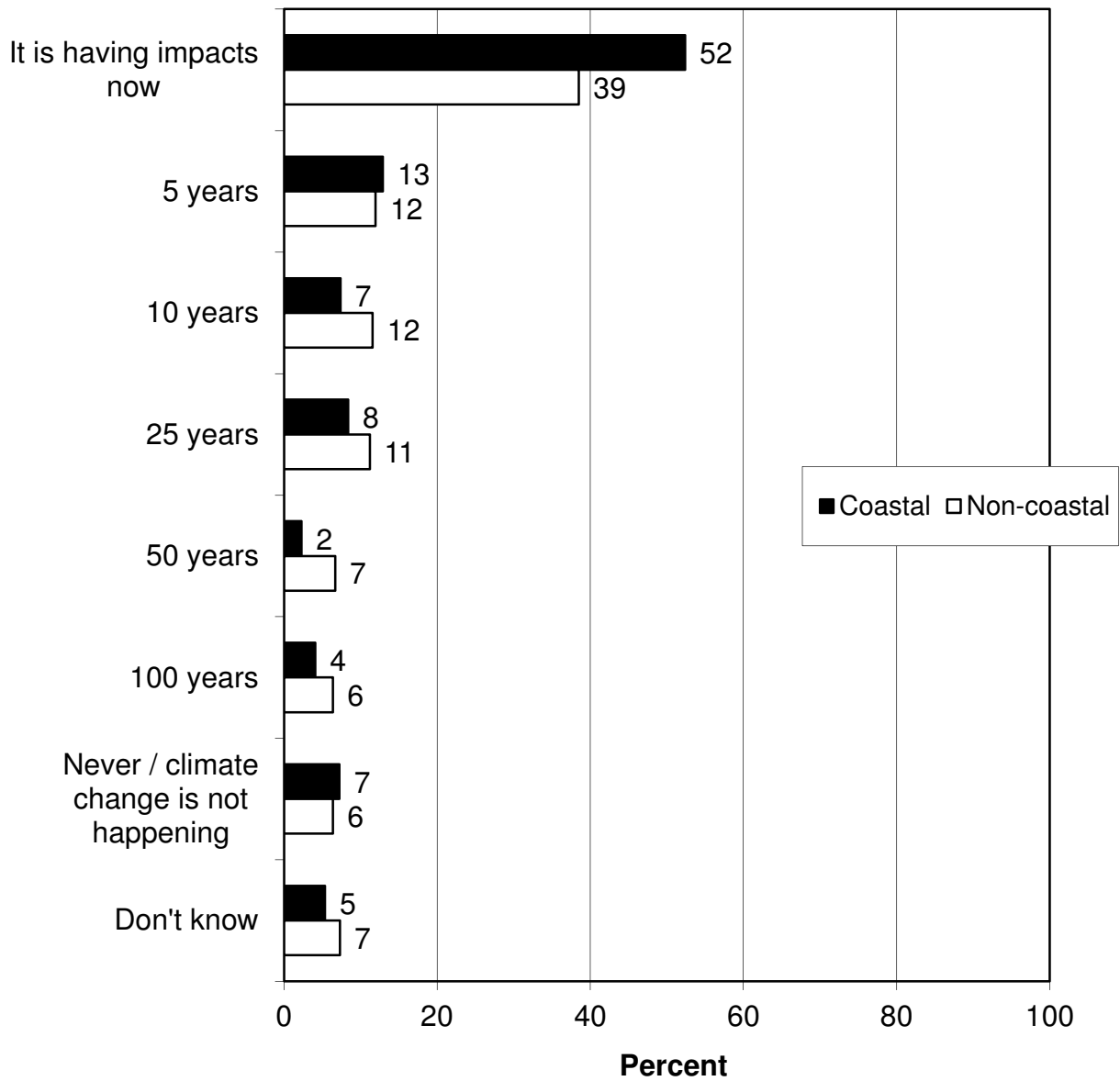
**Q54/Q79. When do you think [climate change / sea level rise] will start to have impacts on the area where you live in Delaware? Is it having impacts now, will it have impacts in 5 years, 10 years, in 25 years, in 50 years, in 100 years, or will it never have impacts?**



**Q54. When do you think climate change will start to have impacts on the area in which you live in Delaware? Is it having impacts now, or will it start to have impacts in 5 years? 10 years? 25 years? 50 years? 100 years? Or never because climate change is not happening?**

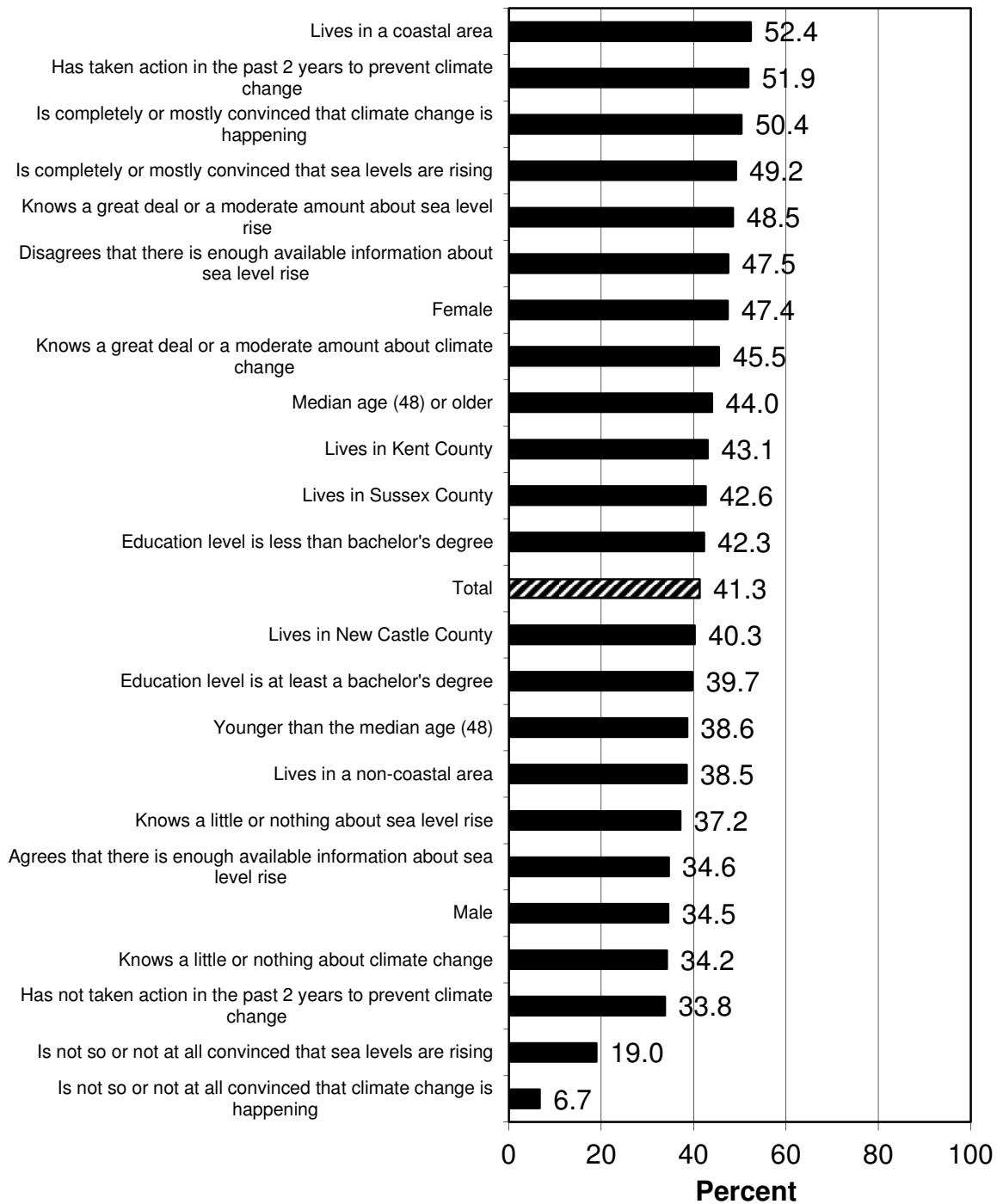


**Q54. When do you think climate change will start to have impacts on the area in which you live in Delaware? Is it having impacts now, or will it start to have impacts in 5 years? 10 years? 25 years? 50 years? 100 years? Or never because climate change is not happening?**



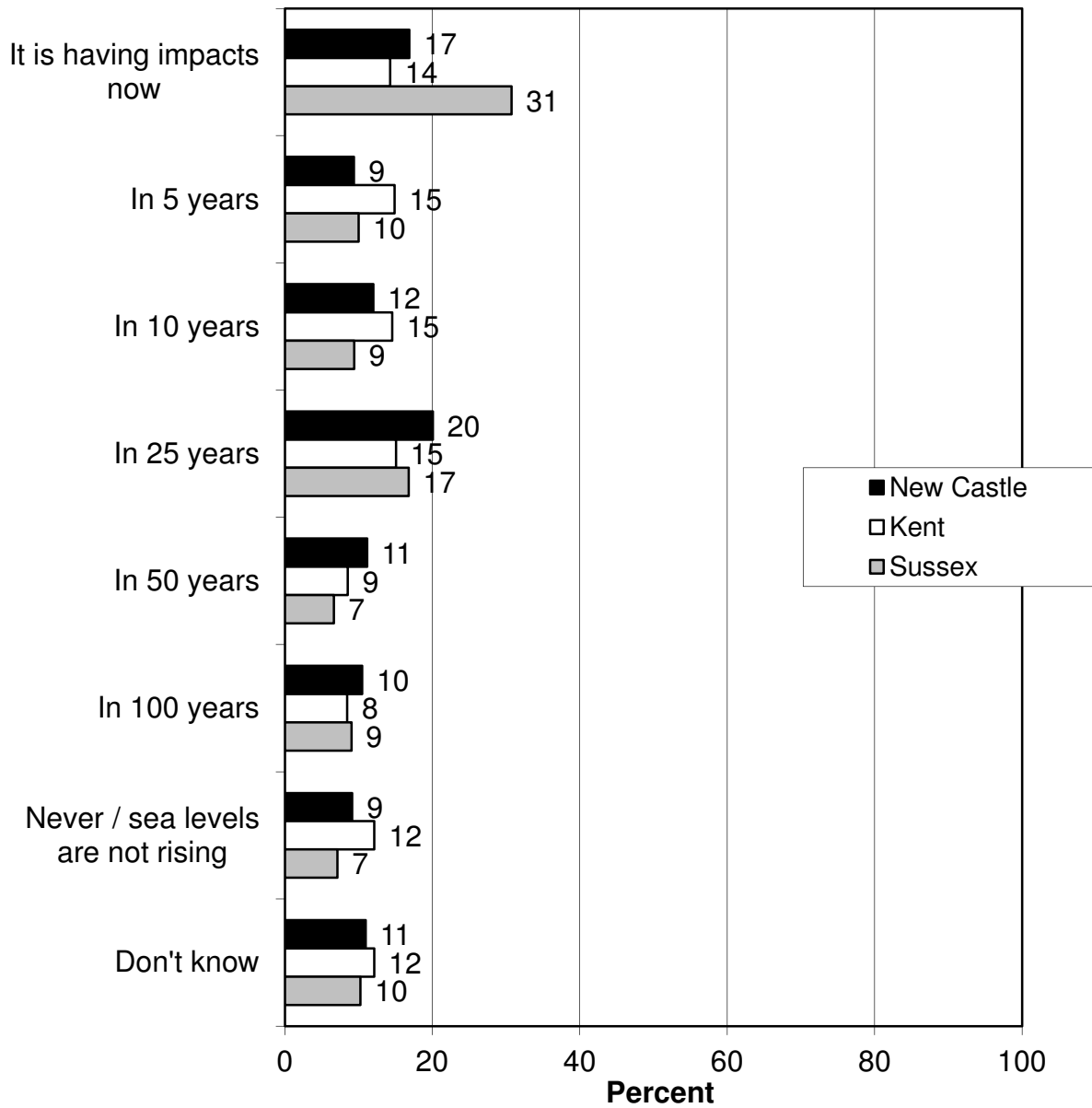


## Percent who think climate change is having impacts now:

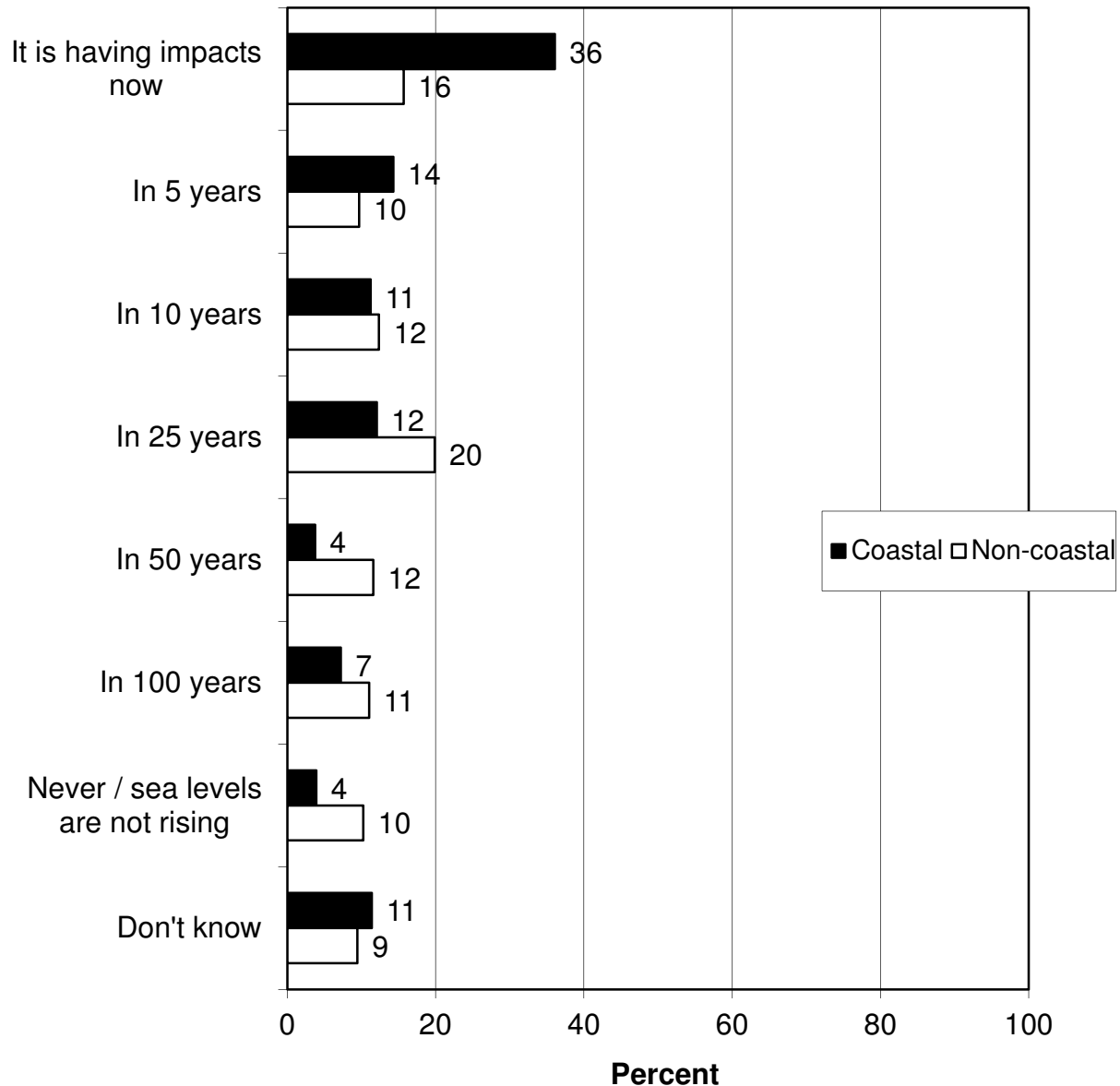


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to think that climate change is having impacts now, relative to residents as a whole. Overall, 41.3% of Delaware residents think that climate change is having impacts now (striped bar). Those groups more inclined to think so are above that bar (for instance, 52.4% of those who live in a coastal area think climate change is having impacts now); those groups less inclined to think so are below that bar (for instance, only 34.5% of males think so).

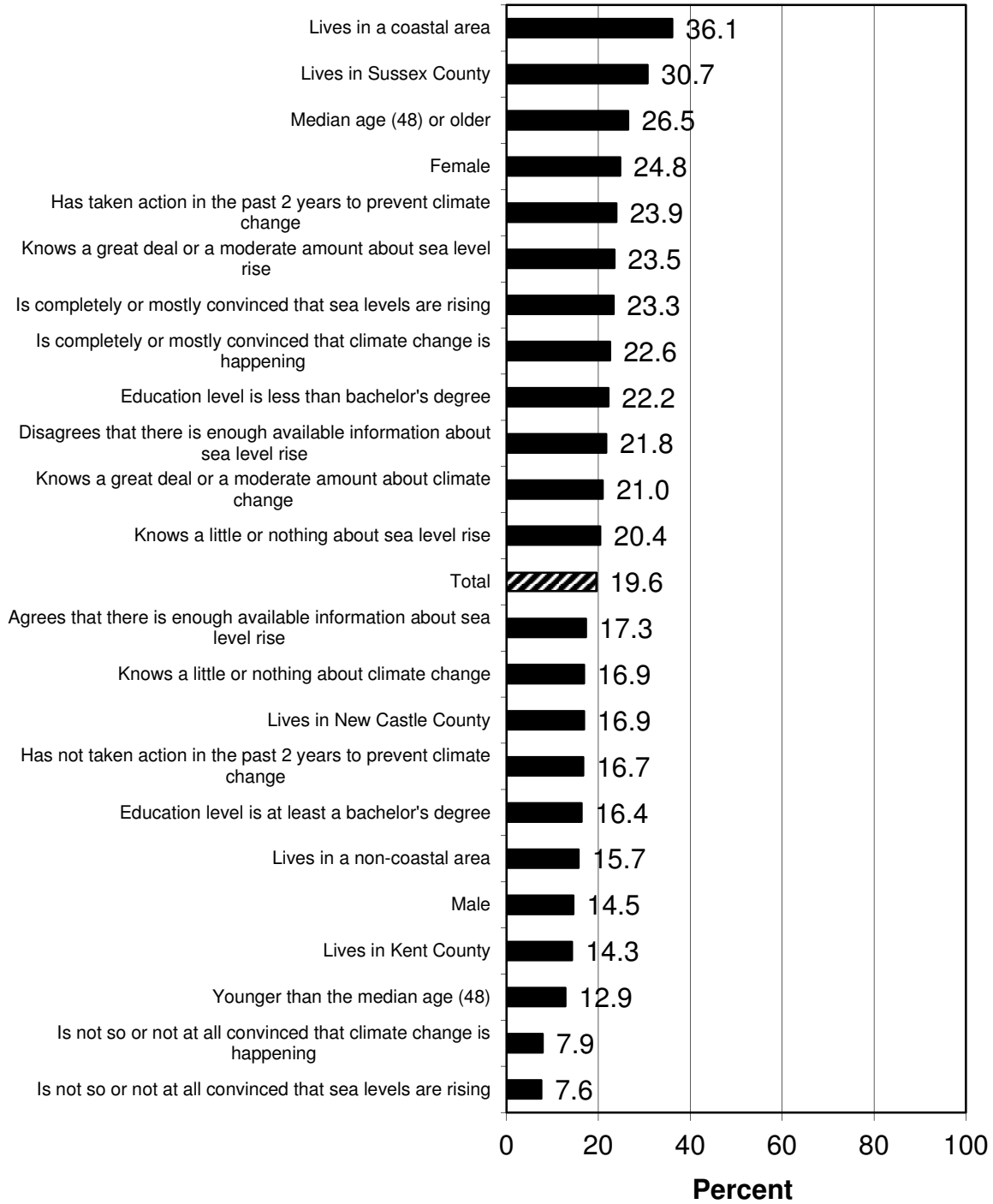
**Q79. When do you think sea level rise will start to have impacts on the area where you live in Delaware? Is it having impacts now, will it have impacts in 5 years, 10 years, in 25 years, in 50 years, in 100 years, or will it never have impacts?**



**Q79. When do you think sea level rise will start to have impacts on the area where you live in Delaware? Is it having impacts now, will it have impacts in 5 years, 10 years, in 25 years, in 50 years, in 100 years, or will it never have impacts?**

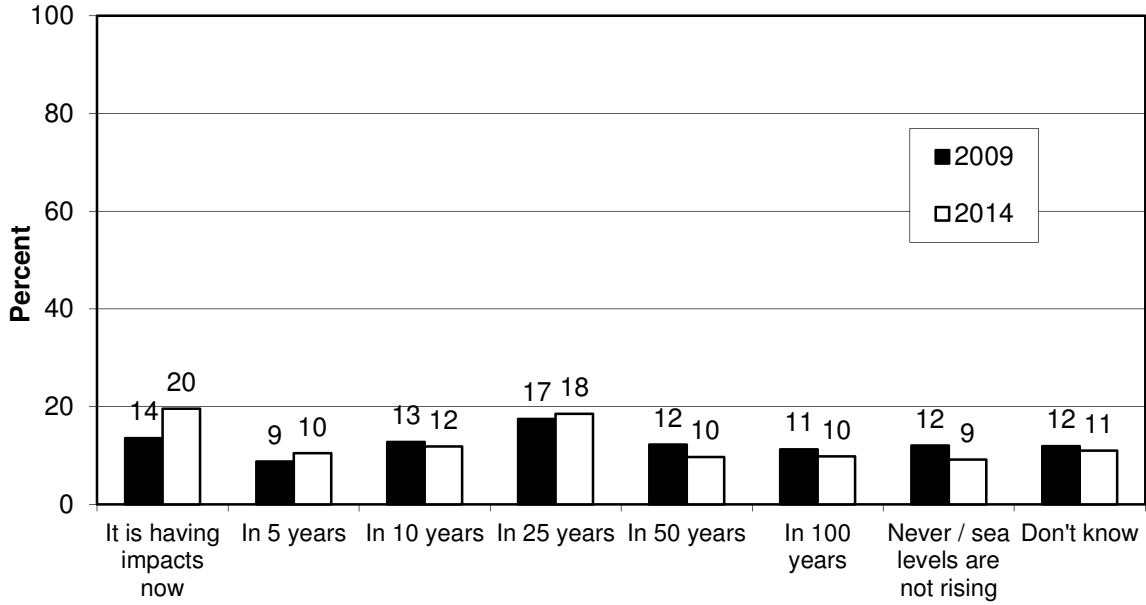


### Percent who think sea level rise is having impacts now:

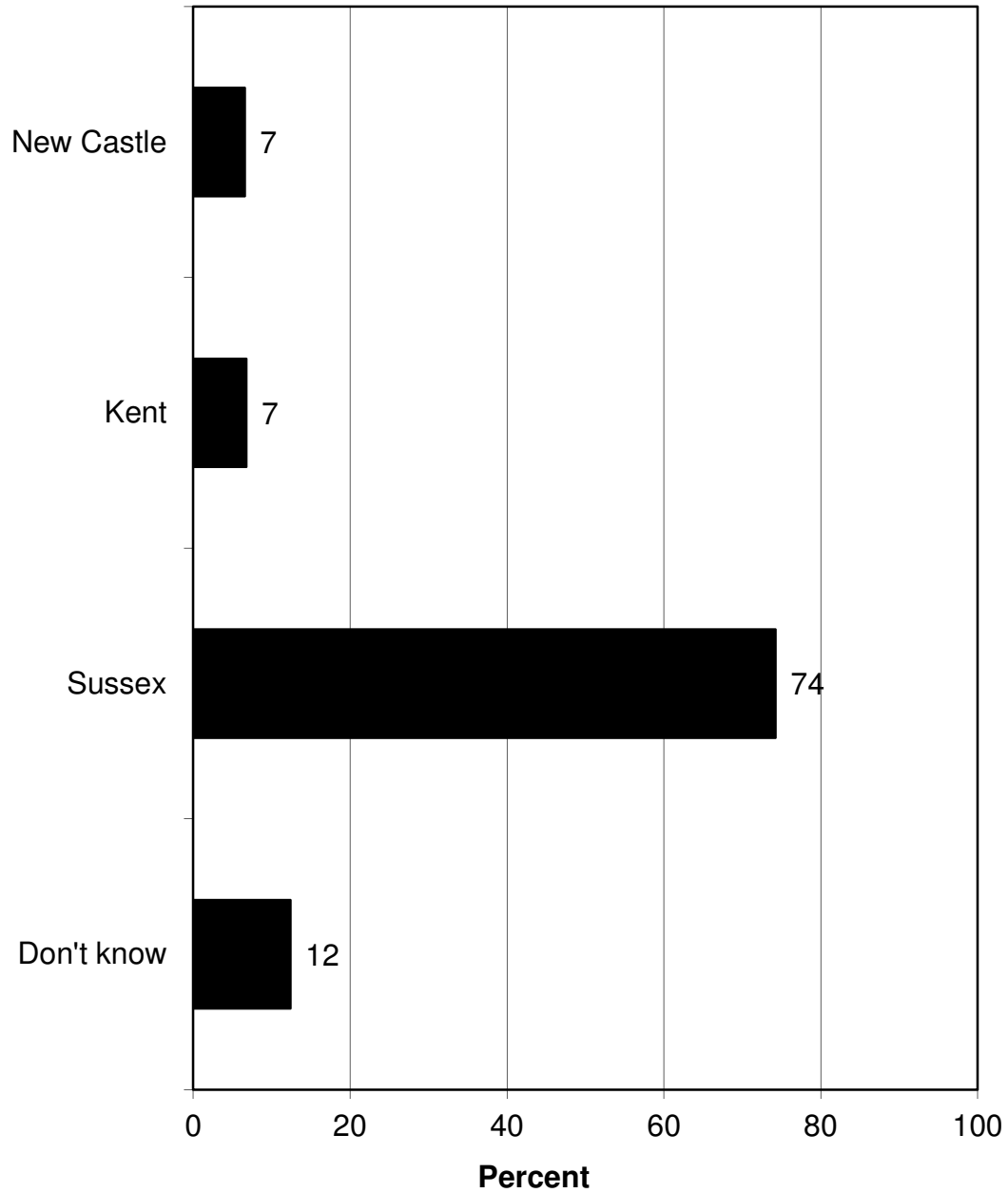


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to think that sea level rise is having impacts now, relative to residents as a whole. Overall, 19.6% of Delaware residents think that sea level rise is having impacts now (striped bar). Those groups more inclined to think so are above that bar (for instance, 36.1% of those who live in a coastal area think that sea level rise is having impacts now); those groups less inclined to think so are below that bar (for instance, only 14.5% of males think so).

**Q79. When do you think sea level rise will start to have impacts on the area where you live in Delaware?**

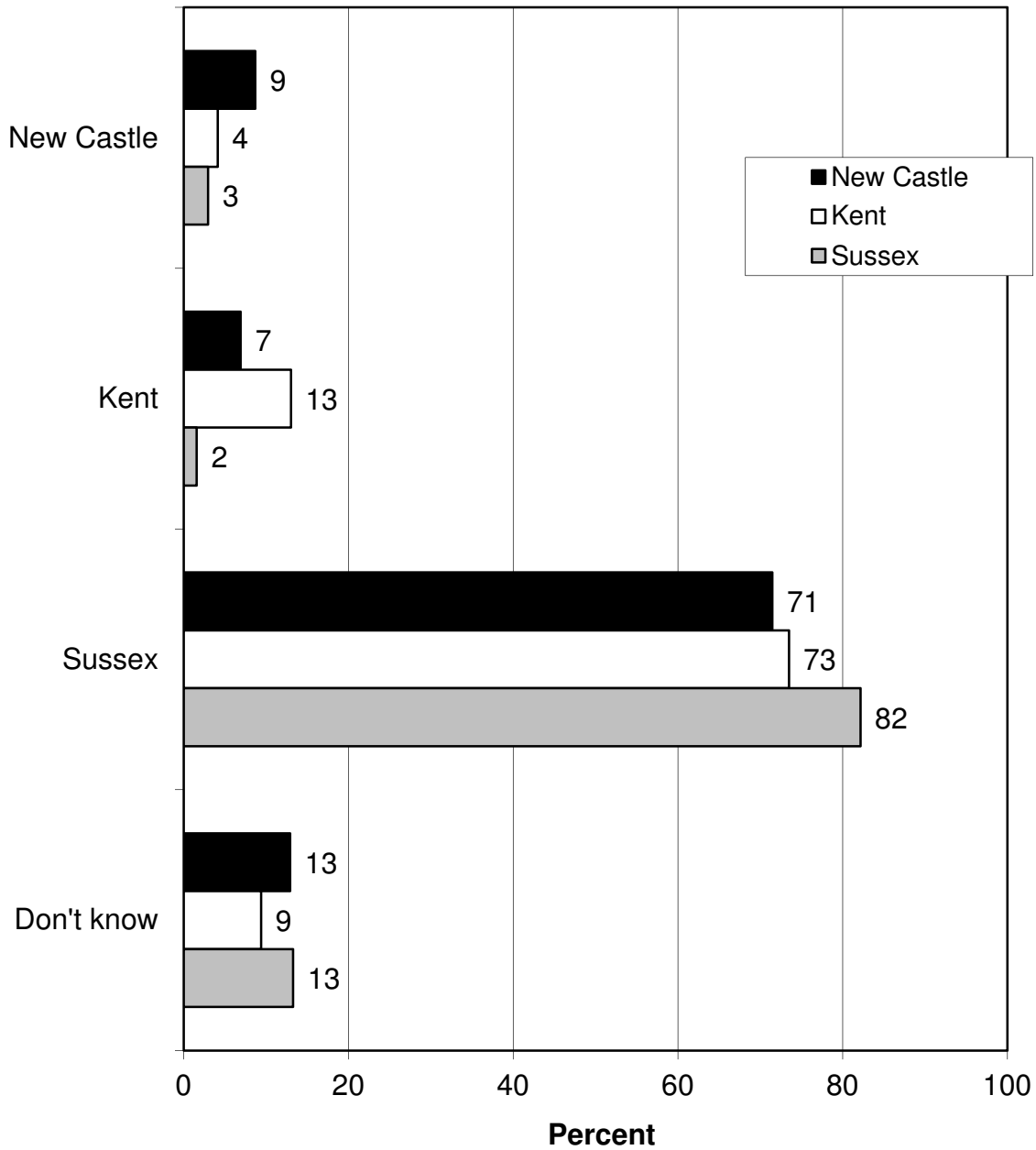


**Q77. In your opinion, which Delaware county is most threatened by sea level rise?**

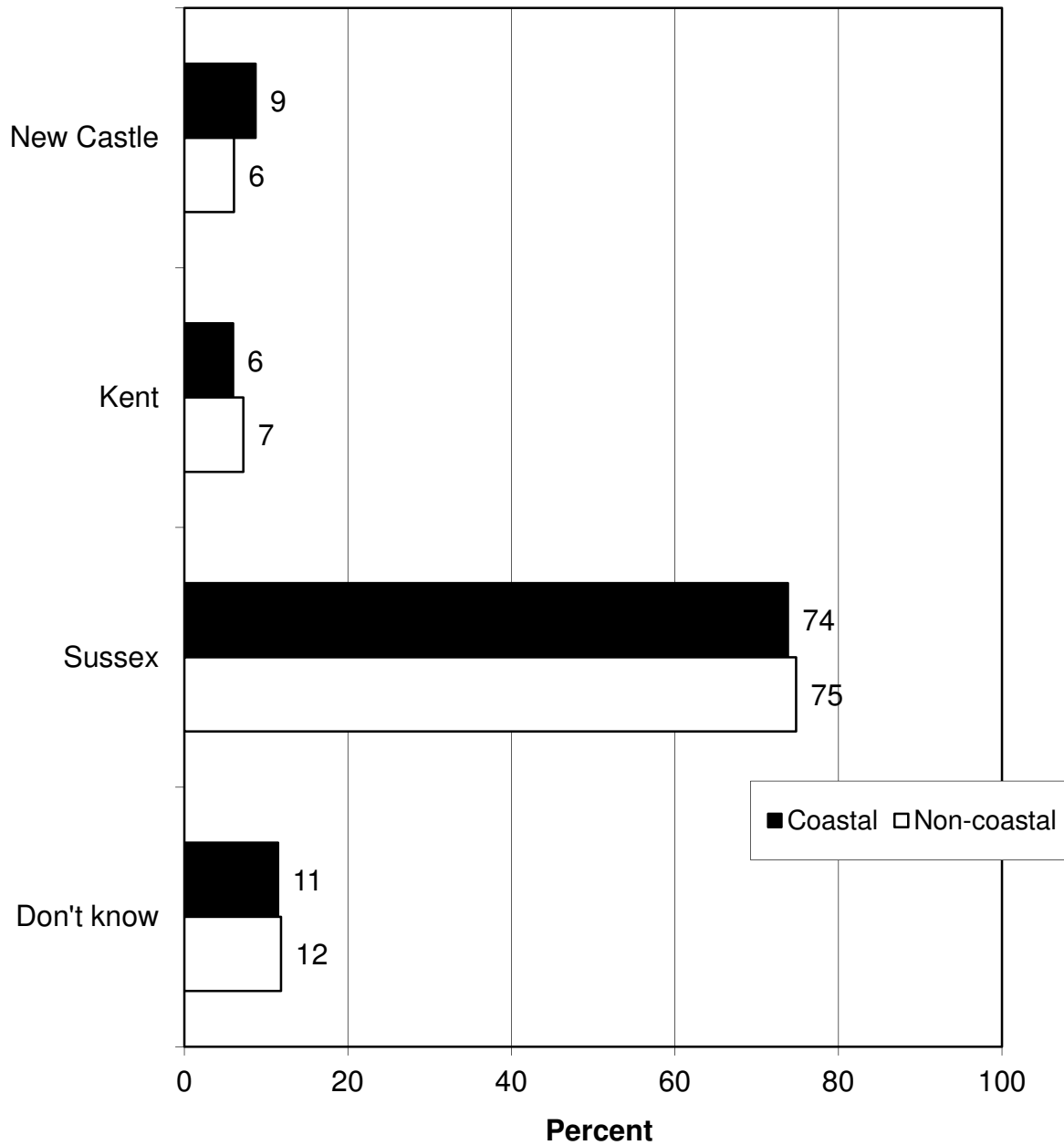




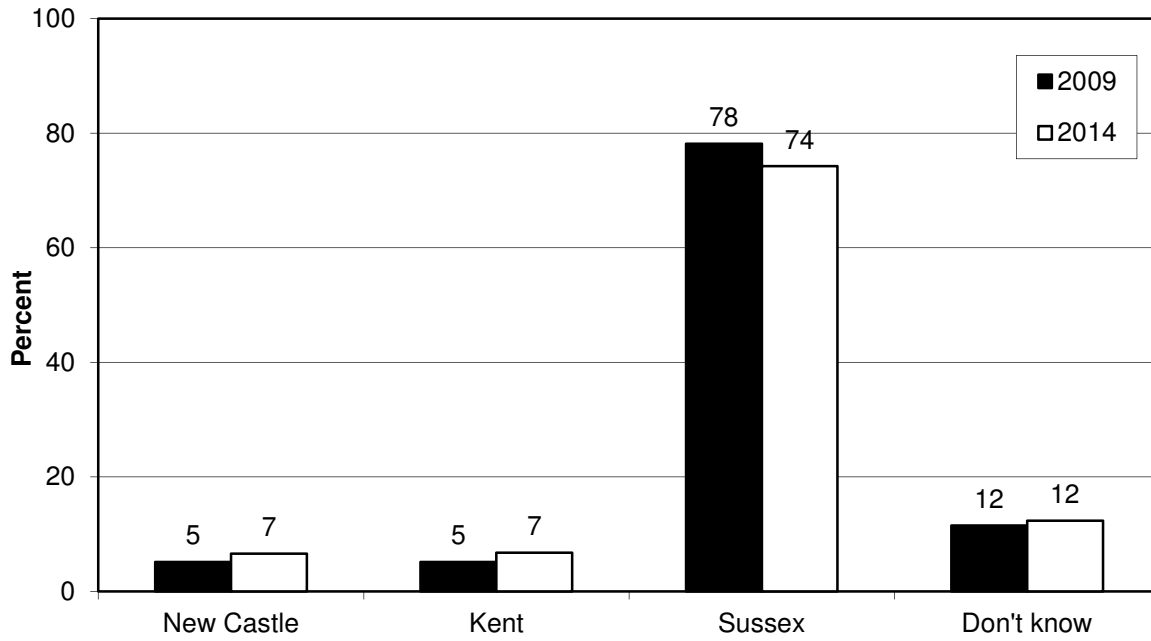
**Q77. In your opinion, which Delaware county is most threatened by sea level rise?**



**Q77. In your opinion, which Delaware county is most threatened by sea level rise?**



**Q77. In your opinion, which Delaware county is most threatened by sea level rise?**



## POTENTIAL ACTIONS PERCEIVED TO AFFECT CLIMATE CHANGE

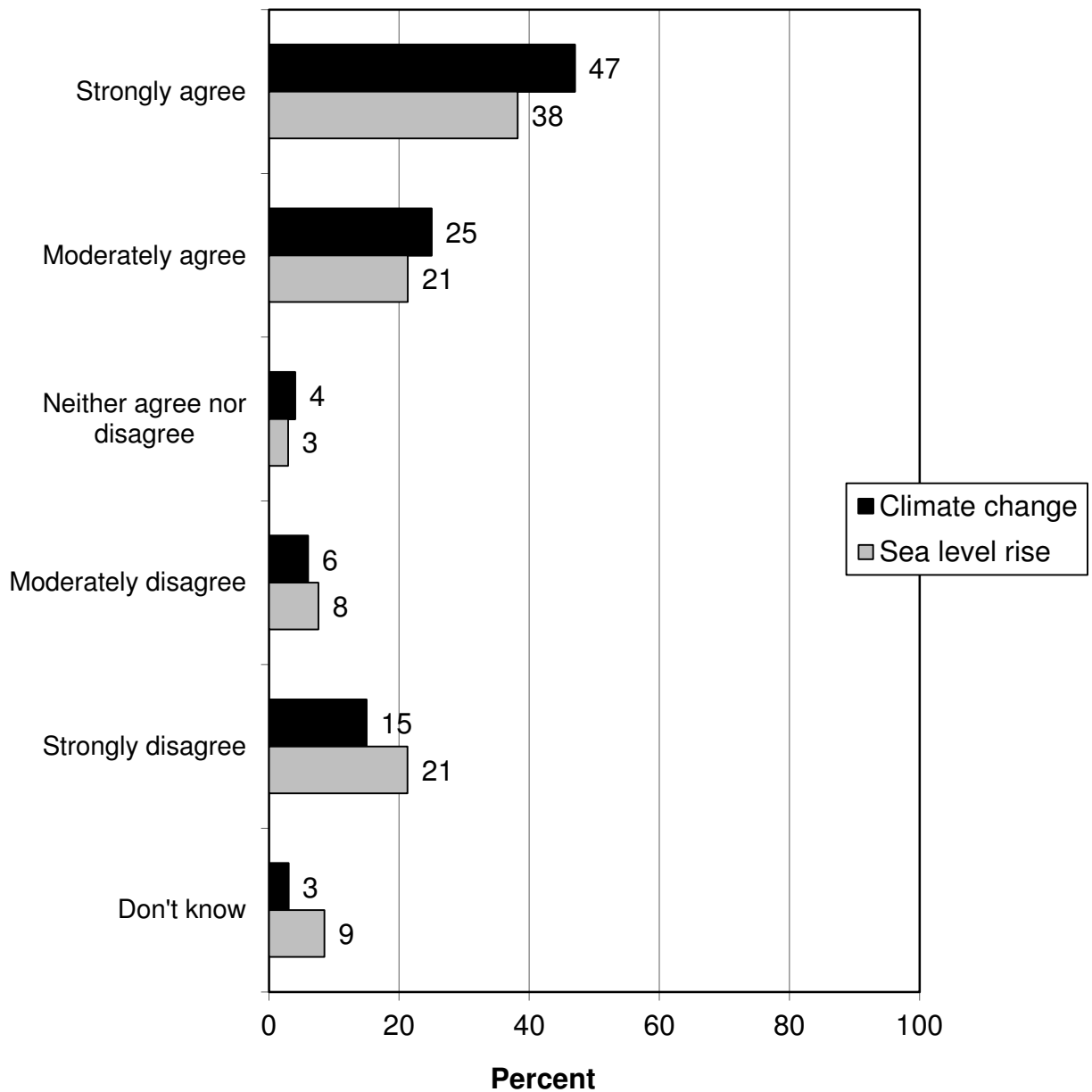
### PERCEPTIONS OF EFFICACY OF TAKING ACTION TO MITIGATE CLIMATE CHANGE

- A majority of Delaware residents (72%) agree that the *impacts of climate change can be reduced by human efforts*; on the other hand, 21% disagree. Likewise, 59% agree that sea level rise can be reduced by human efforts, while 29% disagree.
  - Similarly, 65% agree that they can *personally take actions that will help reduce climate change*; meanwhile, 28% disagree.
  - A negative phrasing of a question found that 65% of residents *disagree* that the *actions of a single person...won't make any difference in reducing climate change*, while 32% agree.
    - While a majority of Delaware residents agree that the *impacts of climate change can be reduced by human efforts*, the trends analysis shows a slight increase in the percentage of those who *strongly disagree* (from 11% in 2009 to 15% in 2014); this increase is statistically significant at  $p \leq 0.01$ , meaning the correlation would happen by chance only 1 out of 100 times, but the similar increase in the percentage of those who *strongly disagree* that they can *personally take actions that will help reduce climate change* is *not* statistically significant.
    - The trends analysis also shows that although overall agreement that sea level rise can be reduced by human efforts decreased slightly, the small increase in the percentage of residents who *strongly agree* is *not* statistically significant.
    - Overall disagreement with the negative statement that the *actions of a single person...won't make any difference in reducing climate change* remained relatively stable from 2009 to 2014.
  
- Two questions delved into the amount of action that can be taken to reduce climate change, both asking about agreement or disagreement with statements. The first statement says that “*There is limited action* that can be taken to reduce climate change,” and the second statement says that “*There are many actions* that can be taken to reduce climate change.” A

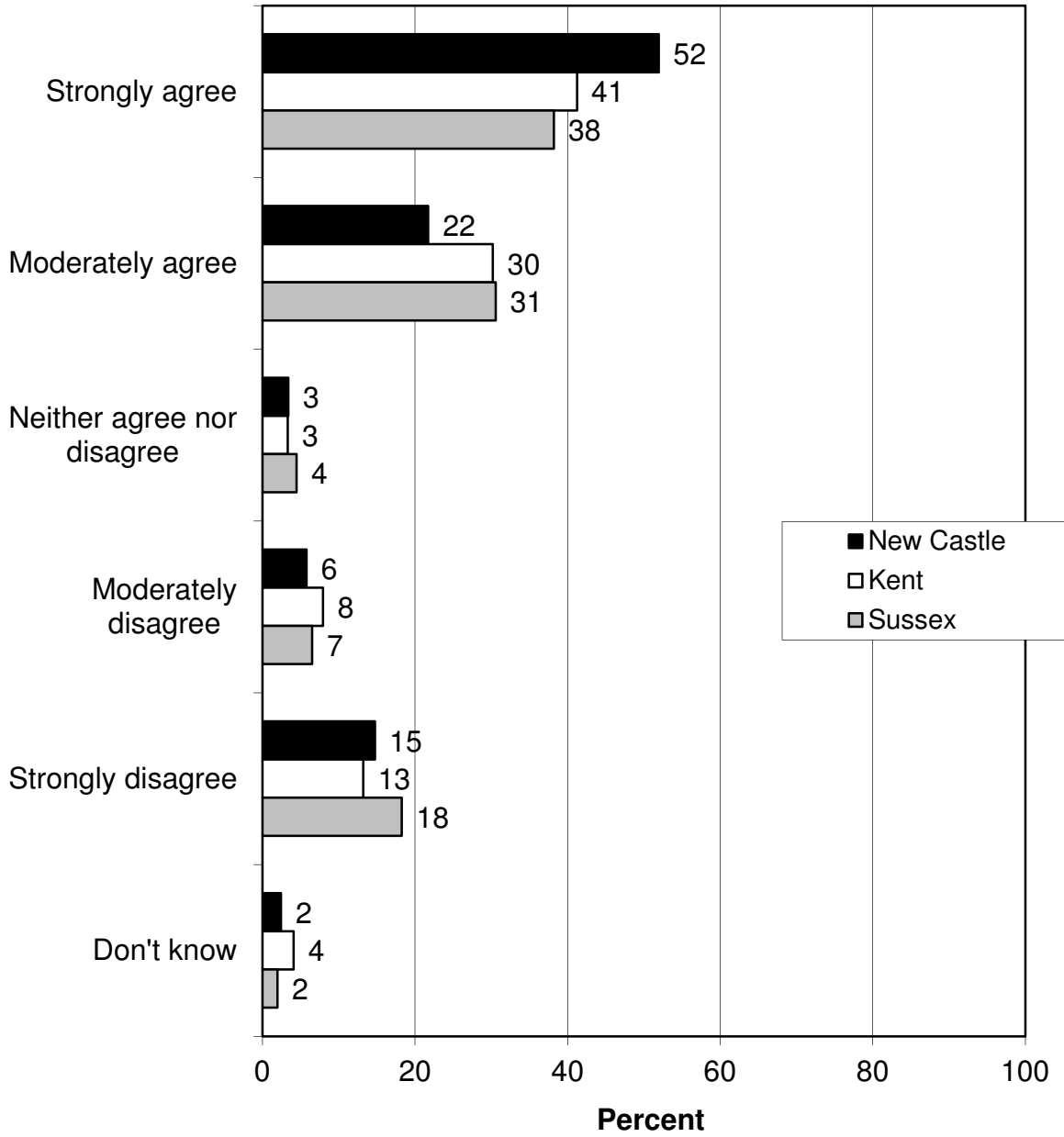
greater percentage agree that there are *many actions* that can be taken than agree that there is *limited action* that can be taken.

- For limited action, 49% of residents agree that *there is limited action that can be taken to reduce climate change*. However, 42% disagree with this statement.
- For many actions, 70% of residents agree that *there are many actions that can be taken to reduce climate change*, while only 19% disagree.
  - In the trends analysis, there is a decrease in the percentage of residents who disagree (moderately or strongly) that *there is limited action that can be taken to reduce climate change* (from 47% in 2009 to 42% in 2014), and this change is significant at  $p \leq 0.05$ , meaning the correlation would happen by chance only 5 out of 100 times. For the statement about *many actions can be taken*, agreement and disagreement remained relatively stable from 2009 to 2014.

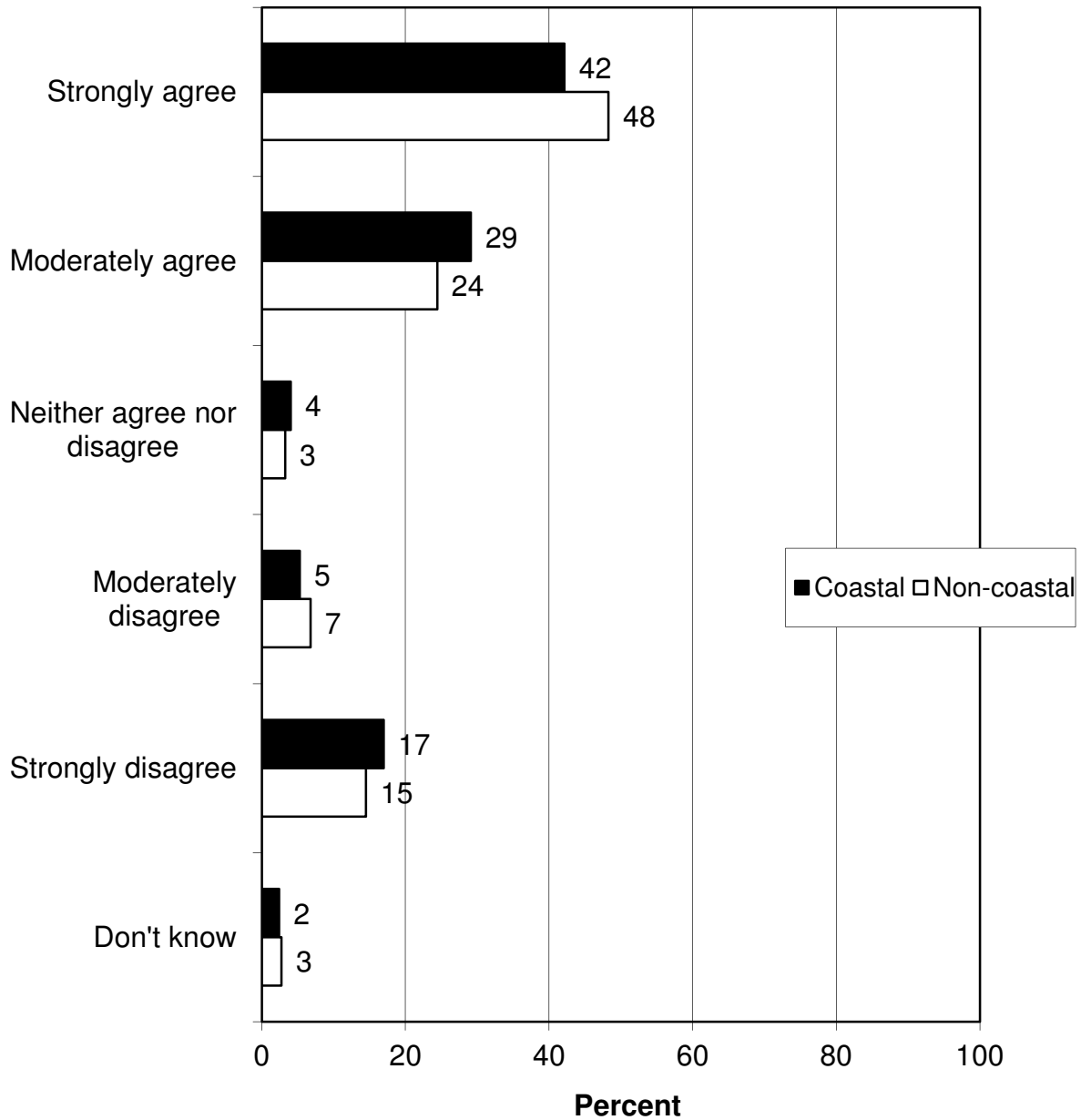
**Q85. The impacts of climate change can be reduced by human efforts.**  
**Q101. Sea level rise can be reduced by human efforts.**  
**(Do you agree or disagree with these statements?)**



**Q85. The impacts of climate change can be reduced by human efforts. (Do you agree or disagree with this statement?)**

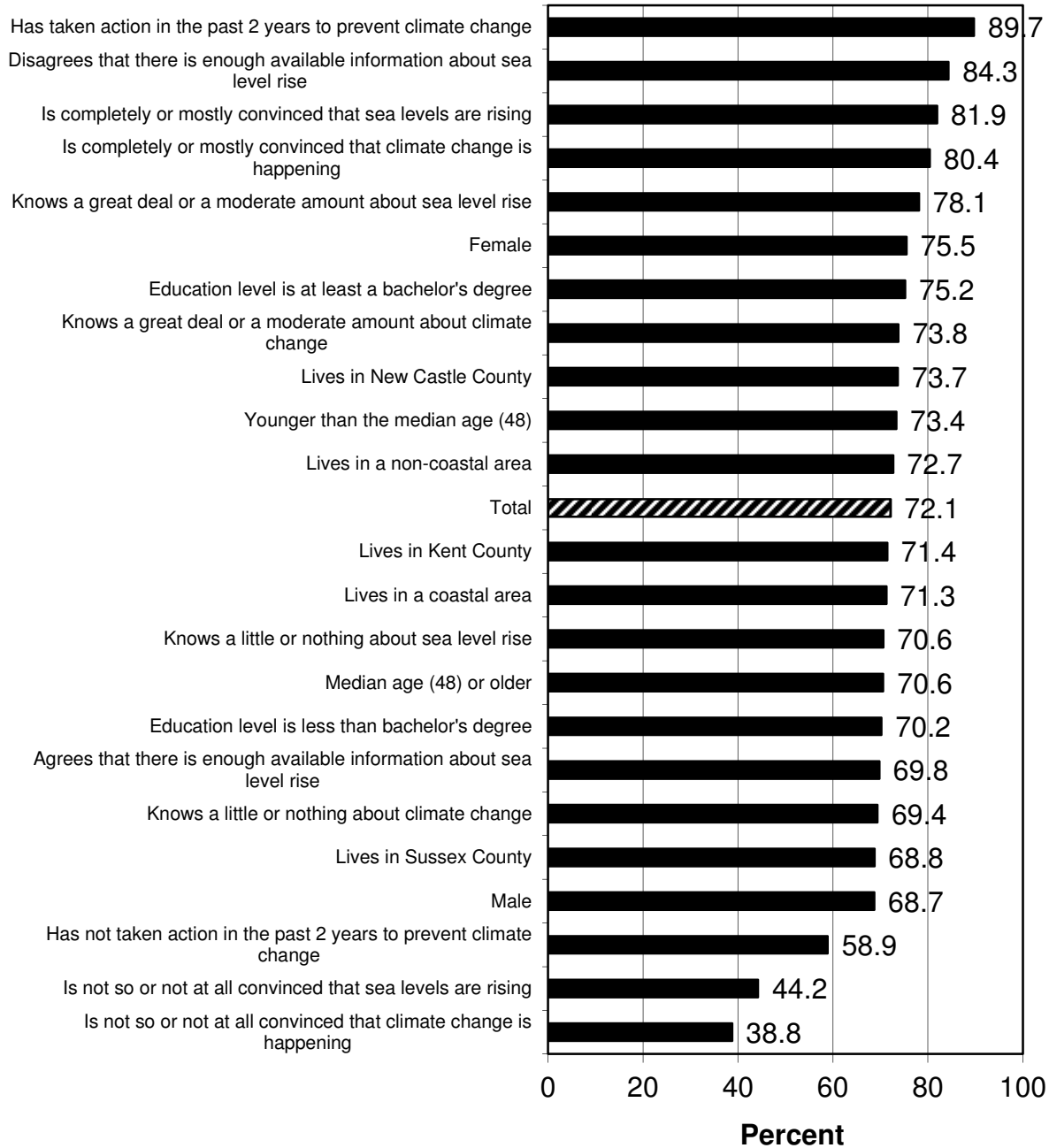


**Q85. The impacts of climate change can be reduced by human efforts. (Do you agree or disagree with this statement?)**



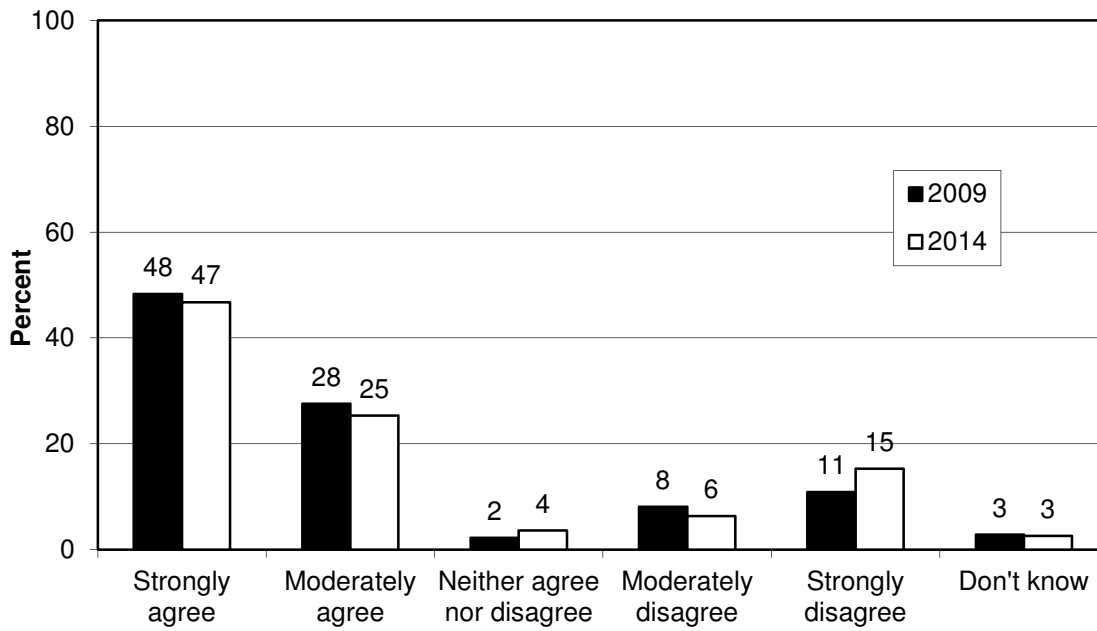


### Percent who agree (strongly or moderately) that the impacts of climate change can be reduced by human efforts:

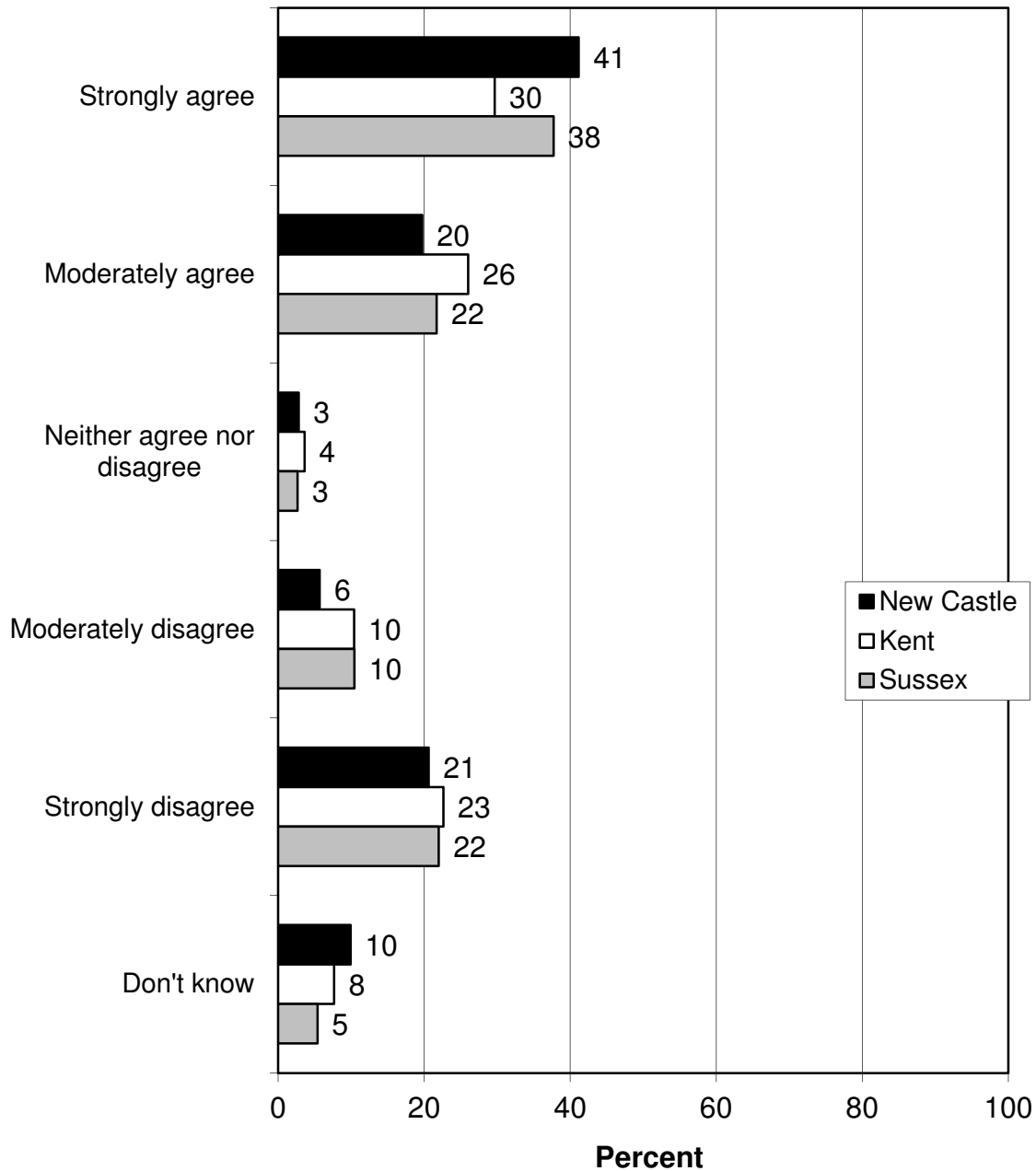


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to agree that the impacts of climate change can be reduced by human efforts, relative to residents as a whole. Overall, 72.1% of Delaware residents agree that the impacts of climate change can be reduced by human efforts (striped bar). Those groups more inclined to agree are above that bar (for instance, 75.5% of females agree); those groups less inclined to agree are below that bar (for instance, only 68.7% of males agree).

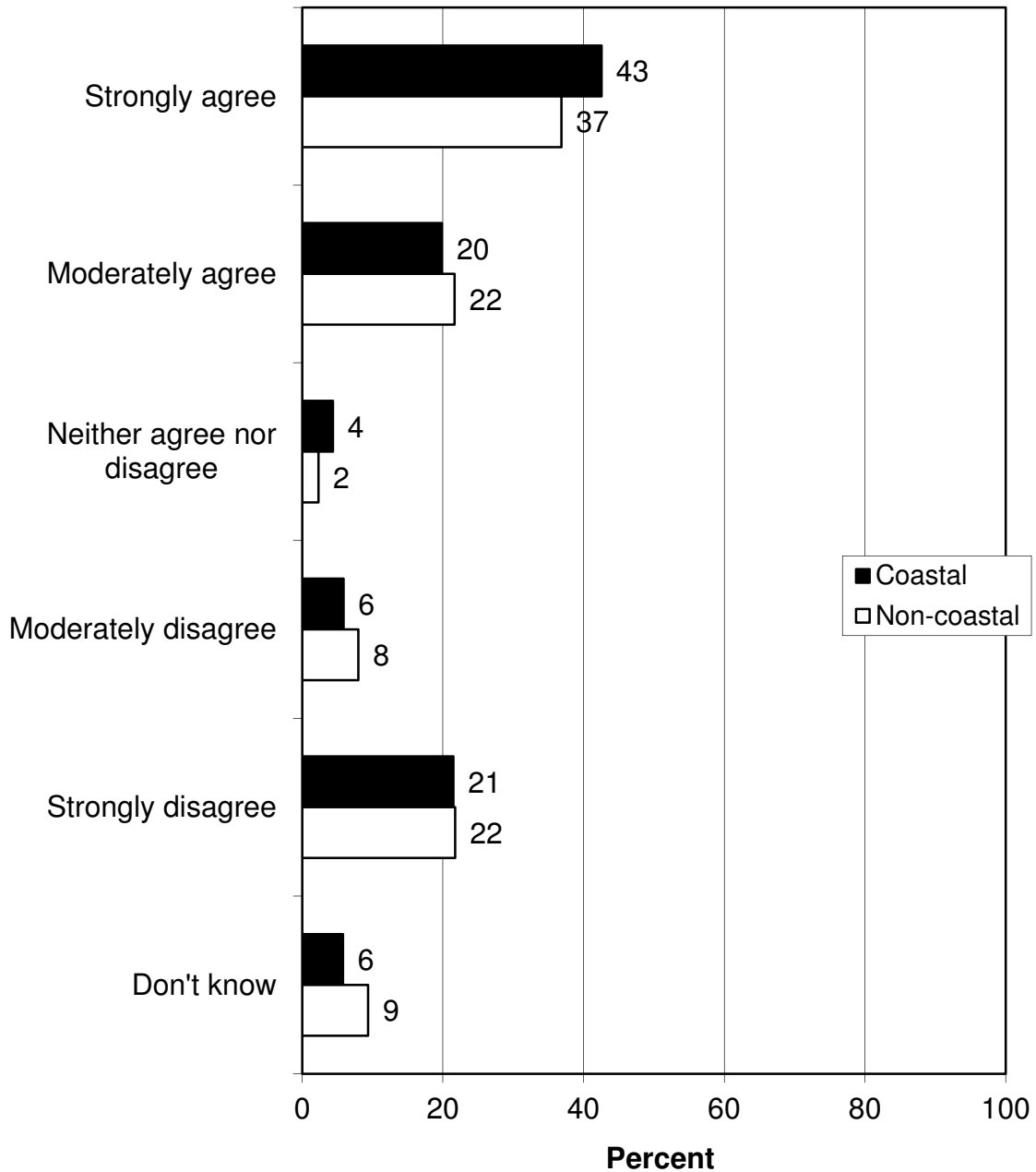
**Q85. Do you agree or disagree with this statement: The impacts of climate change can be reduced by human efforts.**



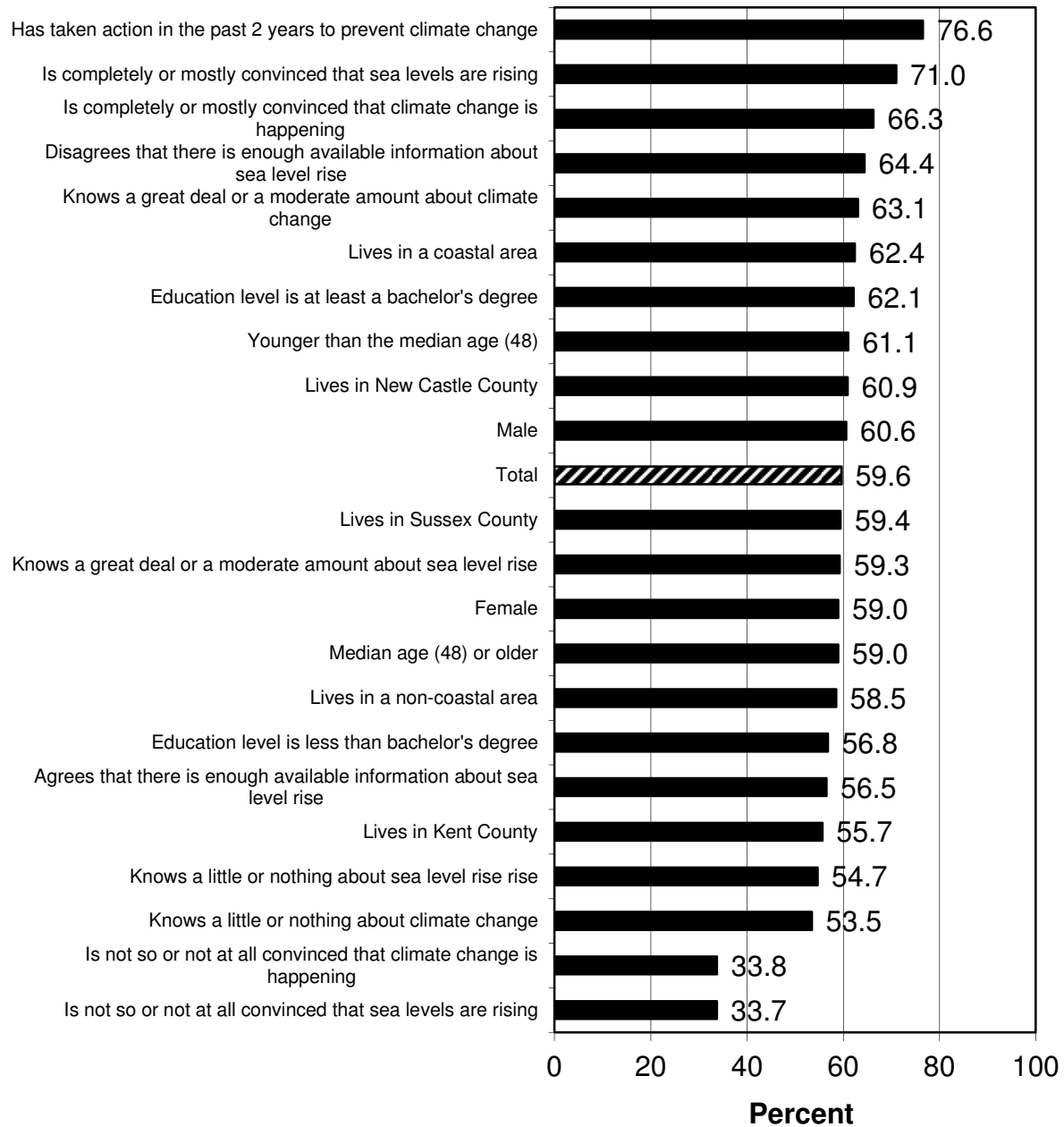
**Q101. Sea level rise can be reduced by human efforts. (Do you agree or disagree with this statement?)**



**Q101. Sea level rise can be reduced by human efforts. (Do you agree or disagree with this statement?)**

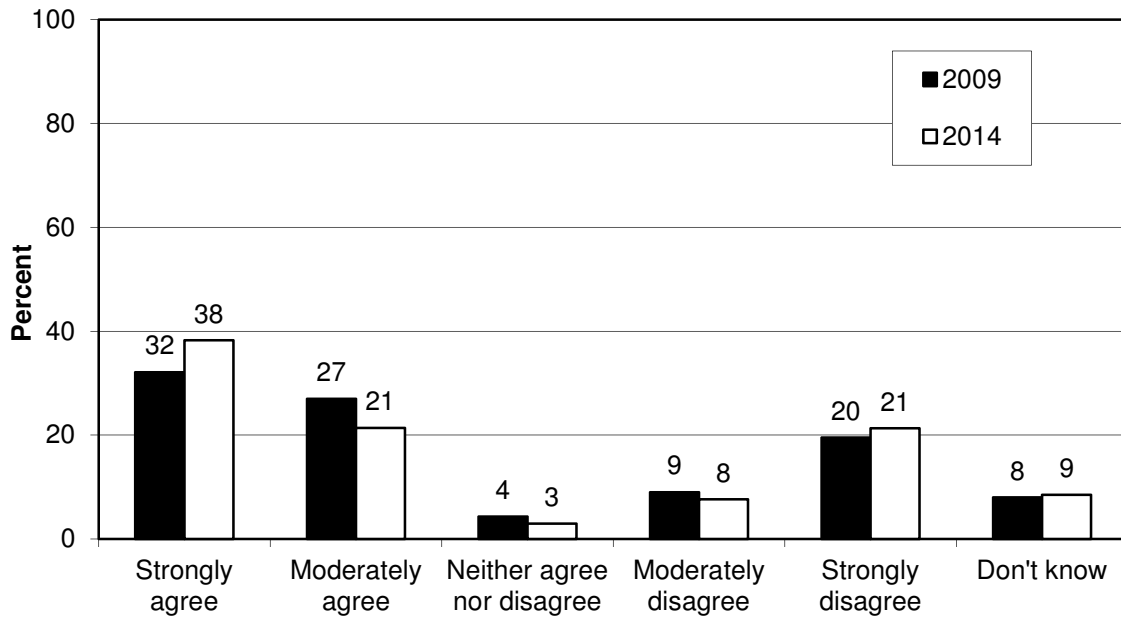


### Percent of each of the following groups who agree (strongly or moderately) that sea level rise can be reduced by human efforts:



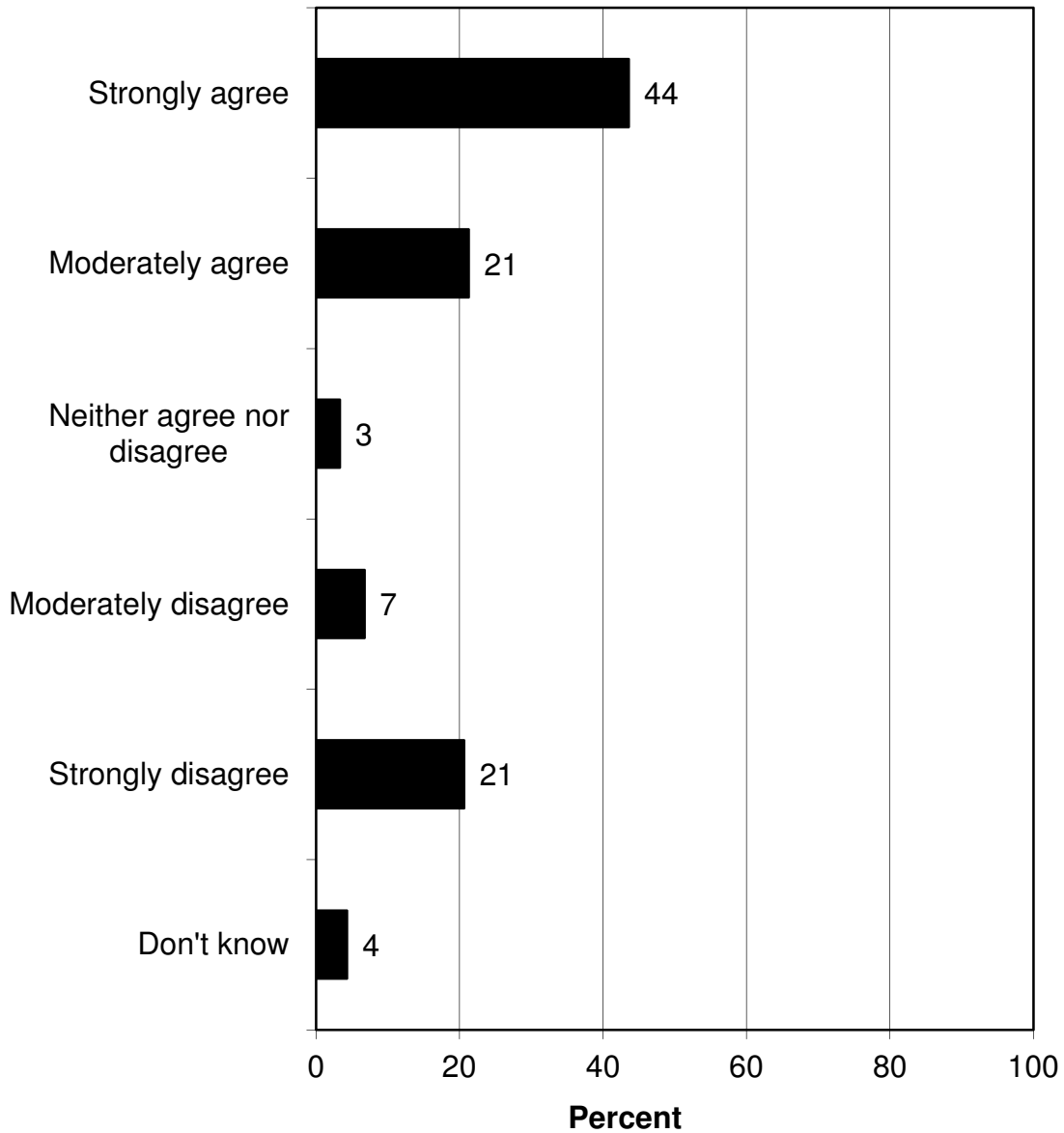
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to agree that sea level rise can be reduced by human efforts, relative to residents as a whole. Overall, 59.6% of Delaware residents agree that sea level rise can be reduced by human efforts (striped bar). Those groups more inclined to agree are above that bar (for instance, 62.4% of those who live in a coastal area agree); those groups less inclined to agree are below that bar (for instance, only 55.7% of Kent County residents agree).

**Q101. Do you agree or disagree with this statement:  
Sea level rise can be reduced by human efforts.**

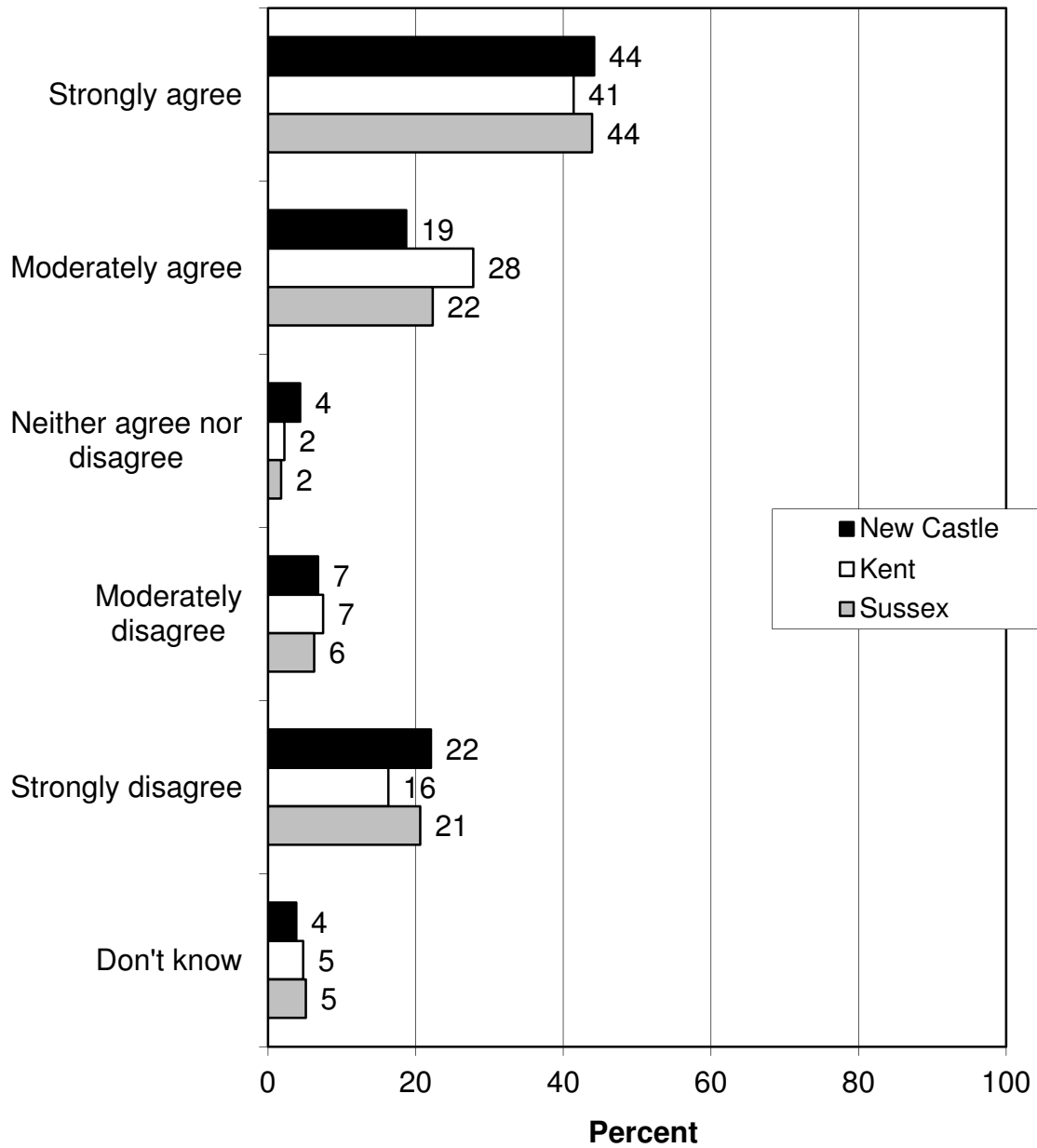




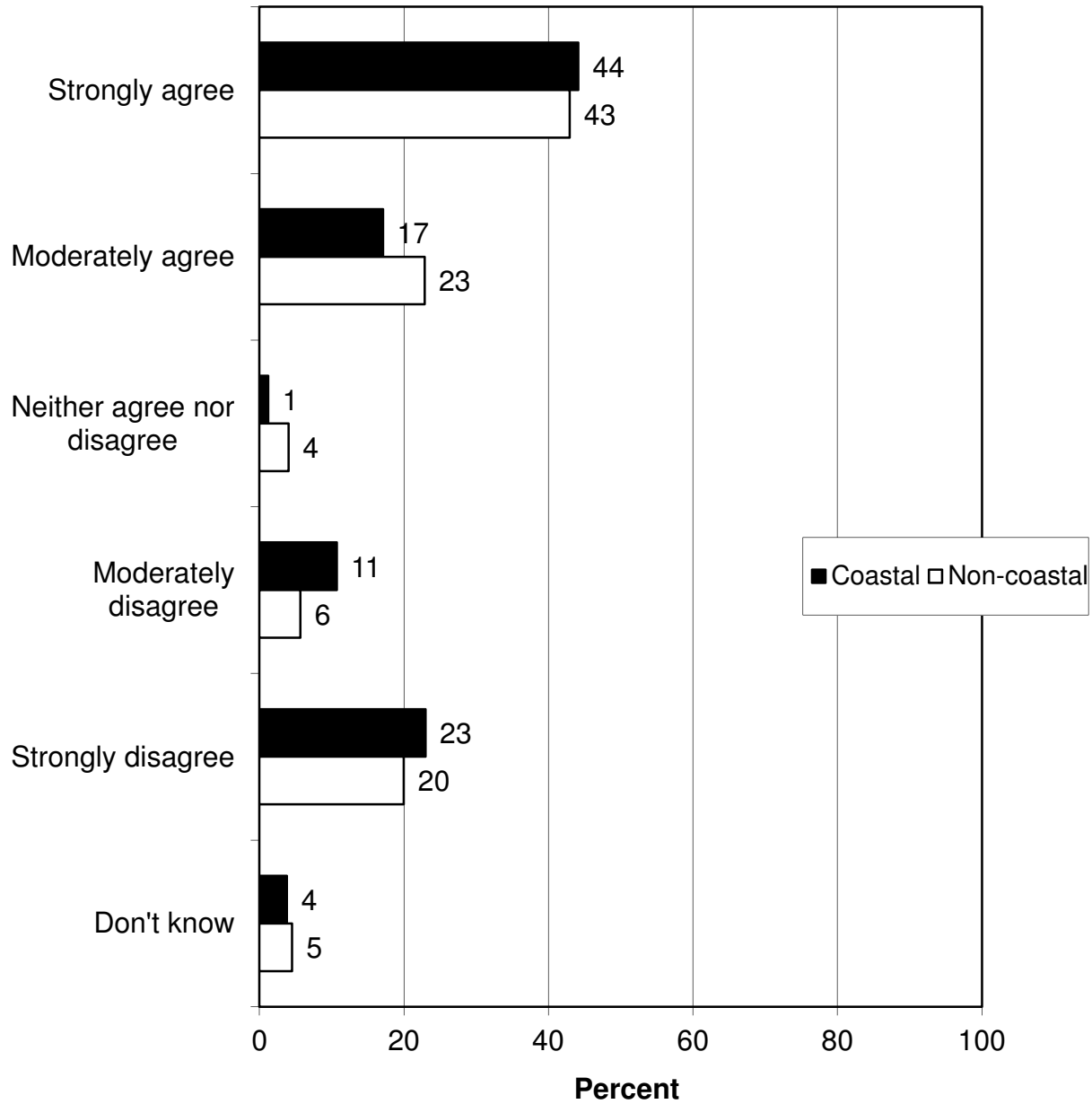
**Q93. You can personally take actions that will help reduce climate change. (Do you agree or disagree with this statement?)**



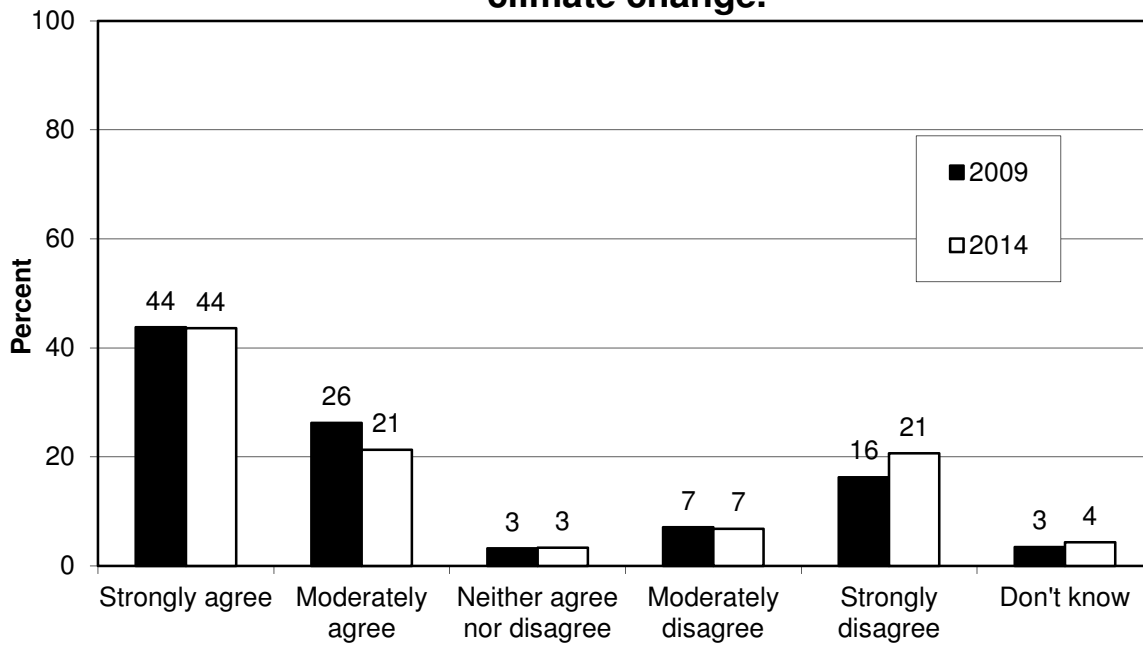
**Q93. You can personally take actions that will help reduce climate change. (Do you agree or disagree with this statement?)**



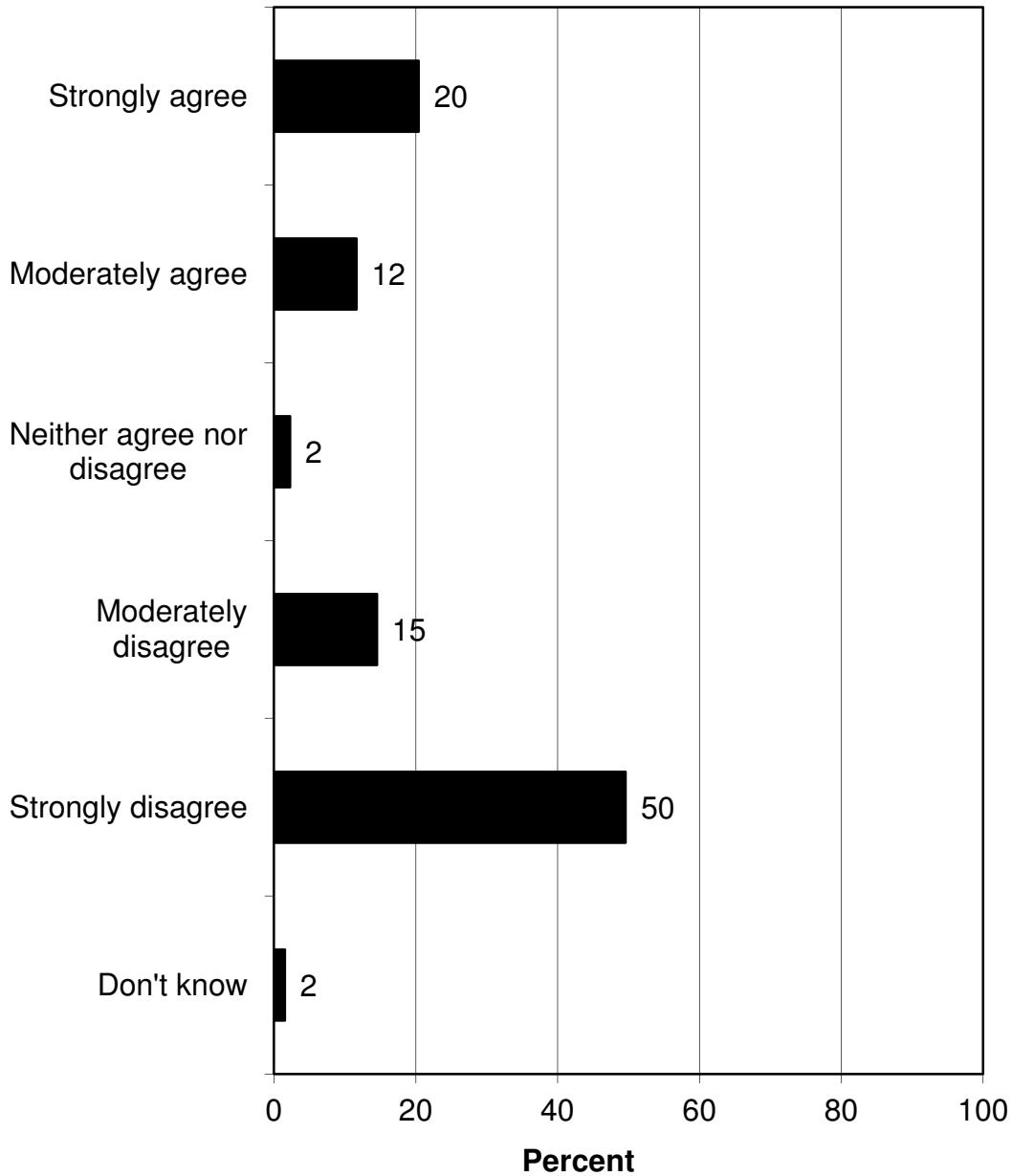
**Q93. You can personally take actions that will help reduce climate change. (Do you agree or disagree with this statement?)**



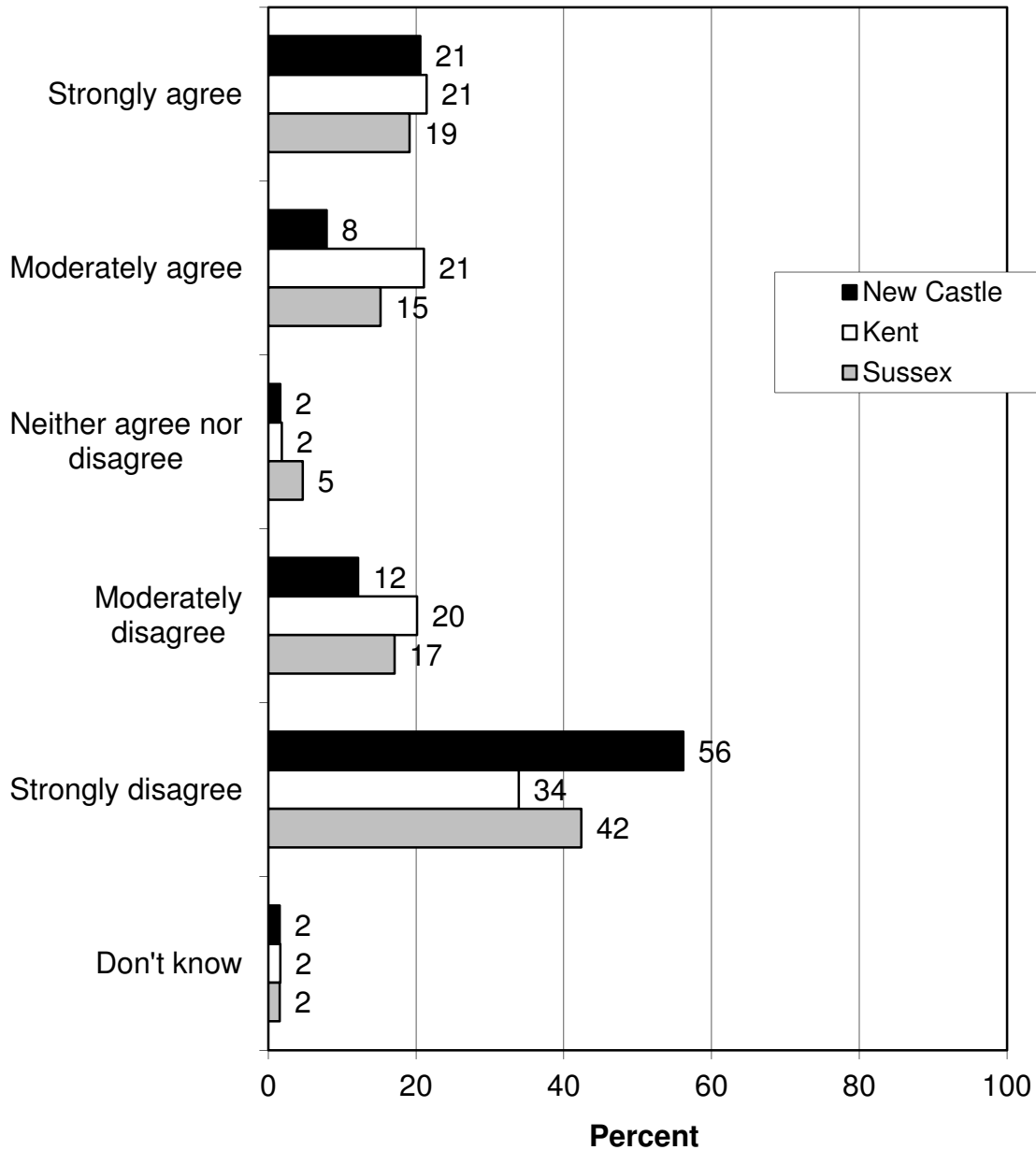
**Q93. Do you agree or disagree with this statement: You can personally take actions that will help reduce climate change.**



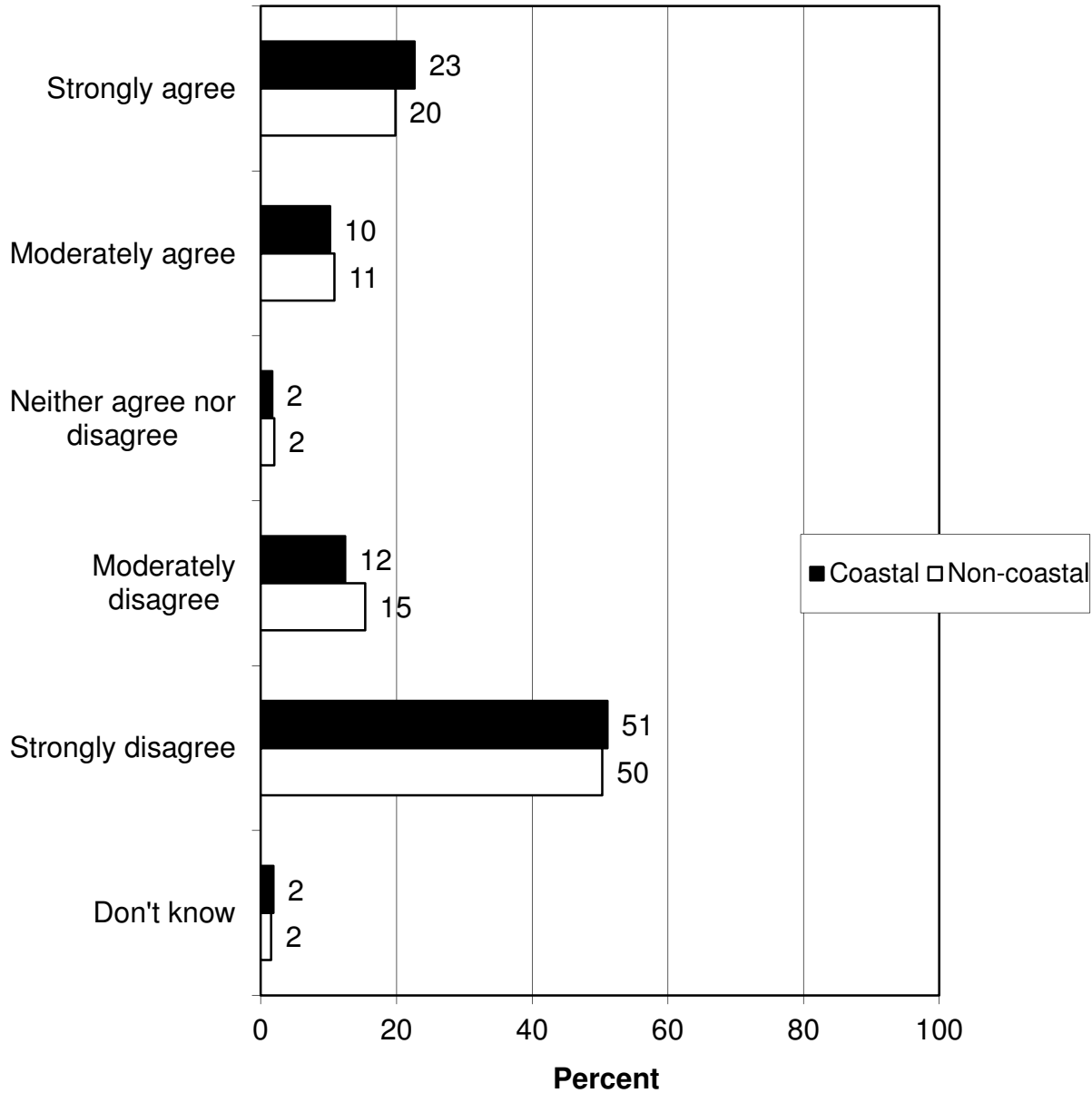
**Q94. The actions of single person like you won't make any difference in reducing climate change. (Do you agree or disagree with this statement?)**



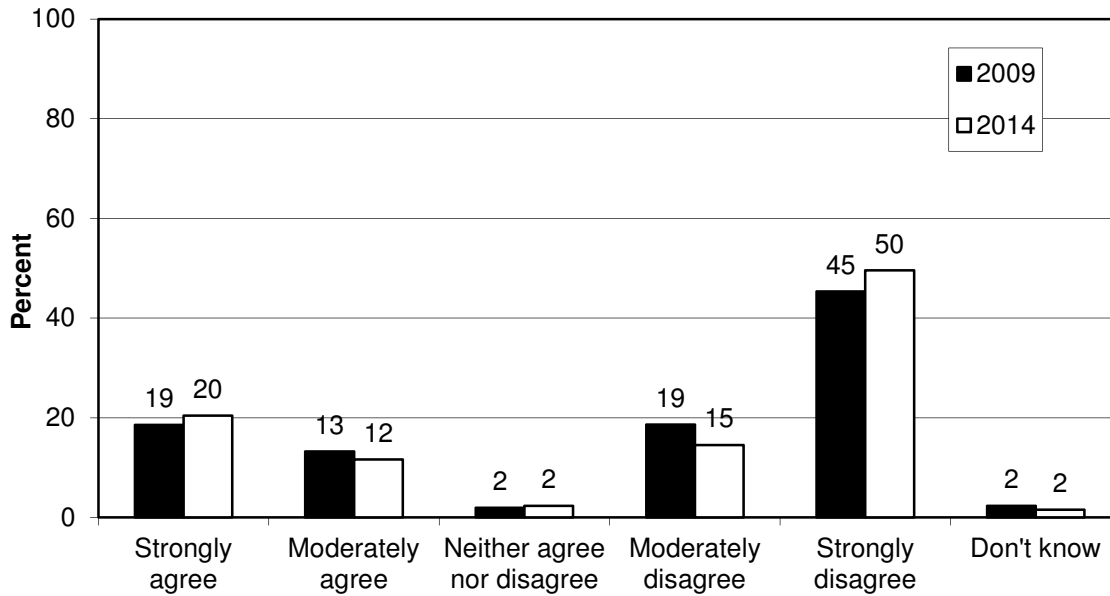
**Q94. The actions of single person like you won't make any difference in reducing climate change. (Do you agree or disagree with this statement?)**



**Q94. The actions of single person like you won't make any difference in reducing climate change. (Do you agree or disagree with this statement?)**



**Q94. Do you agree or disagree with this statement: The actions of single person like you won't make any difference in reducing climate change.**

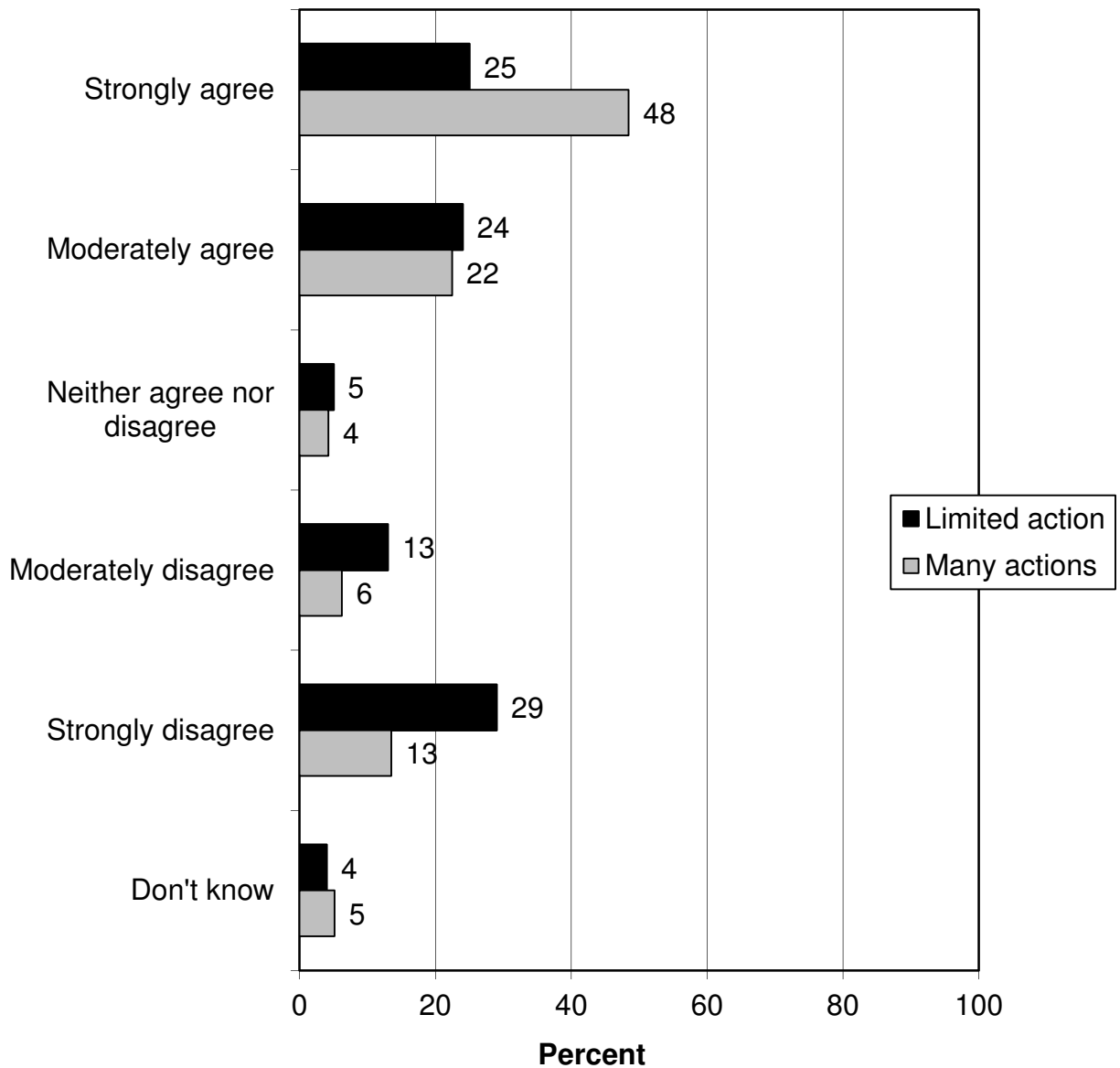




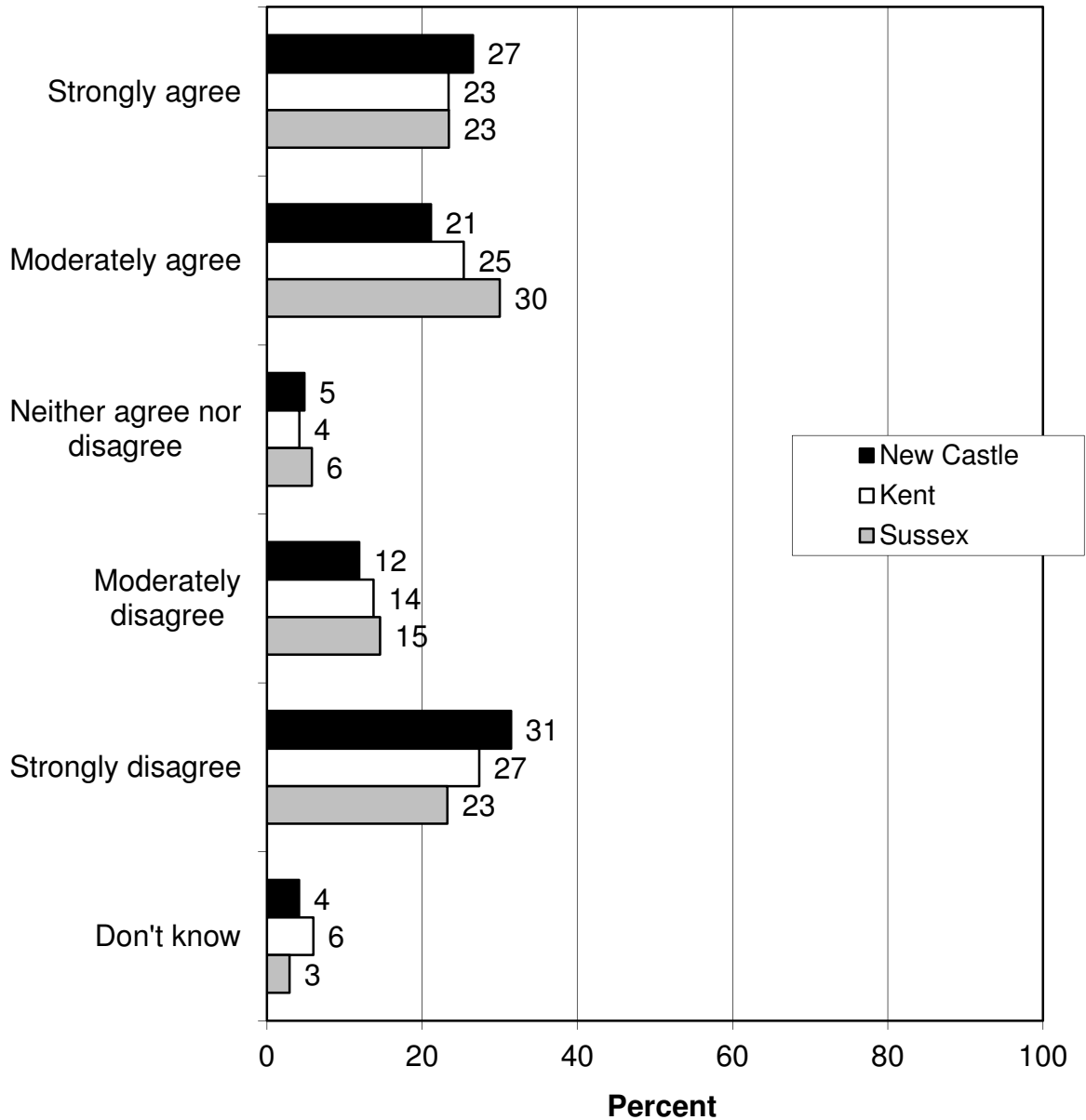
**Q87. There is limited action that can be taken to reduce climate change.**

**Q88. There are many actions that can be taken to reduce climate change.**

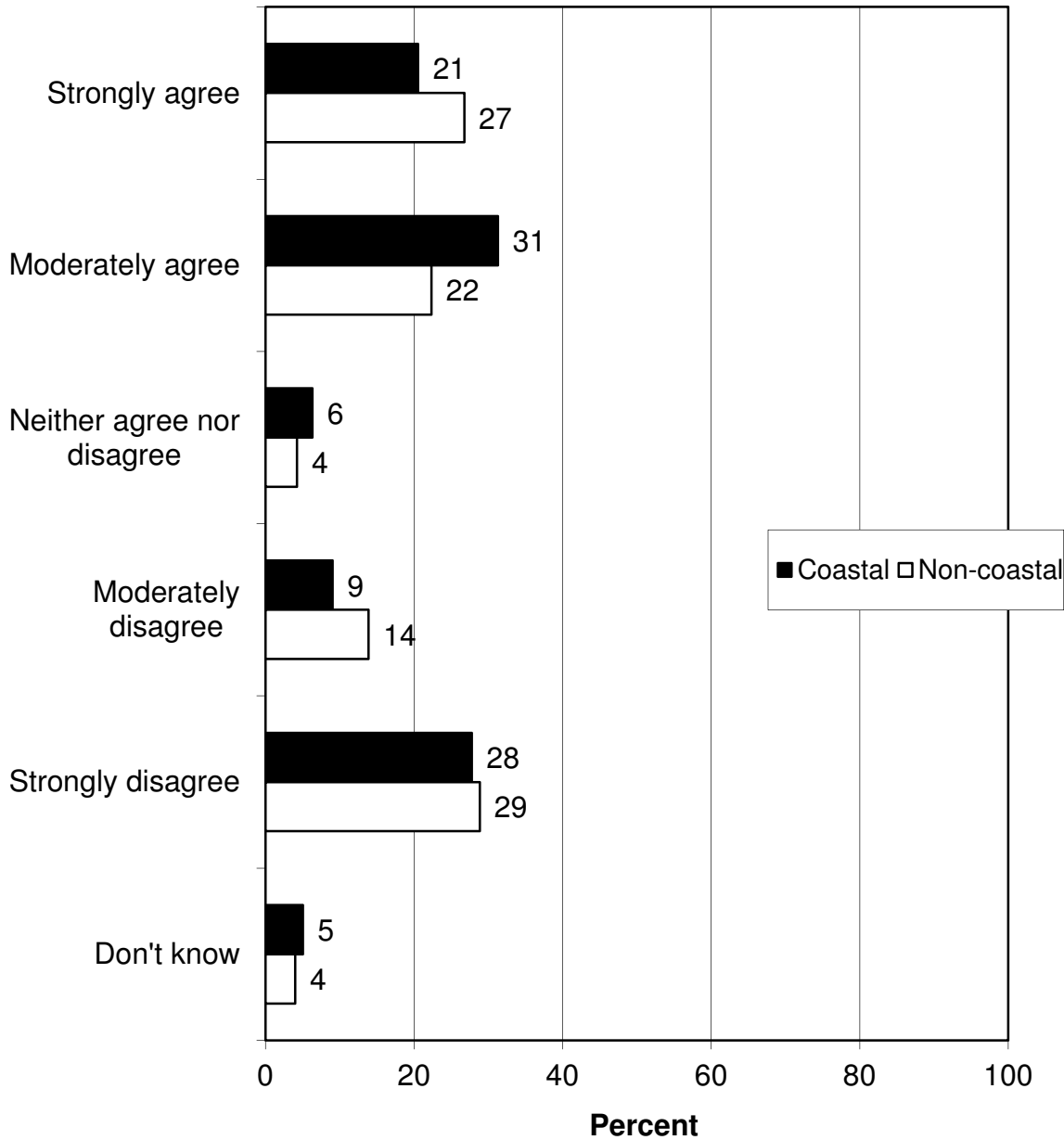
**(Do you agree or disagree with these statements?)**



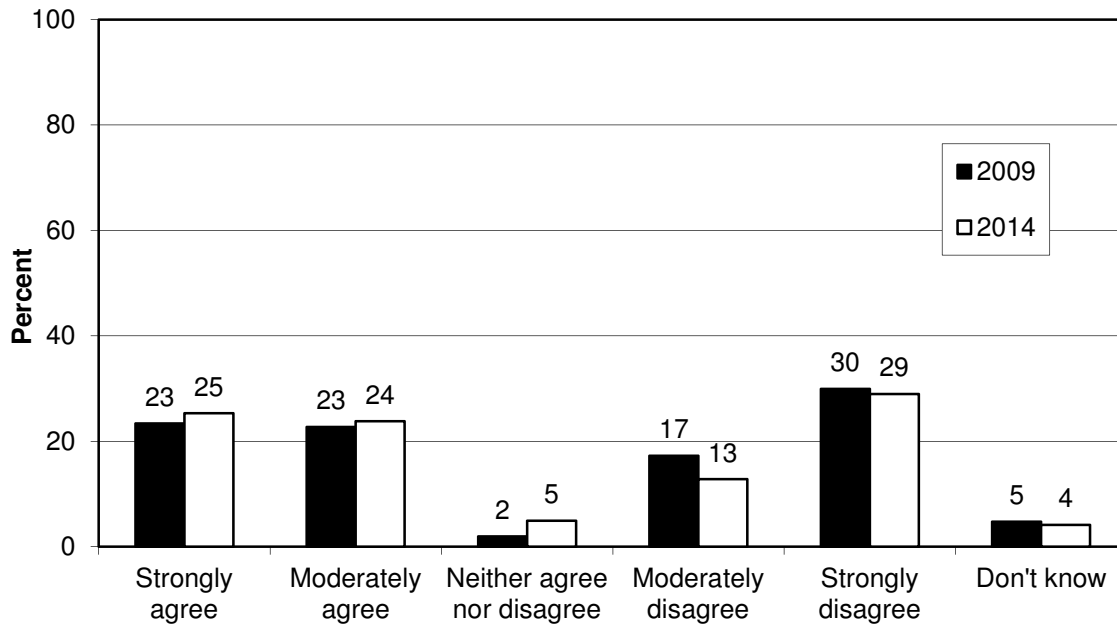
**Q87. There is limited action that can be taken to reduce climate change. (Do you agree or disagree with this statement?)**



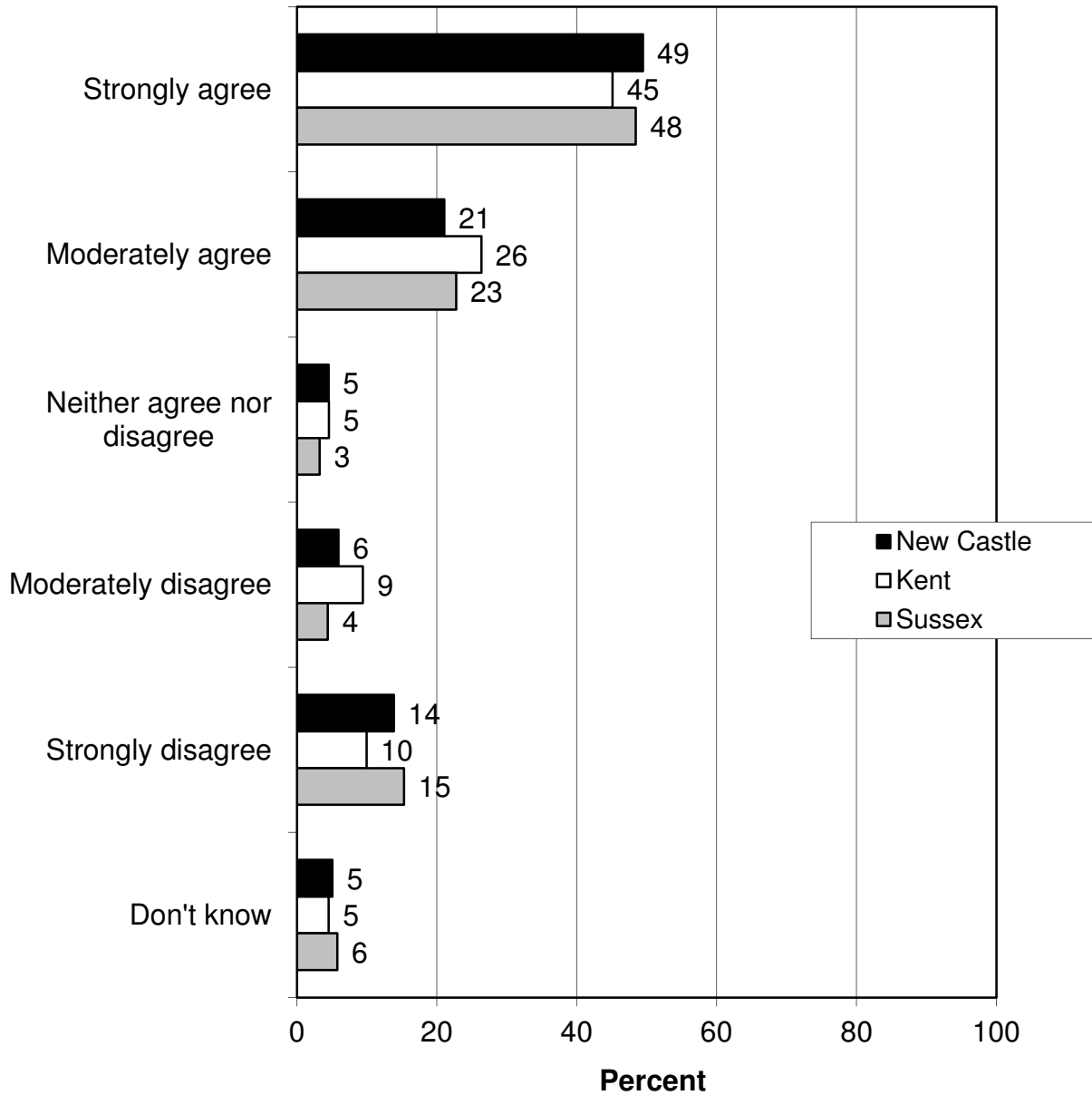
**Q87. There is limited action that can be taken to reduce climate change. (Do you agree or disagree with this statement?)**



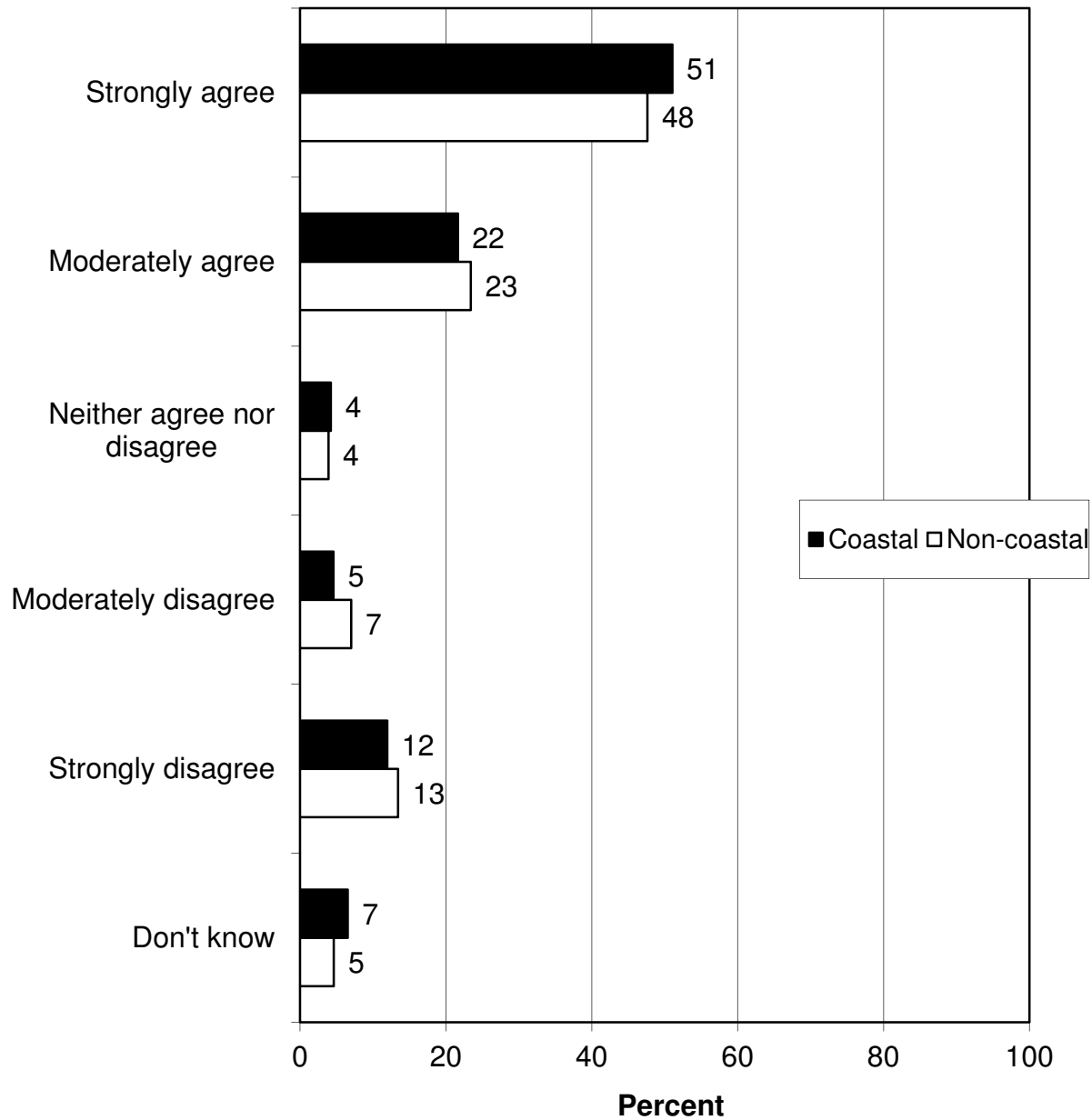
**Q87. Do you agree or disagree with this statement:  
There is limited action that can be taken to reduce  
climate change.**



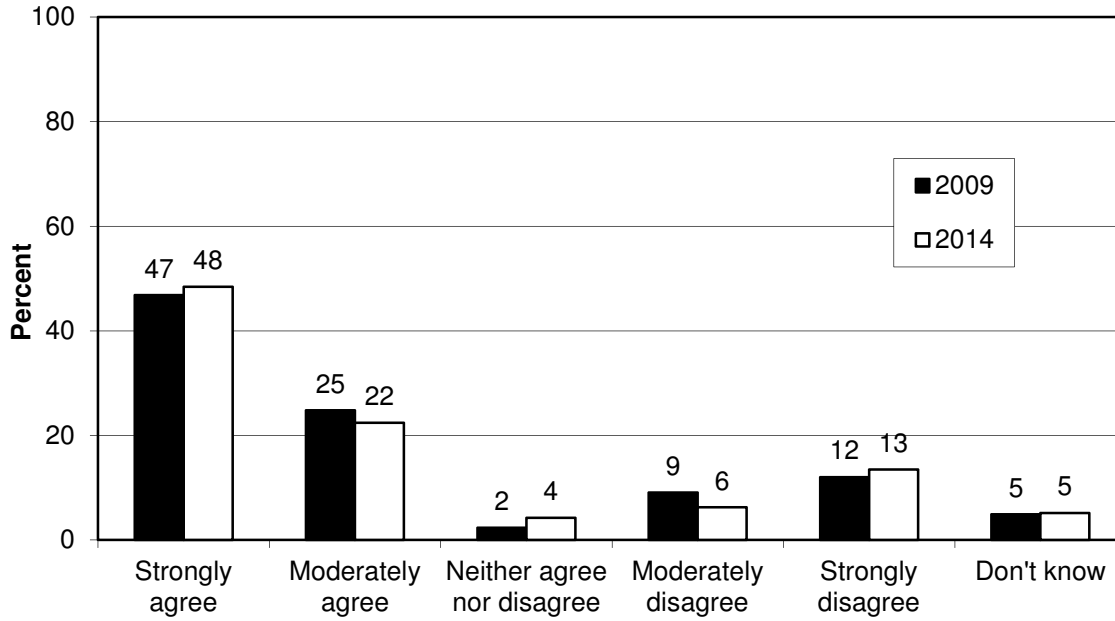
**Q88. There are many actions that can be taken to reduce climate change. (Do you agree or disagree with this statement?)**



**Q88. There are many actions that can be taken to reduce climate change. (Do you agree or disagree with this statement?)**



**Q88. Do you agree or disagree with this statement:  
There are many actions that can be taken to reduce  
climate change.**



## MANAGEMENT STRATEGIES PERTAINING TO CLIMATE CHANGE

- Regardless of their opinions on climate change and sea level rise, the large majority of residents say that action should be taken to address or reduce the impacts of sea level rise in their area *before impacts occur* (74% say this) rather than *as impacts begin* (8%) or *after impacts cause problems* (3%). Note that 8% said never because sea levels are not rising.
  - The trends analysis shows a small decrease in the percentage of residents who say that action should be taken to address or reduce the impacts of sea level rise in their area *before impacts occur* (from 80% in 2009 to 74% in 2014) and a small increase in the percentage who say never because sea levels are not rising (from 4% to 8%). Each of these changes are significant at  $p \leq 0.01$ , meaning the correlation would happen by chance only 1 out of 100 times.
  
- Two questions looked at whether action should be taken now or whether more study should be done.
  - A large majority of Delaware residents (76%) agree that *we should take immediate action to reduce the impacts of climate change*; on the other hand, 18% disagree.
  - This compares to 63% who agree that *we should conduct more research before taking any action to address climate change* and 32% who disagree.
    - Note that one half of the sample received one question, and the other half received the other question. Nonetheless, the results show the ambivalence some people have about climate change—it is likely that some respondents would have agreed with both statements, had both questions been asked of the same respondents. This demonstrates that, for many people, their beliefs on climate change and actions that can be taken are not strongly held.
  - A similar pairing of questions asked the same thing about sea level rise. A large majority of Delaware residents (72%) agree that *we should take immediate action to reduce the impacts of sea level rise*, while 21% disagree. Meanwhile, 64% agree that *we should conduct more research before taking any action to address sea level rise*, and 30% disagree.
    - This pair of questions was also asked of halves of the sample, and it also demonstrates that, for some people, their beliefs are not strongly held.

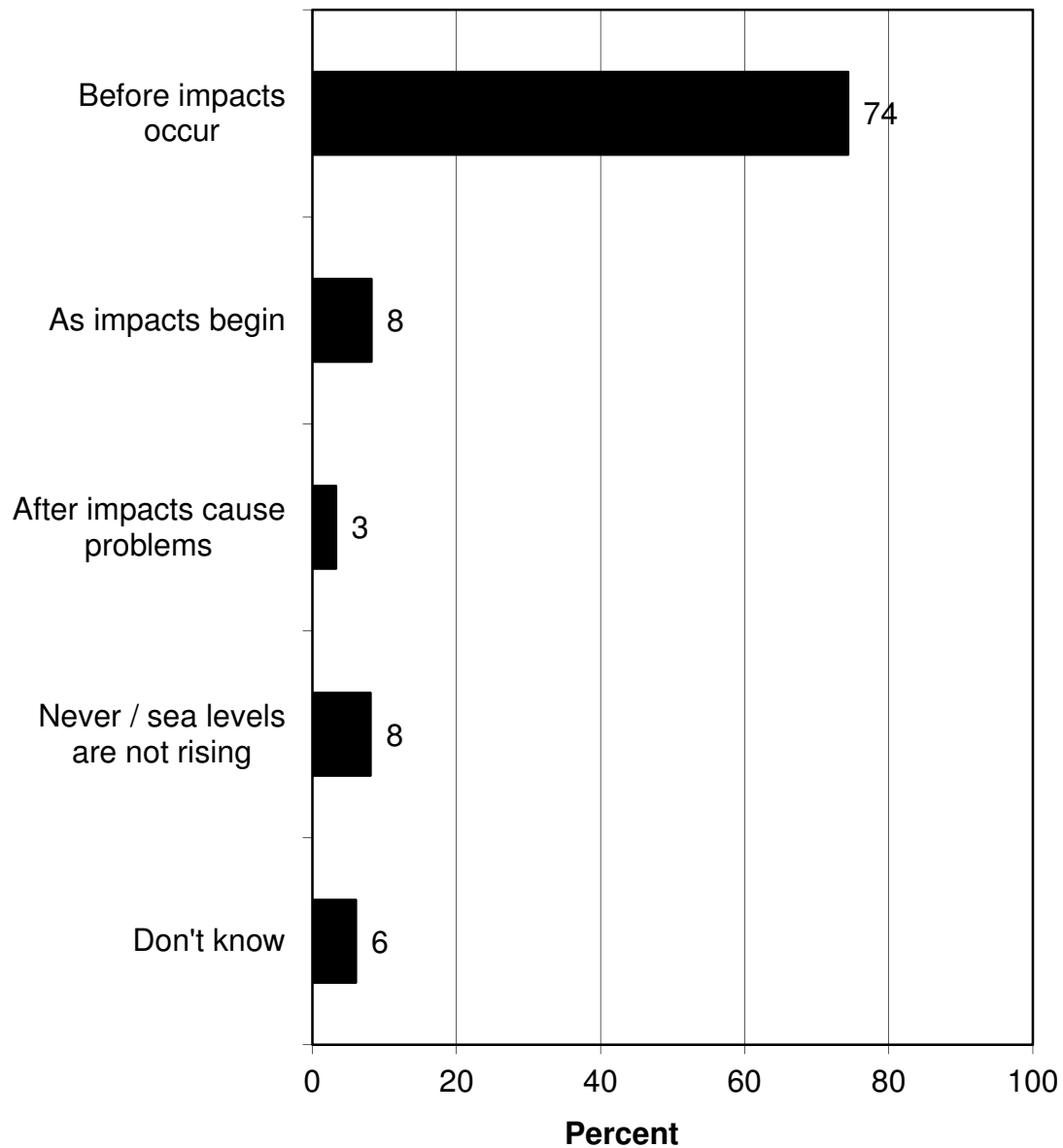


- The trends analysis shows a dramatic increase in the percentage of residents who *strongly* agree that *we should take immediate action to reduce the impacts of climate change*: 54% of Delaware residents today *strongly* agree that immediate action should be taken compared to 35% in 2009. Although this change is significant at  $p \leq 0.01$ , the increase should be considered with caution due to a change in question wording from 2009 to 2014; in 2010 the statement respondents were asked to agree or disagree with was, “We should take immediate *and drastic* action to reduce the impacts of climate change.” In 2014, the phrase “and drastic” was deleted.
  - A similar yet slightly less dramatic increase occurred for the statement that *we should take immediate action to reduce the impacts of sea level rise*, with 35% *strongly* agreeing in 2009 compared to 49% in 2014. Both of these increases are significant at  $p \leq 0.01$ , meaning each correlation would happen by chance only 1 out of 100 times.
  - The percentage of residents who disagree (strongly or moderately) that *we should conduct more research before taking any action to address climate change* increased slightly from 28% in 2009 to 32% in 2014; however, this change is *not* statistically significant. A similar increase in the disagree response occurred for the statement that *we should conduct more research before taking any action to address sea level rise*, and the increase in disagreement for this statement occurred only in the *strongly* disagree category (from 15% to 22%); it is statistically significant at  $p \leq 0.01$ , meaning each correlation would happen by chance only 1 out of 100 times.
- A large majority of residents (74%) agree that the state of Delaware needs to conduct more research to identify the impacts of sea level rise in the state; 18% disagree.
- The percentage of residents who *strongly* agree that the state of Delaware needs to conduct more research to identify the impacts of sea level rise in Delaware increased to a slight majority (from 45% in 2009 to 52% in 2014), and overall disagreement (strongly and moderately) decreased. Each of these changes is statistically significant at  $p \leq 0.05$ , meaning each correlation would happen by chance only 5 out of 100 times.

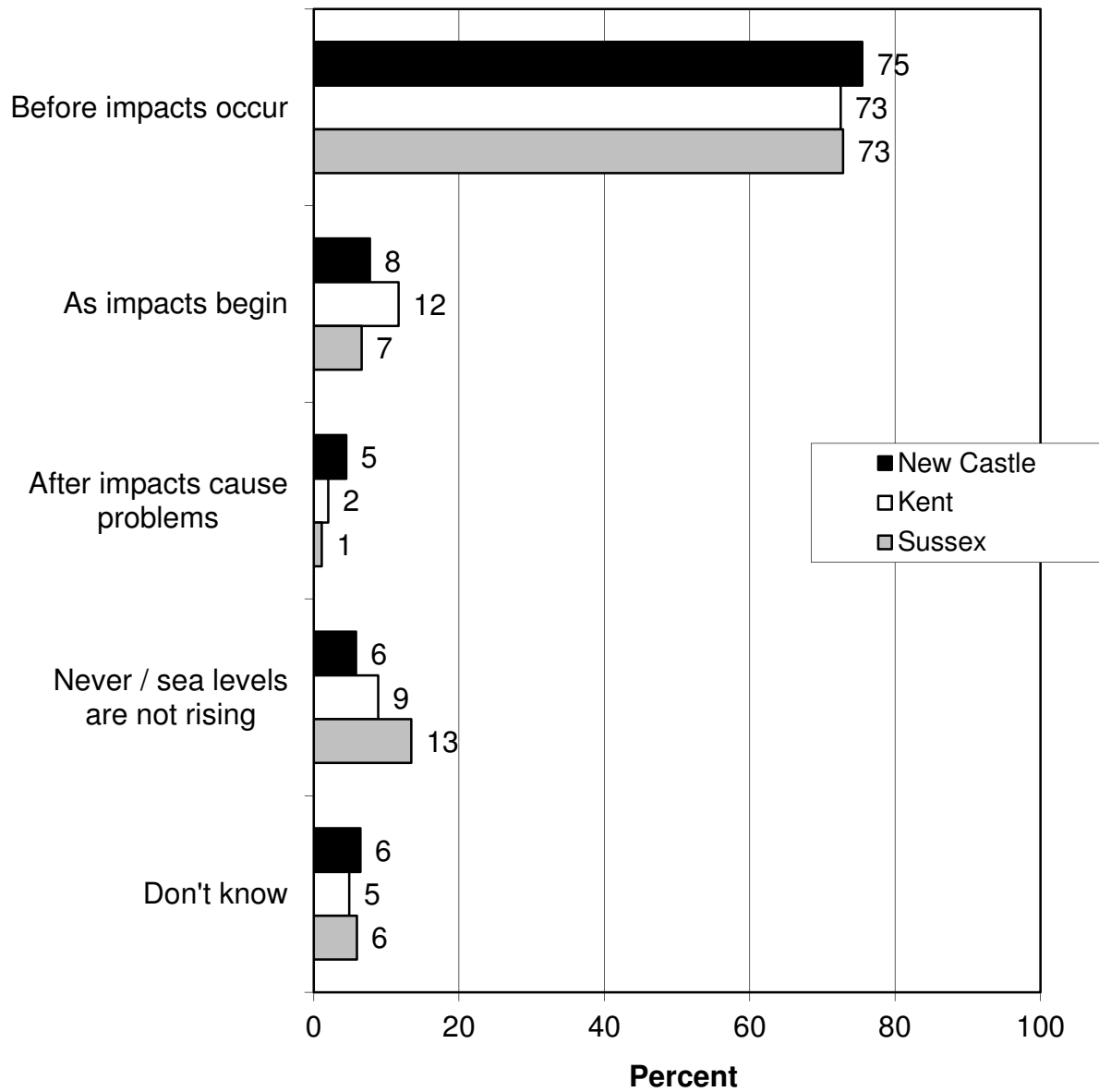
- The survey presented ten actions that could be taken to address sea level rise in Delaware. For each action, residents were asked if they would support or oppose it.
- Two actions are in a top tier: *change building codes and regulations to reduce risk in flood prone areas* and *avoid building new structures in areas at risk from sea level rise*: 63% and 62%, respectively, *strongly* support those actions.
  - The next tier consists of those actions with well more than a third to a half in *strong* support: *increasing funding for research* (50%); *elevating buildings in areas of risk using private funding* (46%); *allowing beaches and wetlands to naturally migrate inland* (41%); *building dikes, seawalls, and bulkheads to keep water back* (38%); and *elevating the land surface in areas of risk* (38%).
  - The bottom tier are those that explicitly entail using government funds: *elevating buildings in areas at risk from sea level rise using government funds* (34%), *purchasing or acquiring land and open space at risk from sea level rise from willing land sellers using government funds* (29%), and *purchasing or buying out frequently flooded properties using government funds* (24%).
    - In the trends analysis, two actions showed substantial increases in overall support, with corresponding decreases in overall opposition: *elevating buildings in areas at risk from sea level rise using government funds* (the percentage of residents who support this action increased from 39% in 2009 to 52% in 2014) and *elevating the land surface in areas at risk* (from 54% to 63%). For each of these the increase occurred either entirely or mostly in the *strongly* support category, but the increases in overall support are both statistically significant at  $p \leq 0.01$ , meaning each correlation would happen by chance only 1 out of 100 times. The percentage of residents who *strongly* support *allowing beaches and wetlands to naturally migrate inland* increased from 29% to 41% and is statistically significant, also at  $p \leq 0.01$ . For the remaining actions, overall support and opposition remained relatively stable from 2009 to 2014.
    - Four graphs are shown: the percentages who *strongly* support, the percentages who *strongly* or *moderately* support, the percentages who *strongly* oppose, and the percentages who *strongly* or *moderately* oppose.

- The large majority of Delaware residents (70%) support having their local and state governments spend more money on public construction projects if it means that the structures could withstand or accommodate sea level rise; however, 20% oppose.
  - Those who opposed in the preceding question were then asked if they would support or oppose such construction measures if they knew that it would save money in the long run: 33% of this group then support the idea (meanwhile, 61% still oppose).
  - In the trends analysis, overall support for having local and state governments spend more money on public construction projects if it means the structures can withstand or accommodate sea level rise increased slightly from 2009 to 2014, and overall opposition decreased slightly. The most substantial change was an increase in the percentage of residents who *strongly* support the action, going from 34% in 2009 to 46% in 2014, and this increase is significant at  $p \leq 0.01$ , meaning each correlation would happen by chance only 1 out of 100 times. Results for the conditional follow-up questions among those who initially opposed such action did not result in any substantial fluctuations from 2009 to 2014.

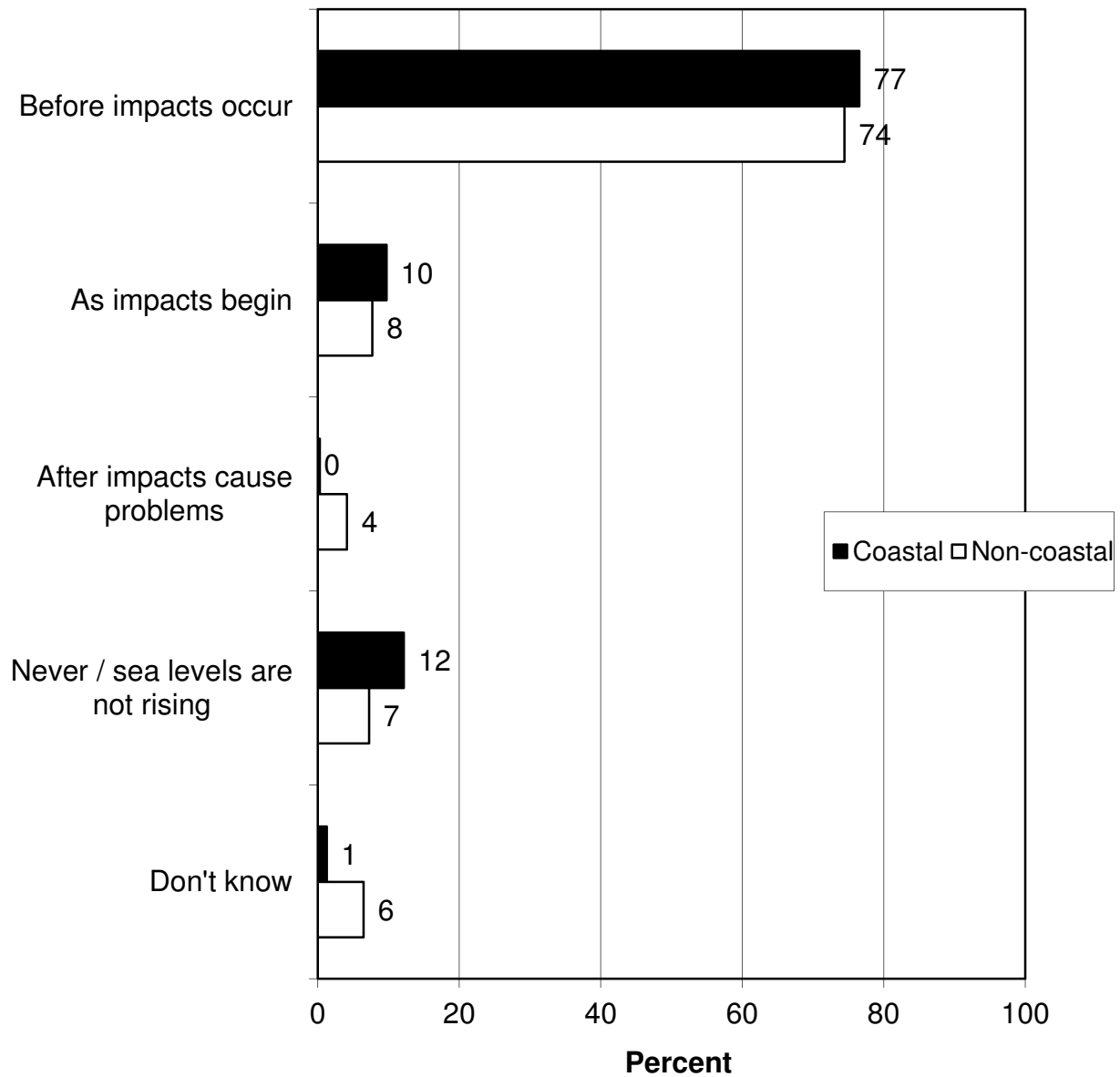
**Q80. When do you think action should be taken to address or reduce the impacts of sea level rise in the area where you live in Delaware? Would you say...?**



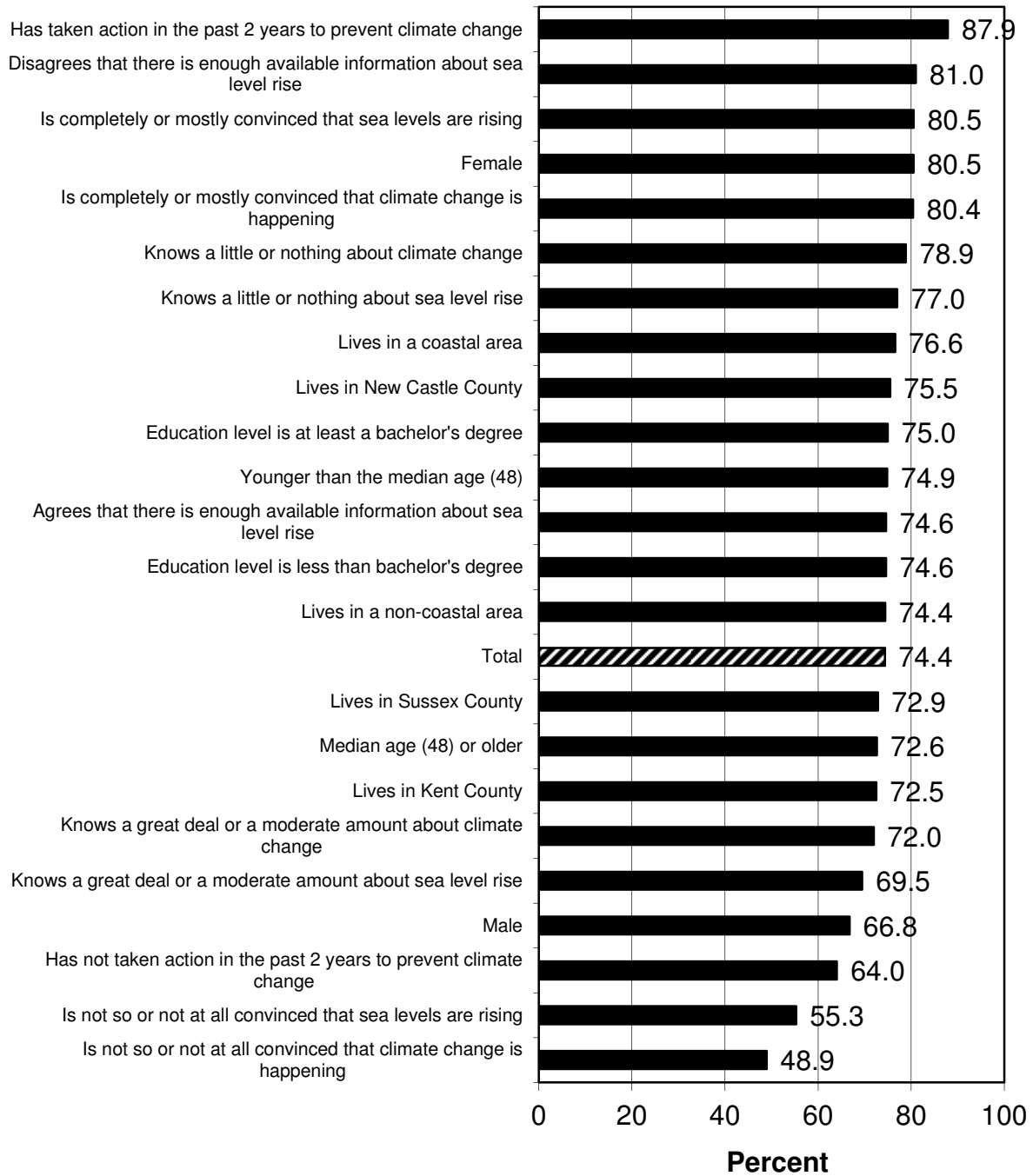
**Q80. When do you think action should be taken to address or reduce the impacts of sea level rise in the area where you live in Delaware? Would you say...?**



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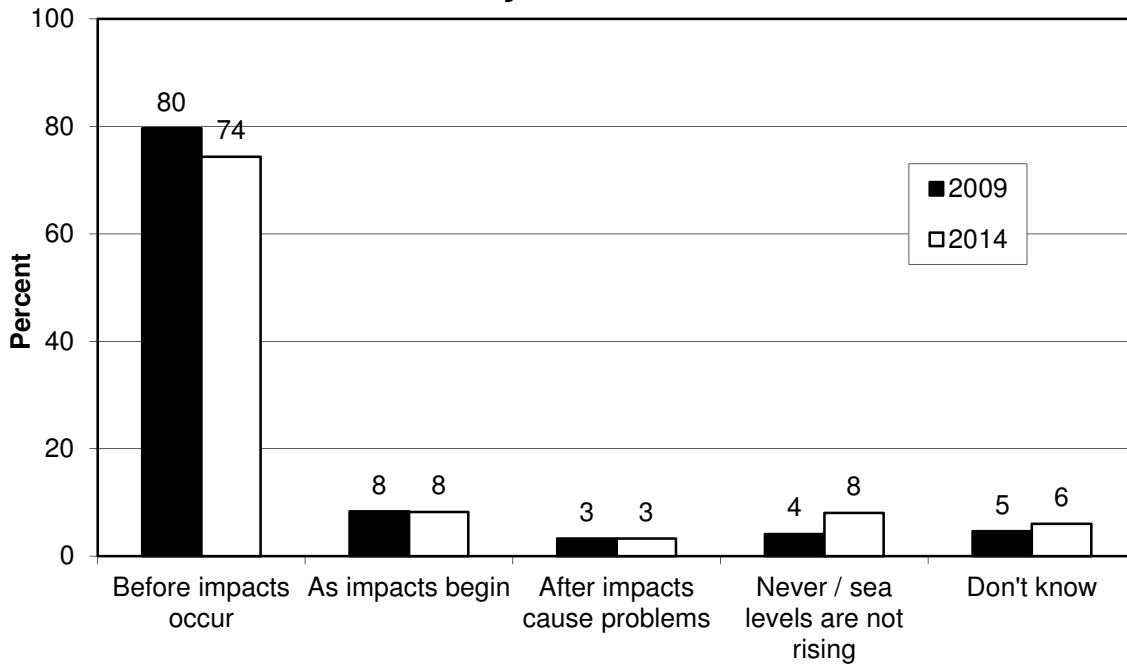
### Percent who think action should be taken before impacts of sea level rise occur:



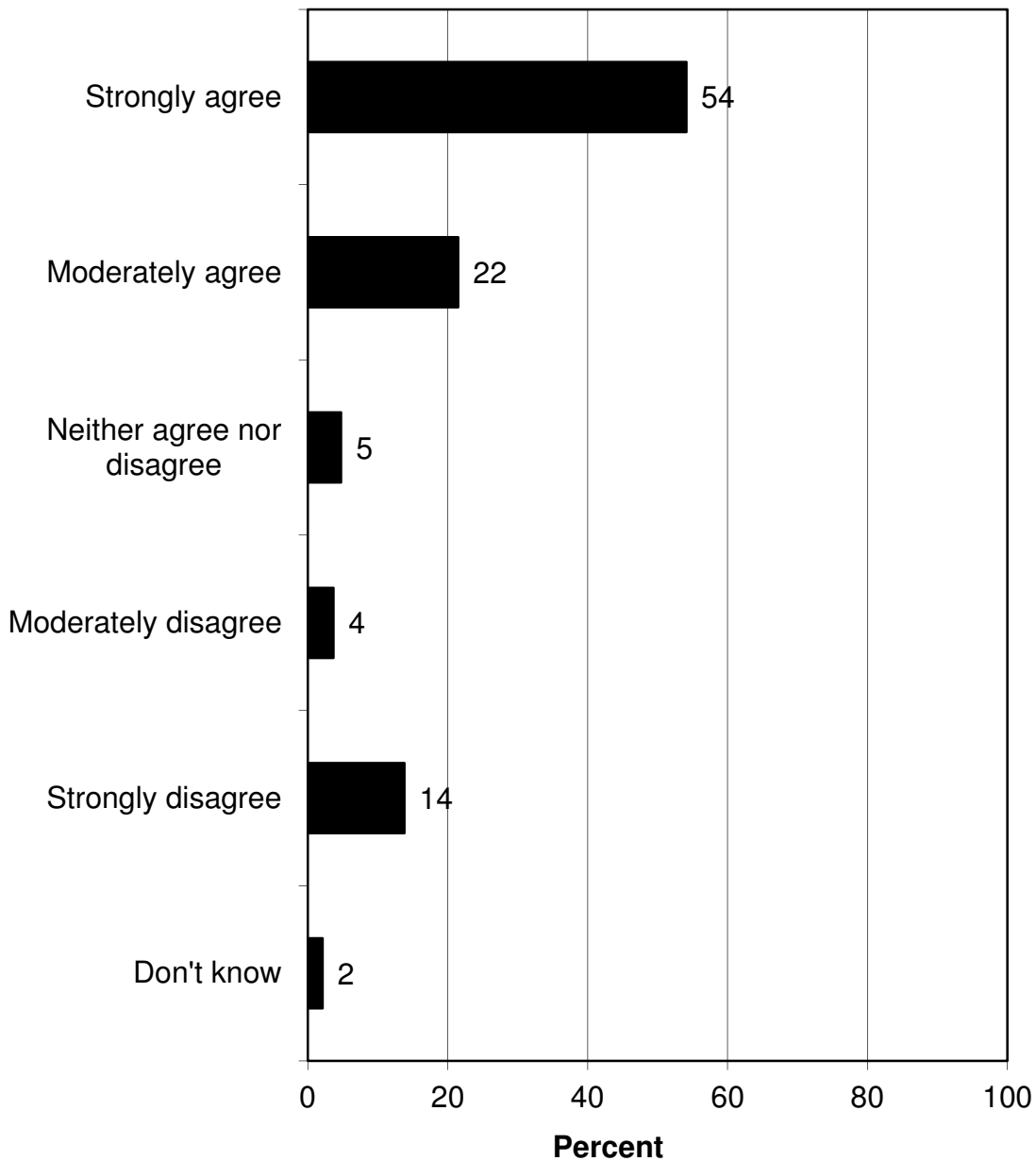
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to think that action should be taken before impacts of sea level rise occur, relative to what residents as a whole think. Overall, 74.4% of Delaware residents think action should be taken before impacts of sea level rise occur (striped bar). Those groups more inclined to think this are above that bar (for instance, 80.5% of females think so); those groups less inclined to think so are below that bar (for instance, only 66.8% of males think so).



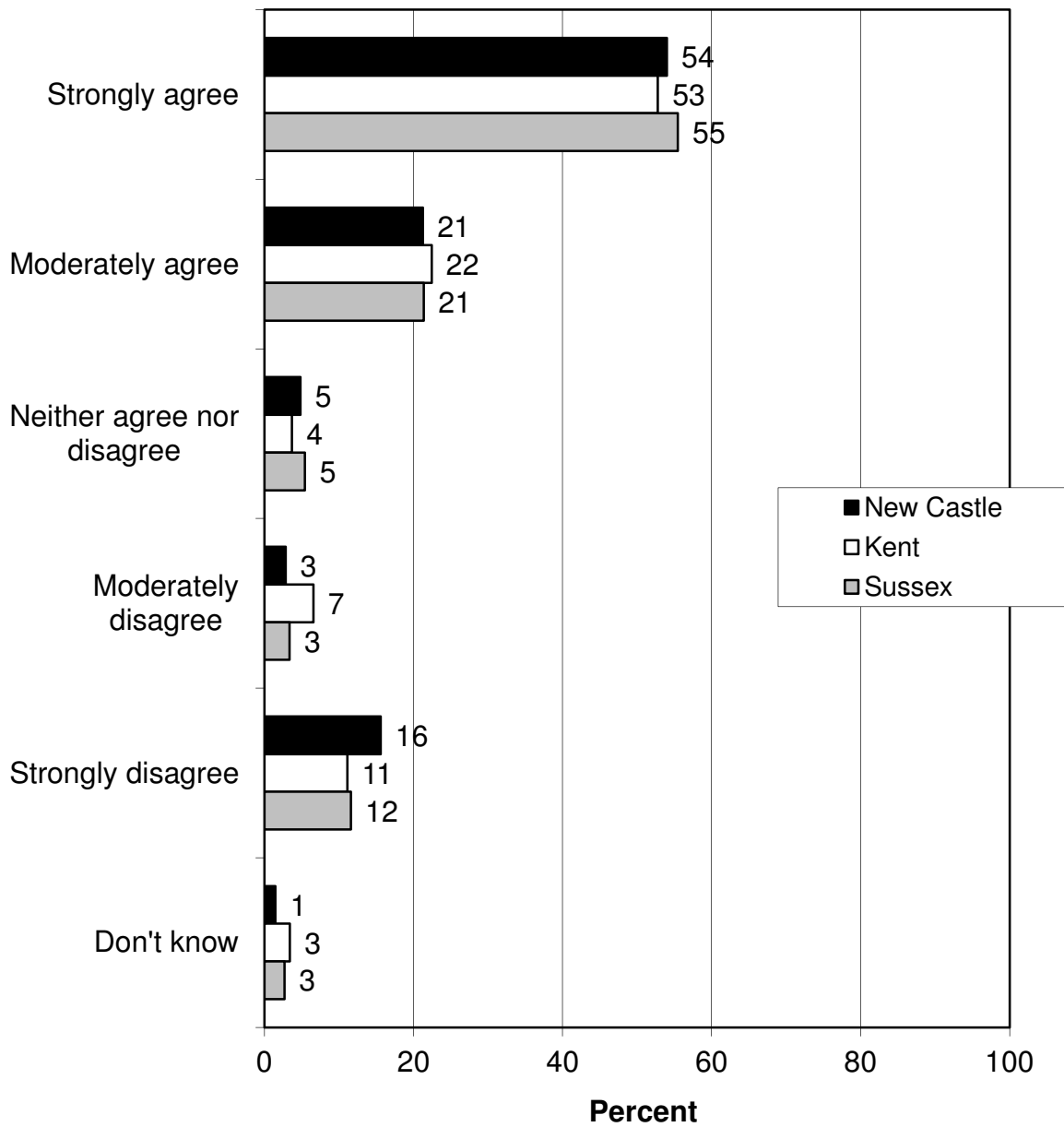
**Q80. When do you think action should be taken to address or reduce the impacts of sea level rise in the area where you live in Delaware?**



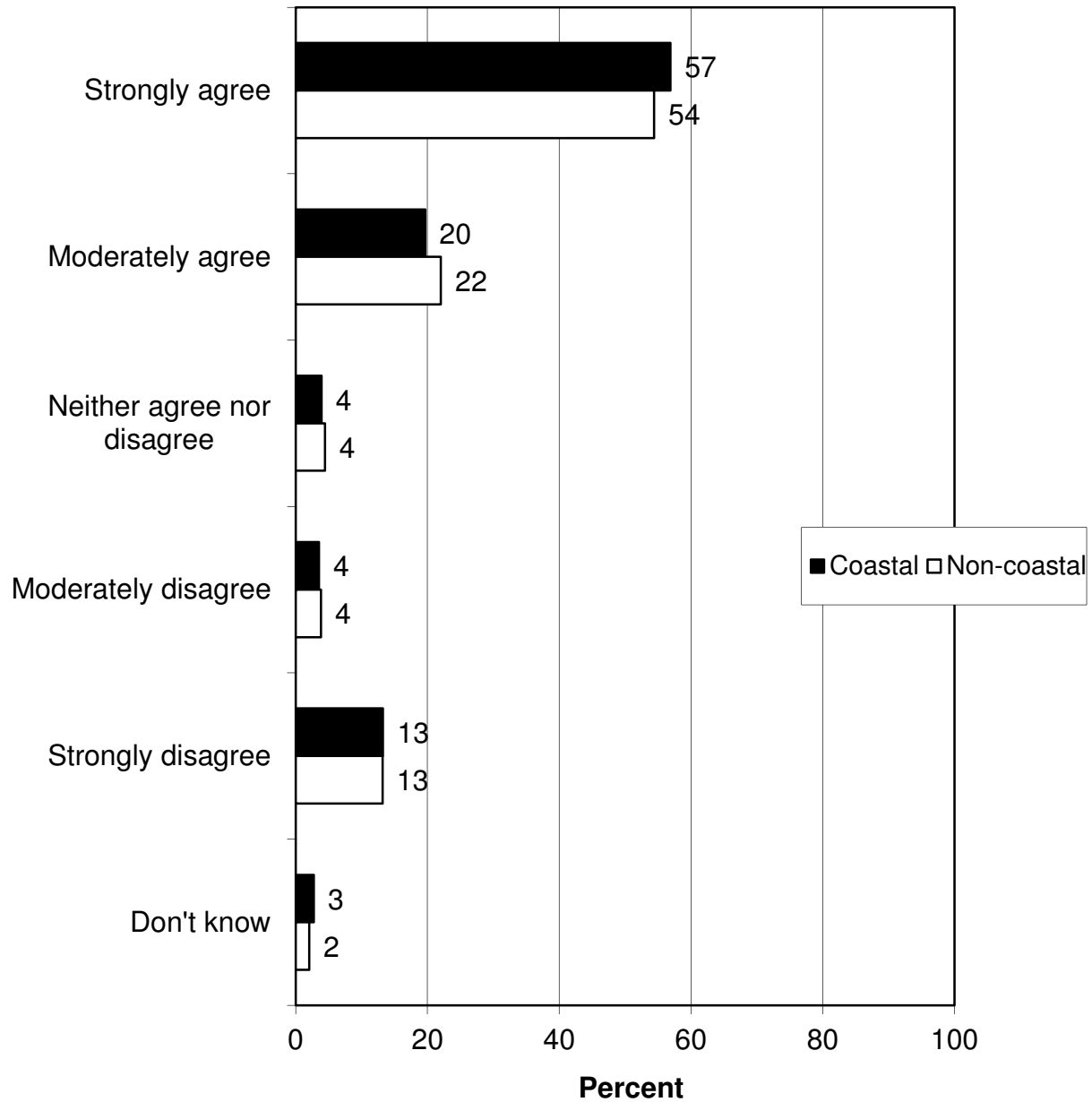
**Q90. We should take immediate action to reduce the impacts of climate change. (Do you agree or disagree with this statement?)**



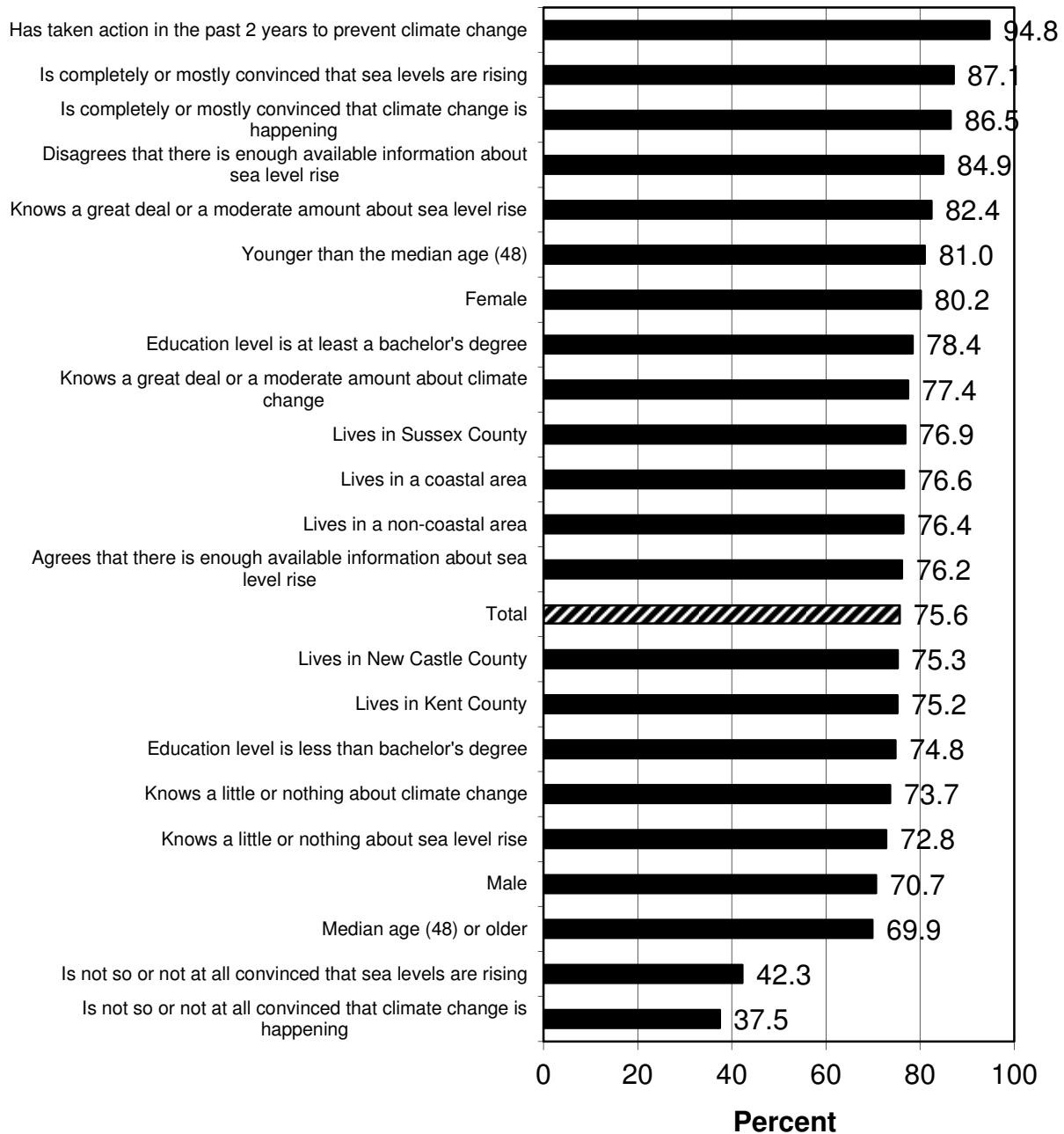
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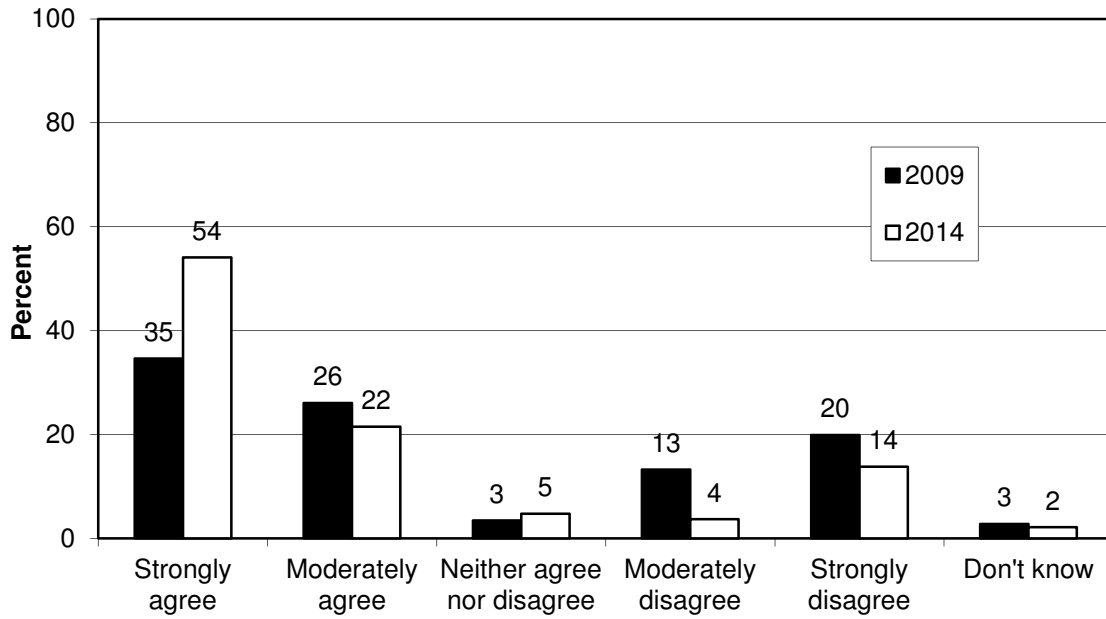


**Percent of each of the following groups who agree (strongly or moderately) that we should take immediate action to reduce climate change:**

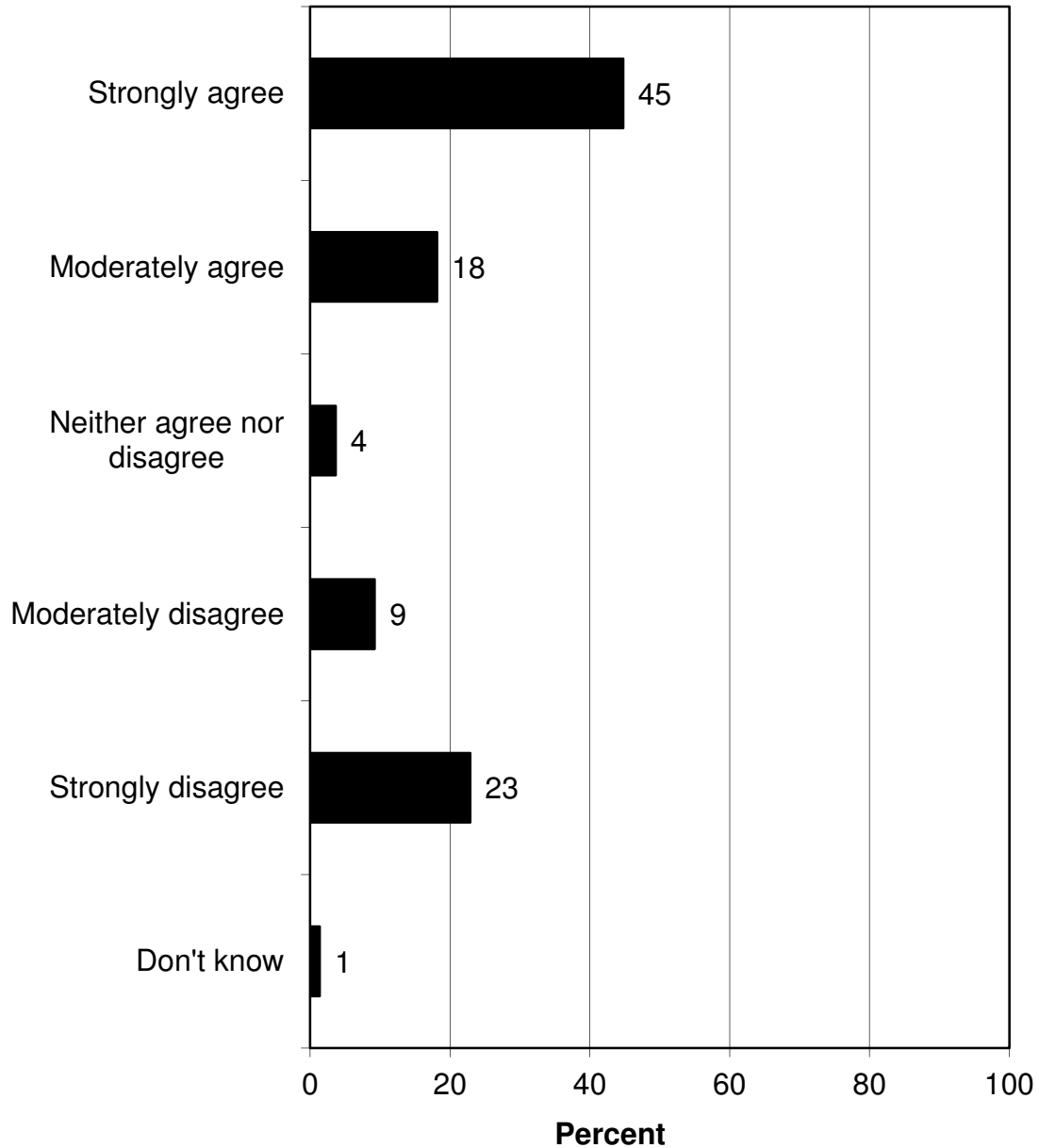


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to agree that immediate action to reduce climate change should be taken, relative to residents as a whole. Overall, 75.6% of Delaware residents agree (striped bar). Those groups more inclined to agree are above that bar (for instance, 80.2% of females agree); those groups less inclined to agree are below that bar (for instance, only 70.7% of males agree).

**Q90. Do you agree or disagree with this statement: We should take immediate [and drastic] action to reduce the impacts of climate change.**

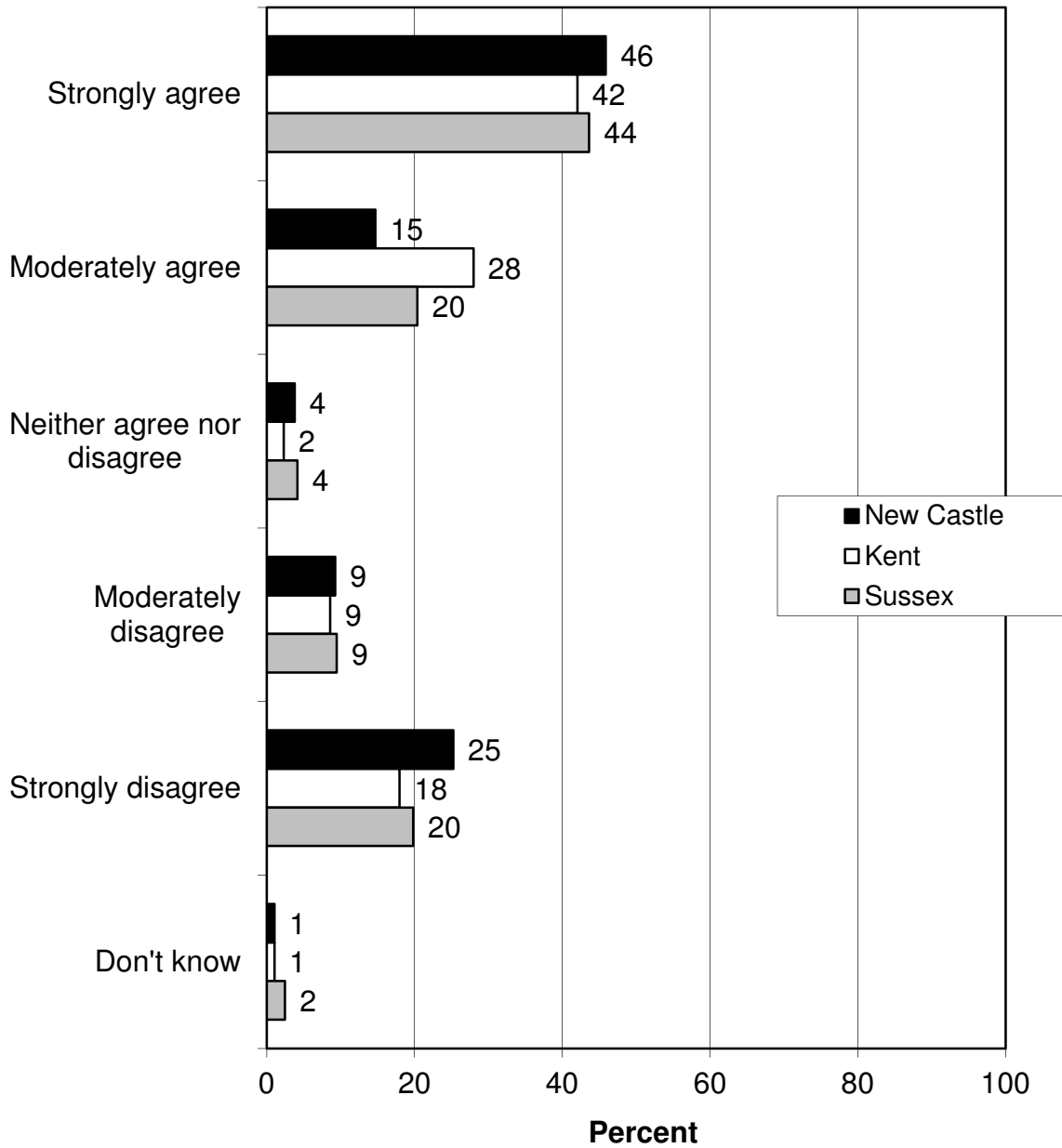


**Q91. We should conduct more research before taking any action to address climate change. (Do you agree or disagree with this statement?)**

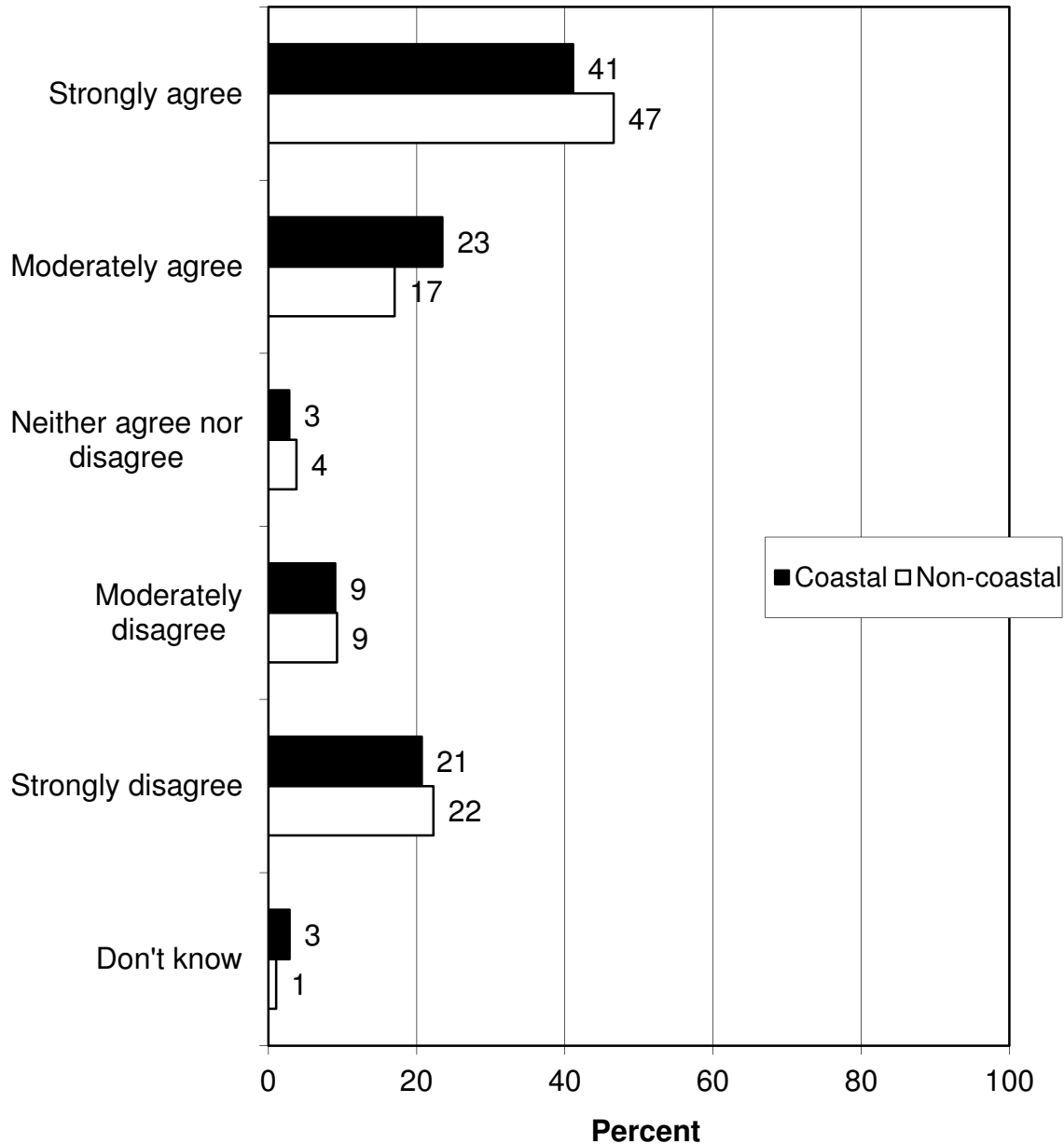




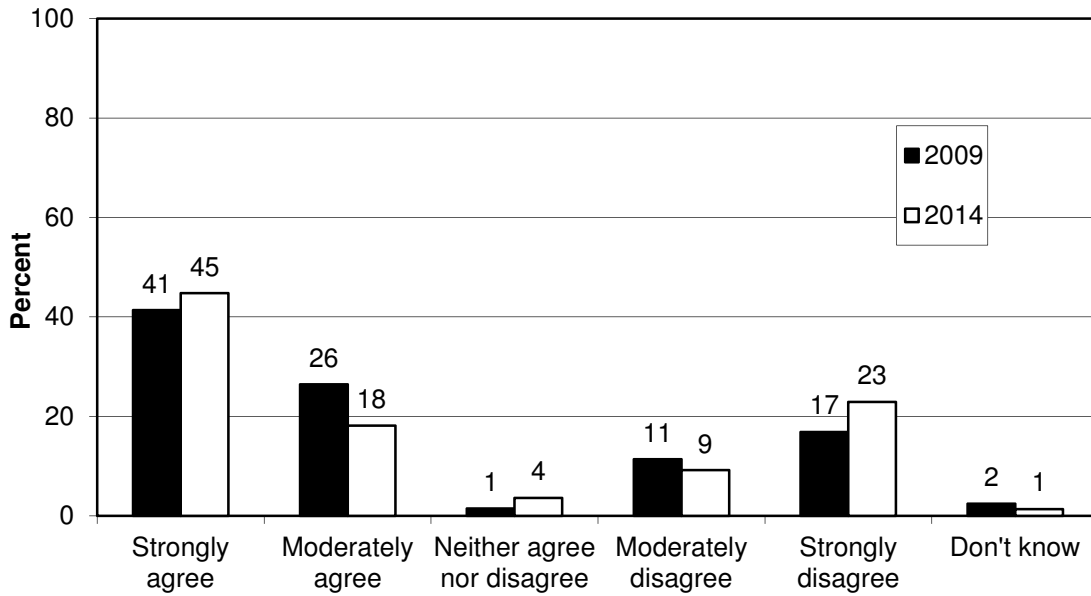
**Q91. We should conduct more research before taking any action to address climate change. (Do you agree or disagree with this statement?)**



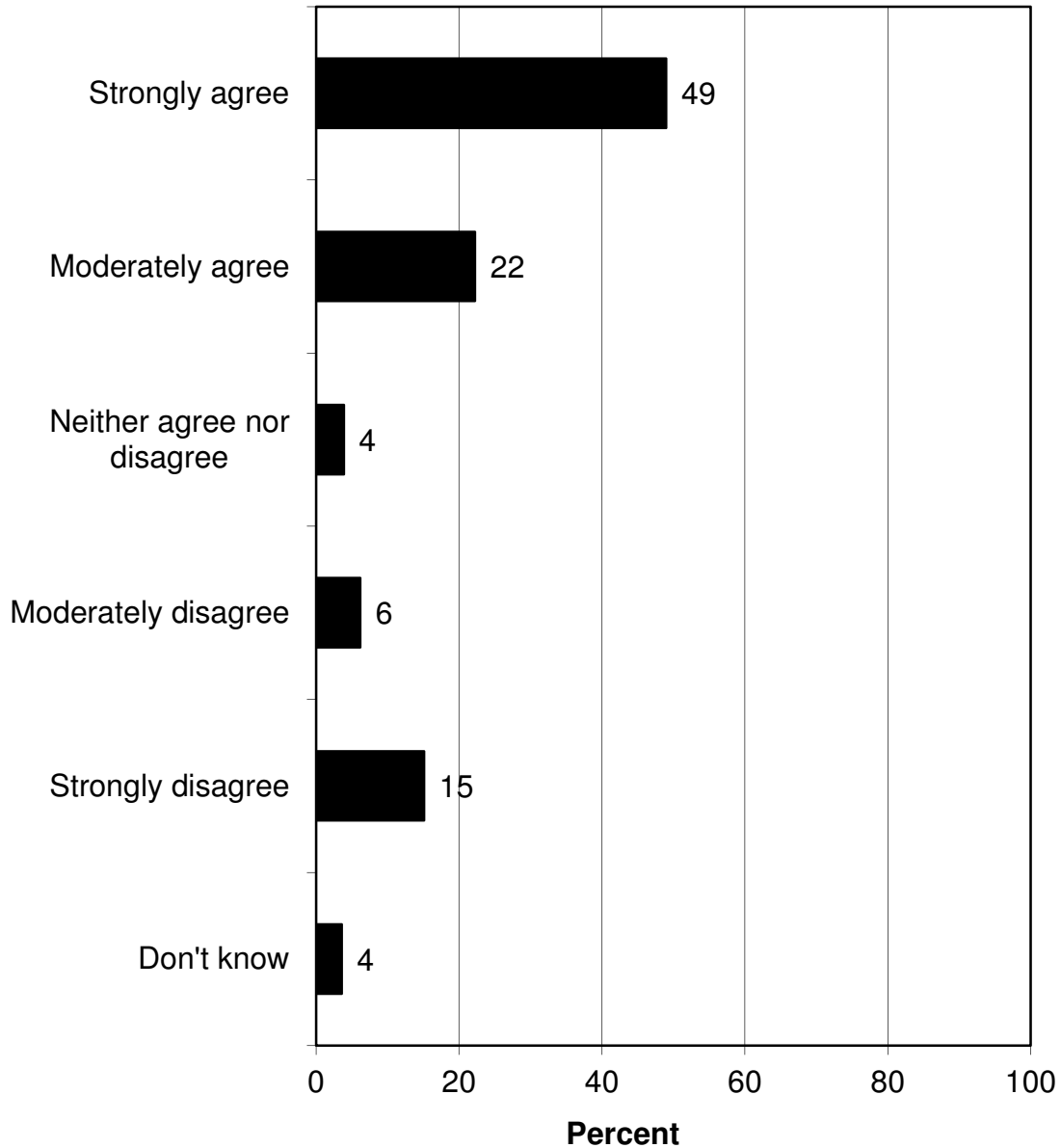
**Q91. We should conduct more research before taking any action to address climate change. (Do you agree or disagree with this statement?)**



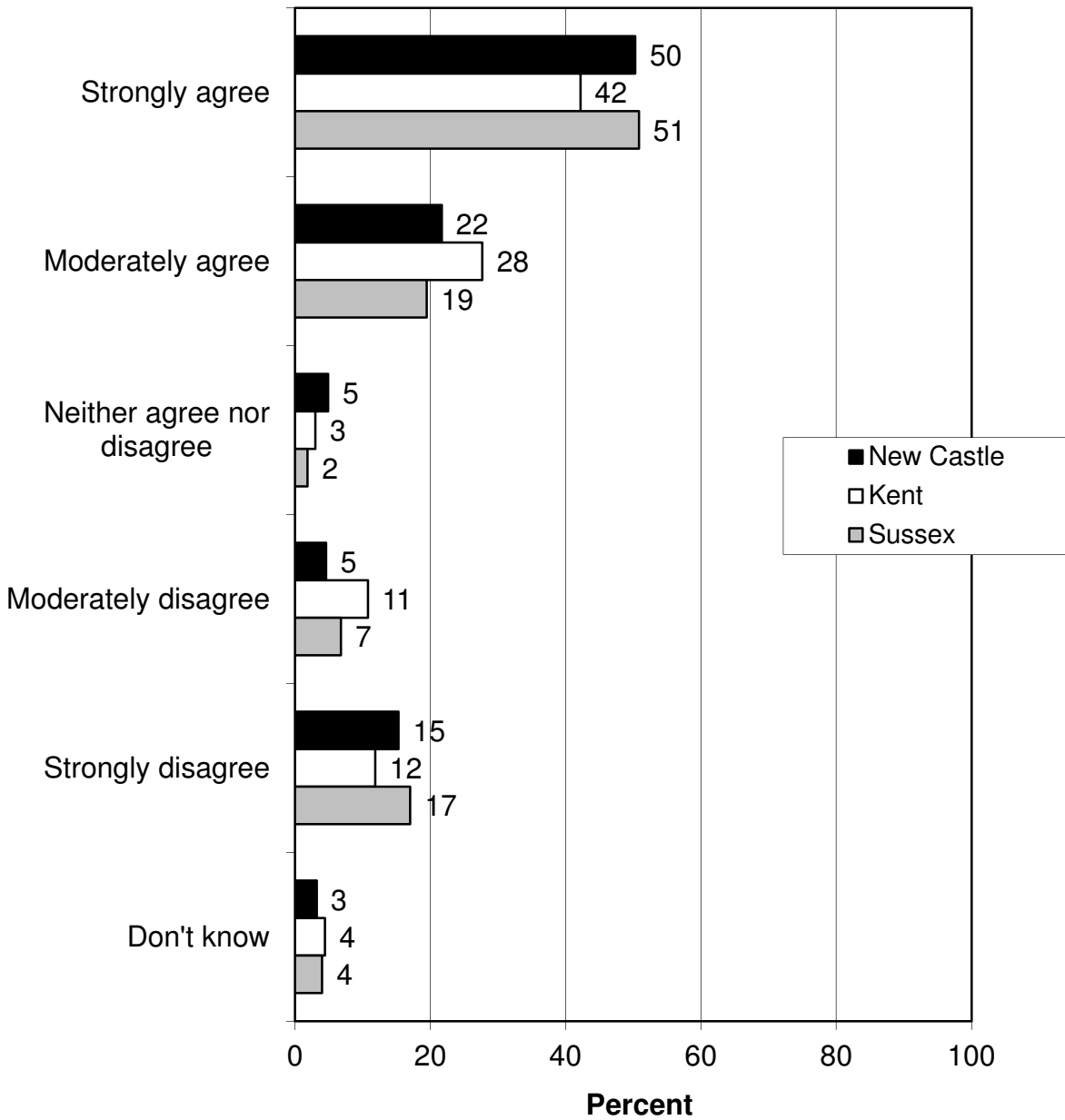
**Q91. Do you agree or disagree with this statement: We should conduct more research before taking any action to address climate change.**



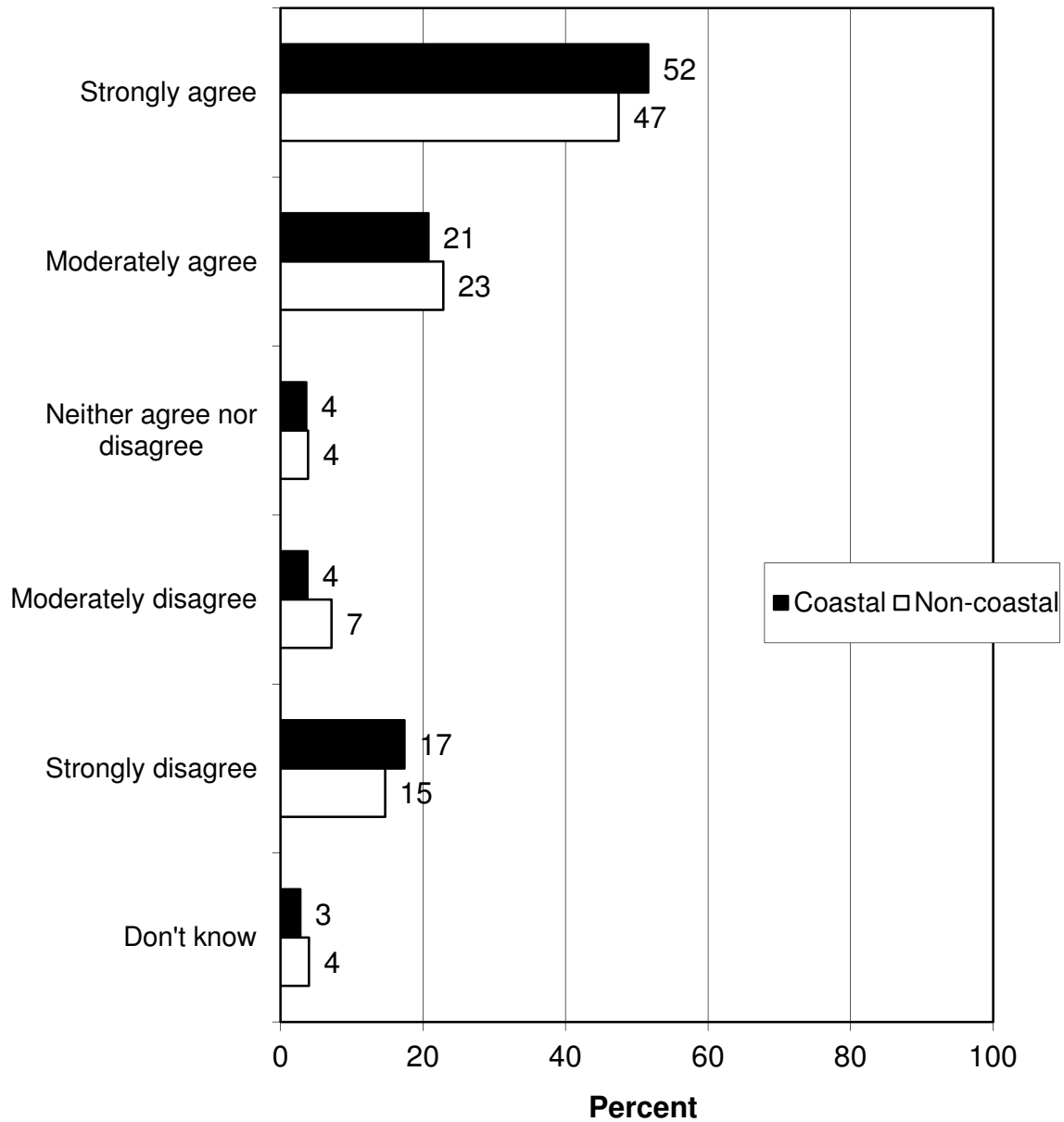
**Q103. We should take immediate action to reduce the impacts of sea level rise. (Do you agree or disagree with this statement?)**



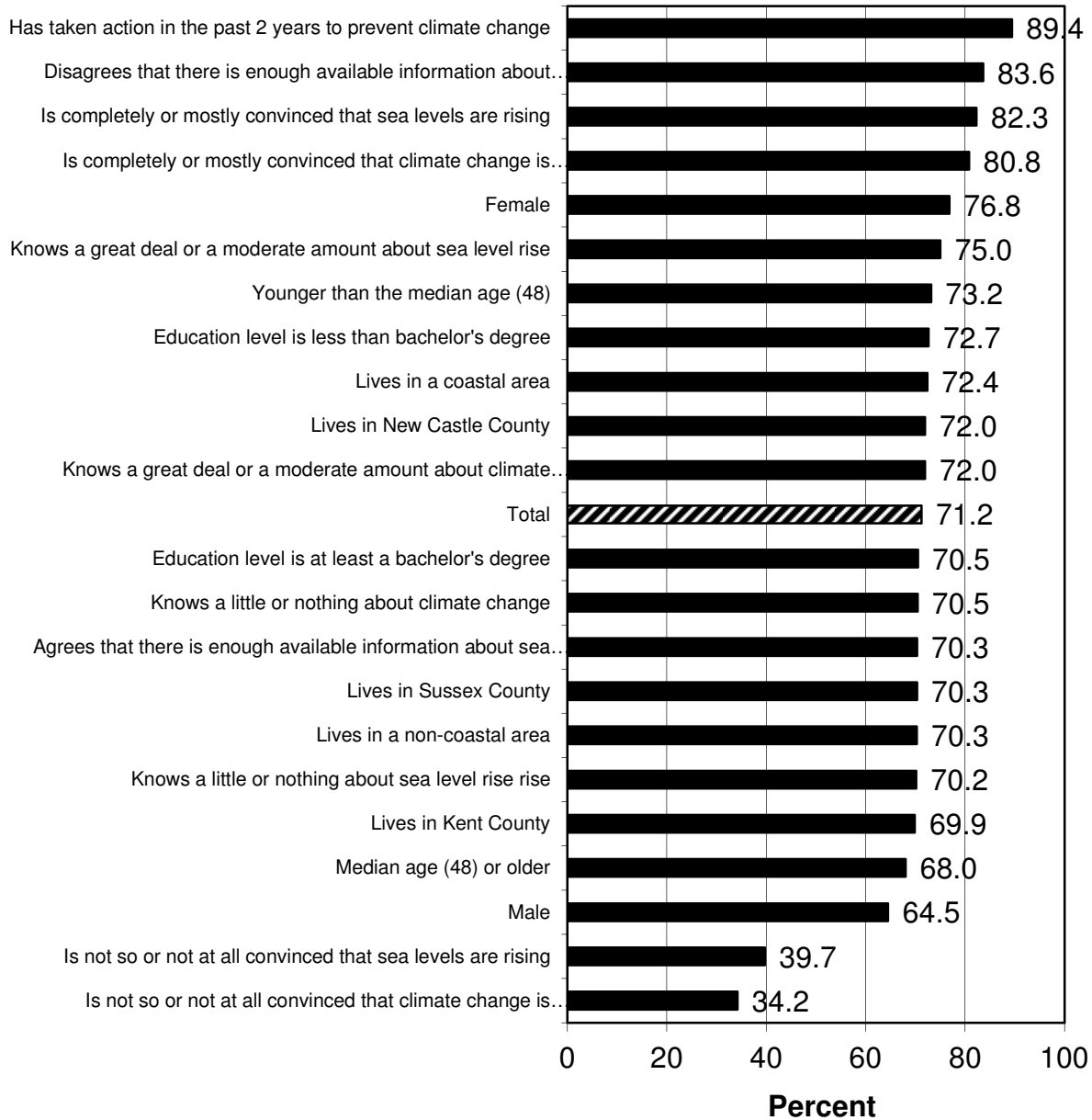
**Q103. We should take immediate action to reduce the impacts of sea level rise. (Do you agree or disagree with this statement?)**



**Q103. We should take immediate action to reduce the impacts of sea level rise. (Do you agree or disagree with this statement?)**



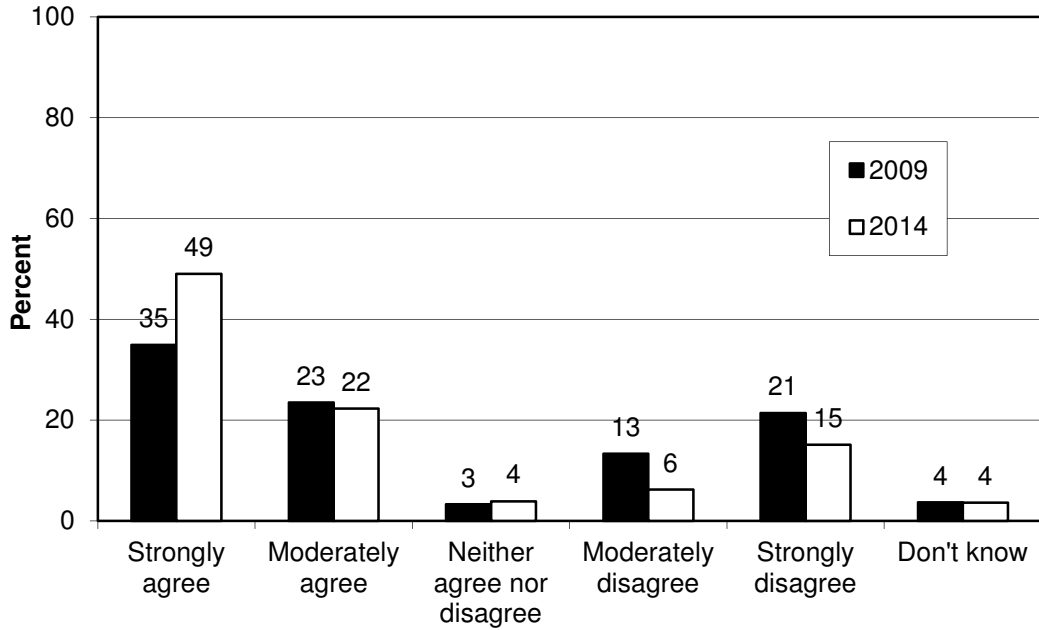
**Percent of each of the following groups who agree (strongly or moderately) that we should take immediate action to reduce the impacts of sea level rise:**



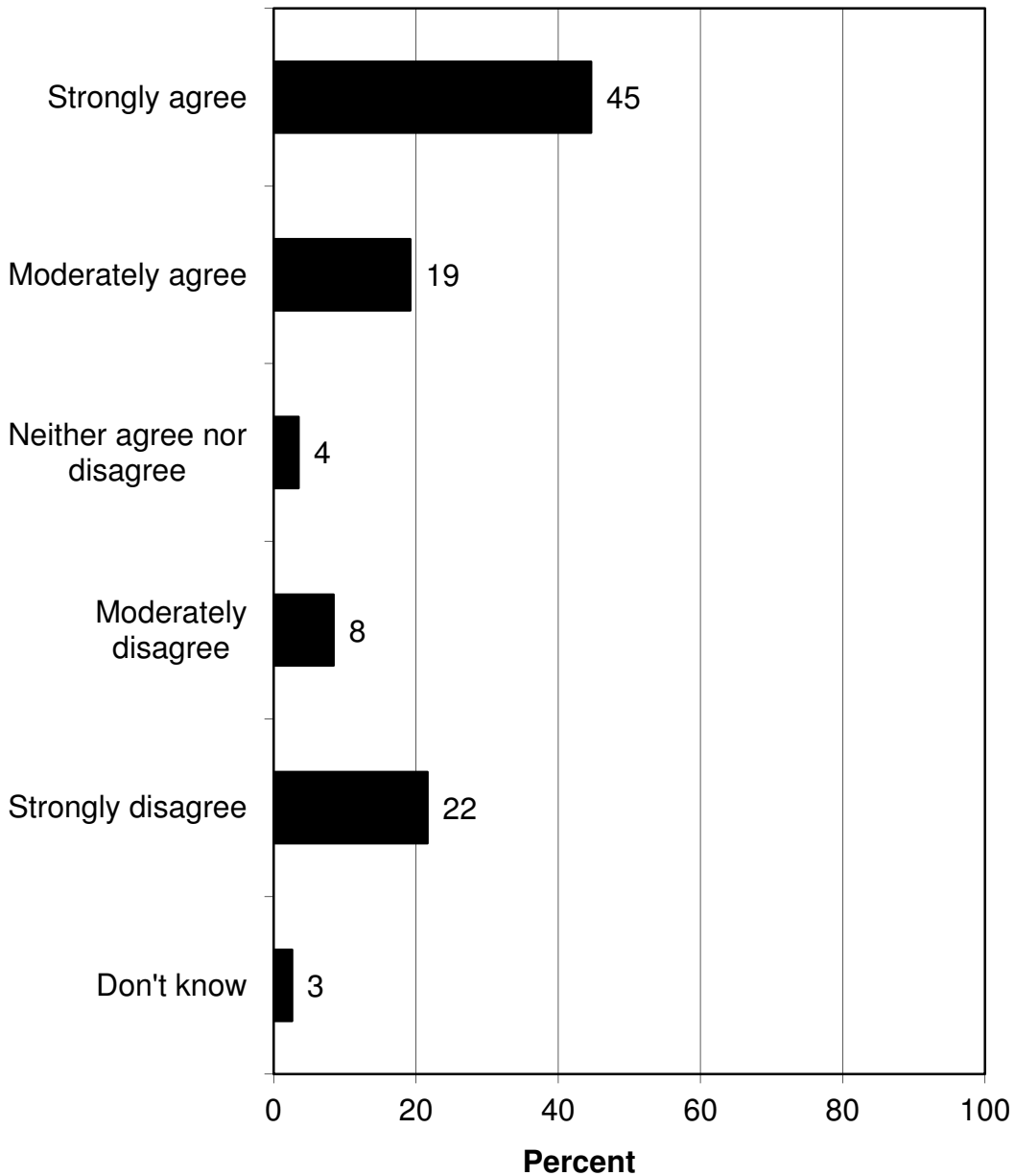
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to agree that we should take immediate action to reduce the impacts of sea level rise, relative to residents as a whole. Overall, 71.2% of Delaware residents agree with this (striped bar). Those groups more inclined to agree with this are above that bar (for instance, 76.8% of females agree); those groups less inclined to agree are below that bar (for instance, only 64.5% of males agree).



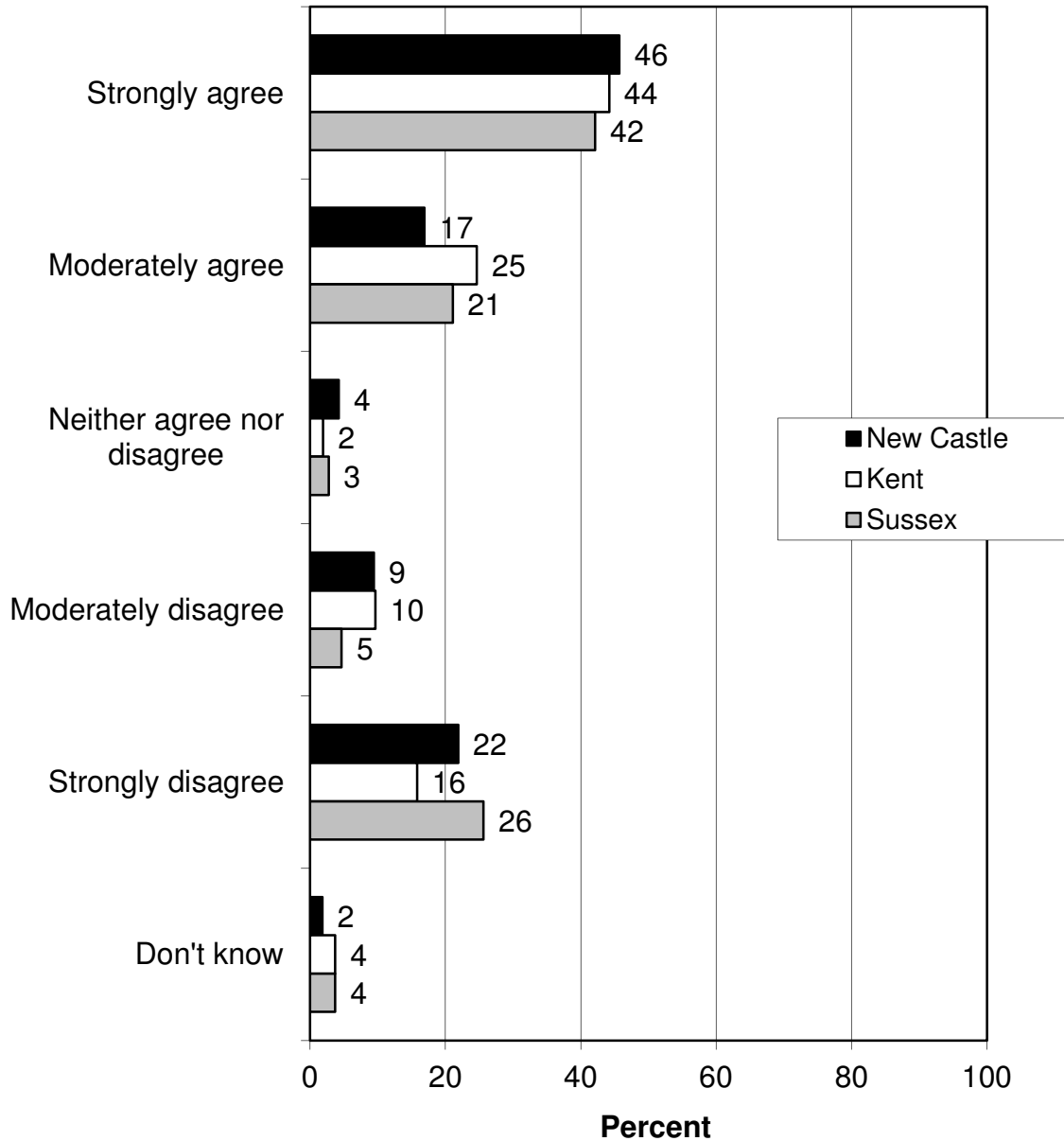
**Q103. Do you agree or disagree with this statement:  
We should take immediate [and drastic] action to  
reduce the impacts of sea level rise.**



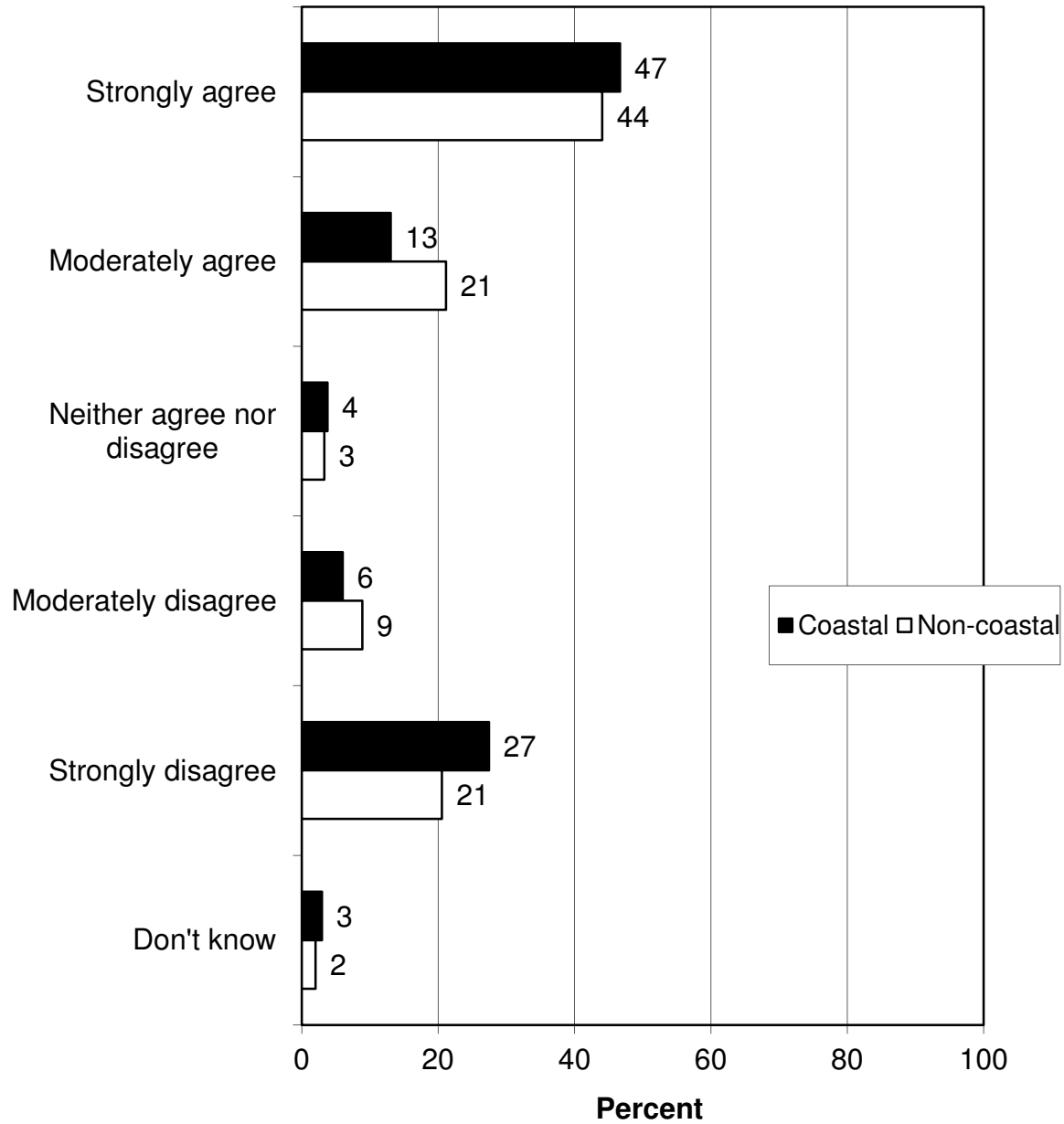
**Q104. We should conduct more research before taking any action to address sea level rise. (Do you agree or disagree with this statement?)**



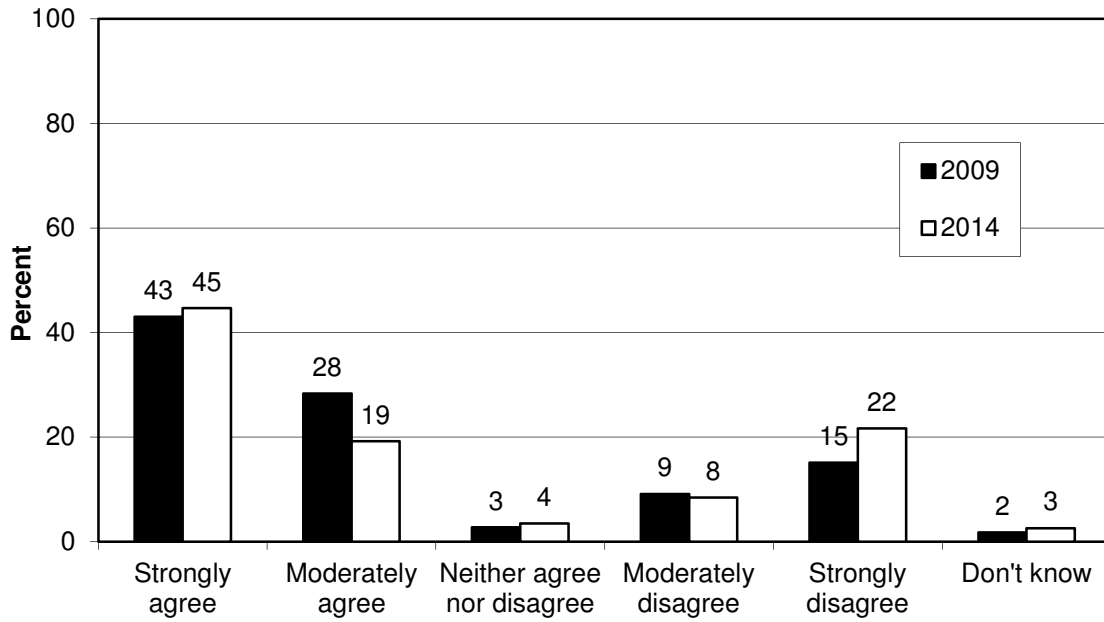
**Q104. We should conduct more research before taking any action to address sea level rise. (Do you agree or disagree with this statement?)**



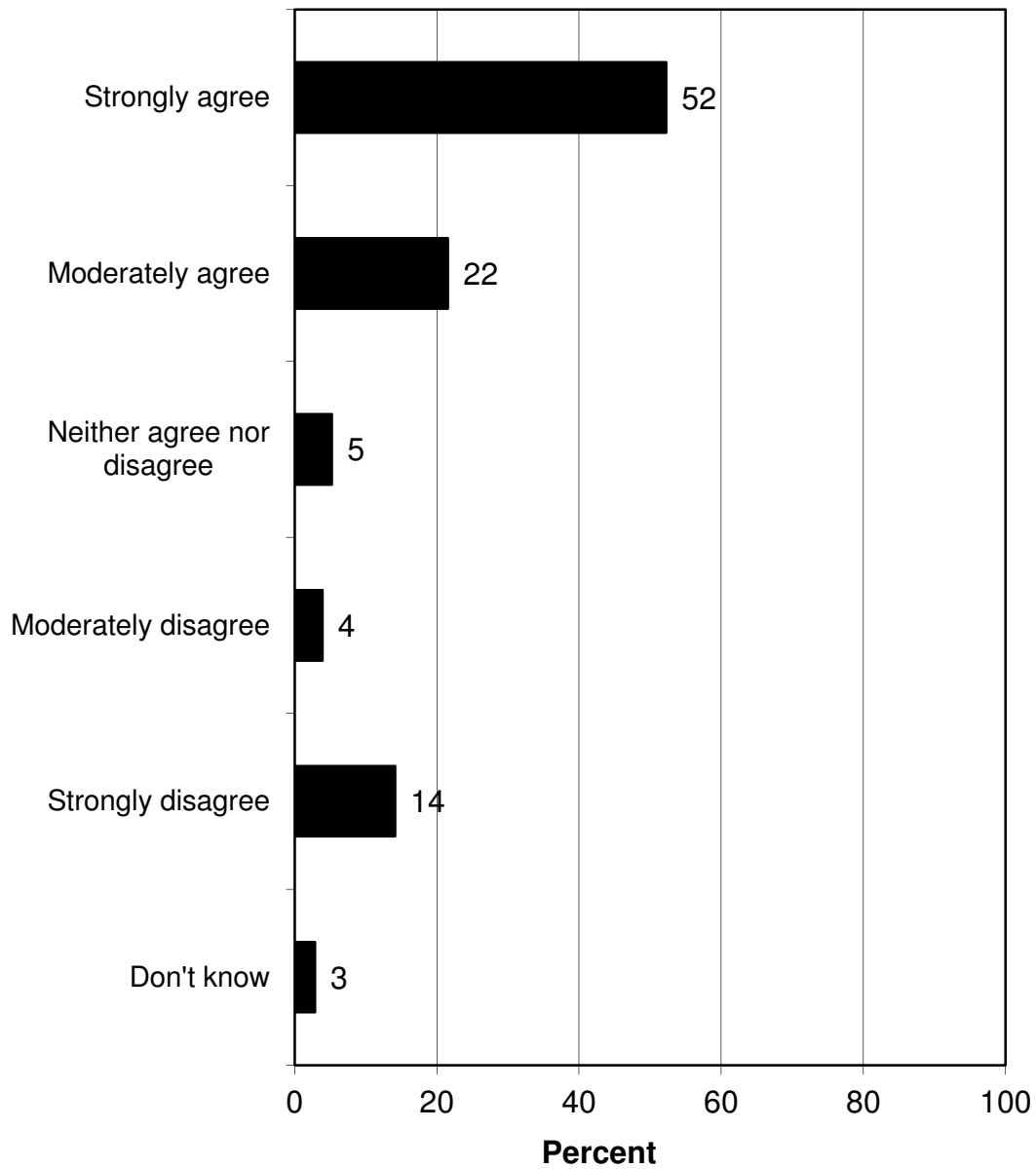
**Q104. We should conduct more research before taking any action to address sea level rise. (Do you agree or disagree with this statement?)**



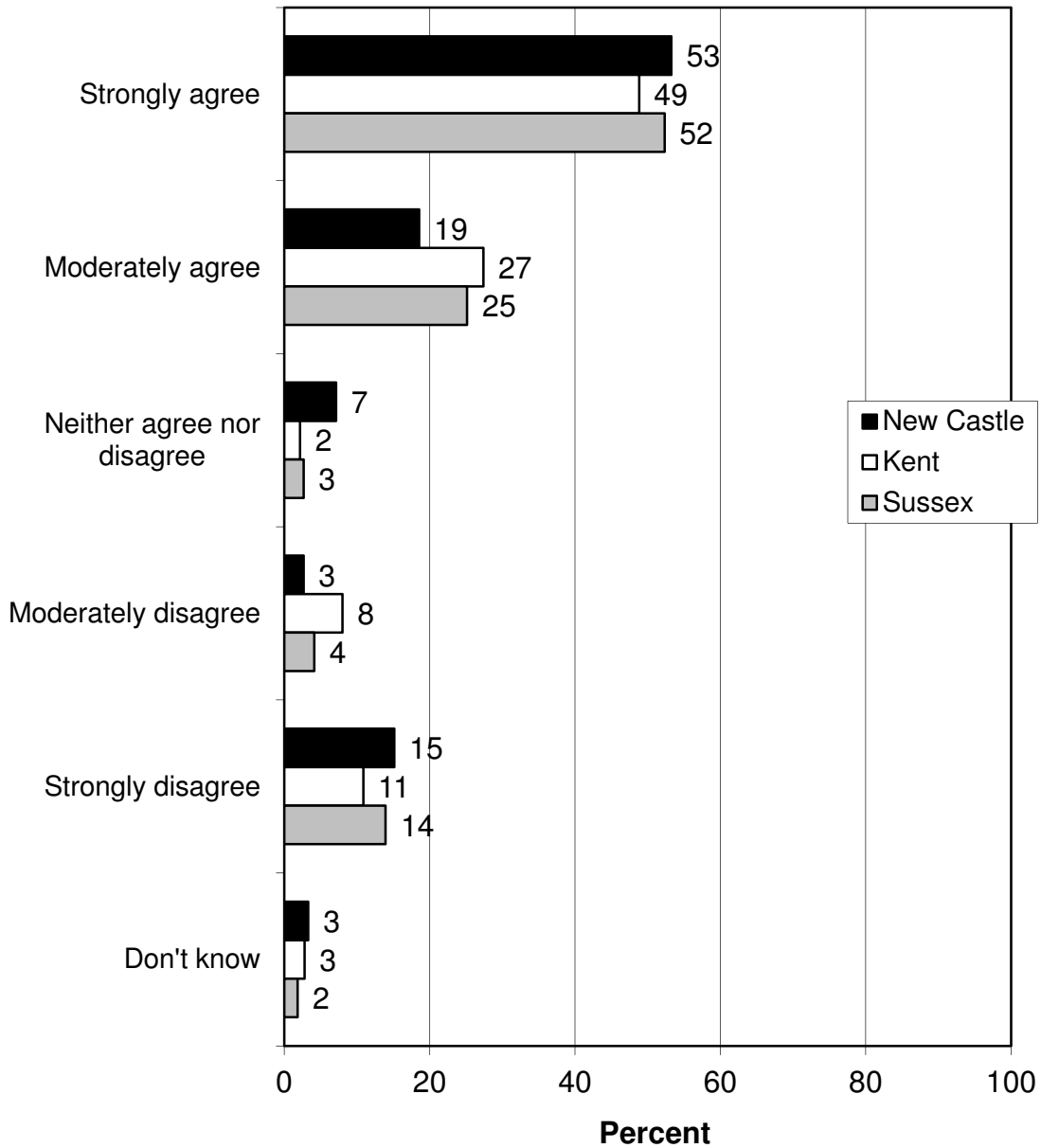
**Q104. Do you agree or disagree with this statement:  
We should conduct more research before taking any  
action to address sea level rise.**



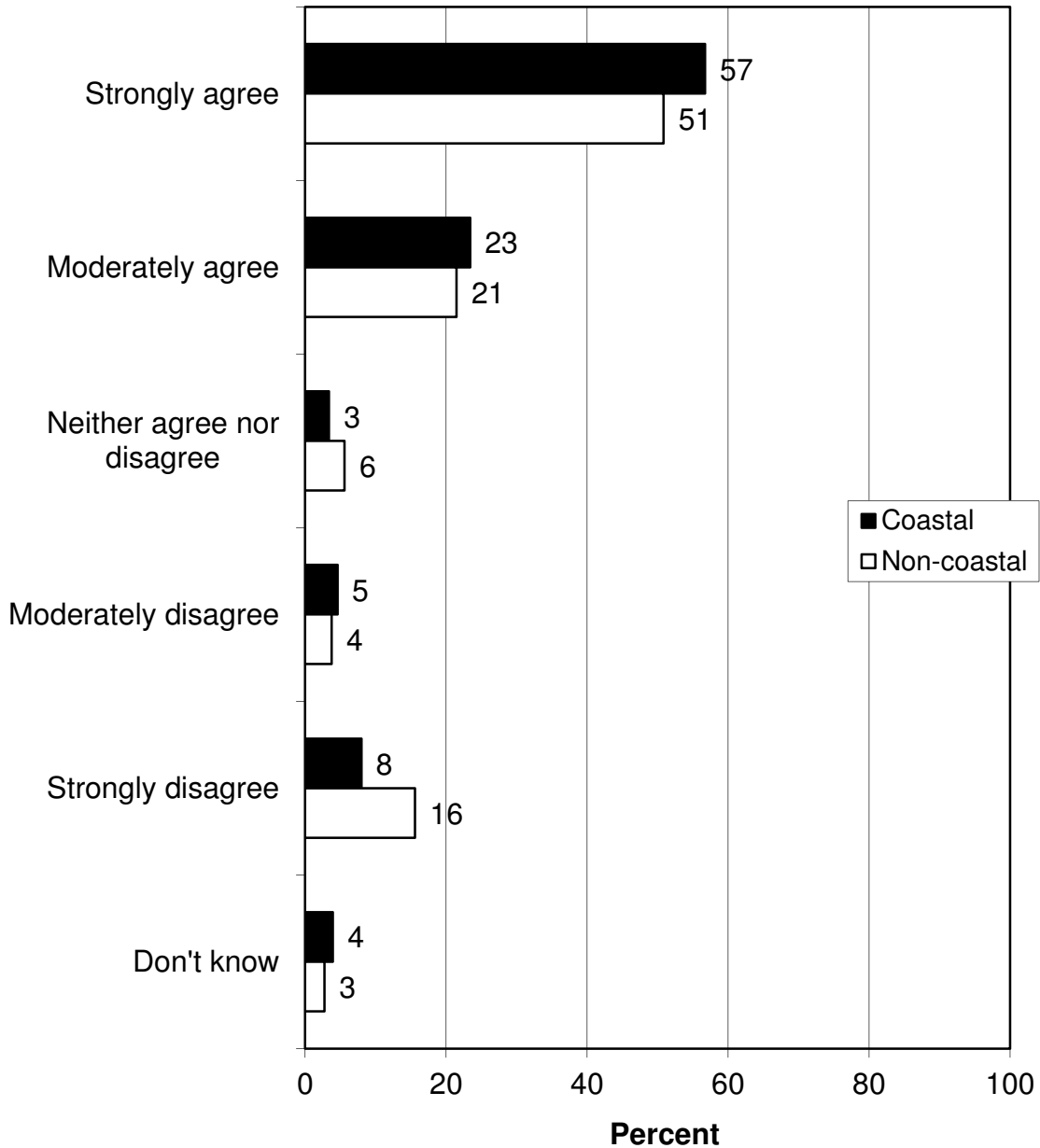
**Q100. The state of Delaware needs to conduct more research to identify the impacts of sea level rise in Delaware.**



**Q100. The state of Delaware needs to conduct more research to identify the impacts of sea level rise in Delaware. (Do you agree or disagree with this statement?)**

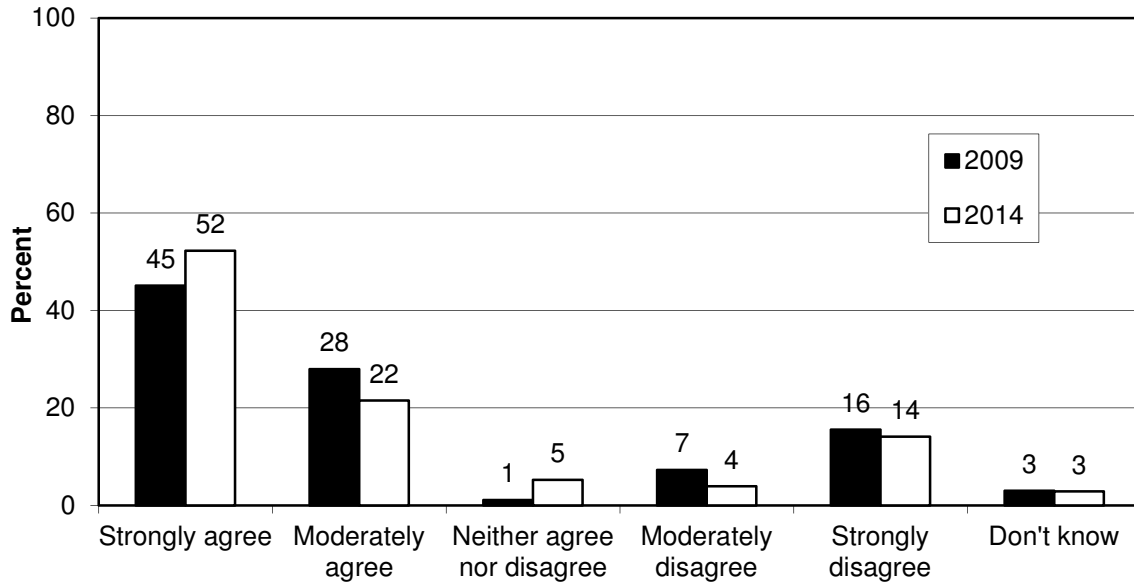


**Q100. The state of Delaware needs to conduct more research to identify the impacts of sea level rise in Delaware. (Do you agree or disagree with this statement?)**

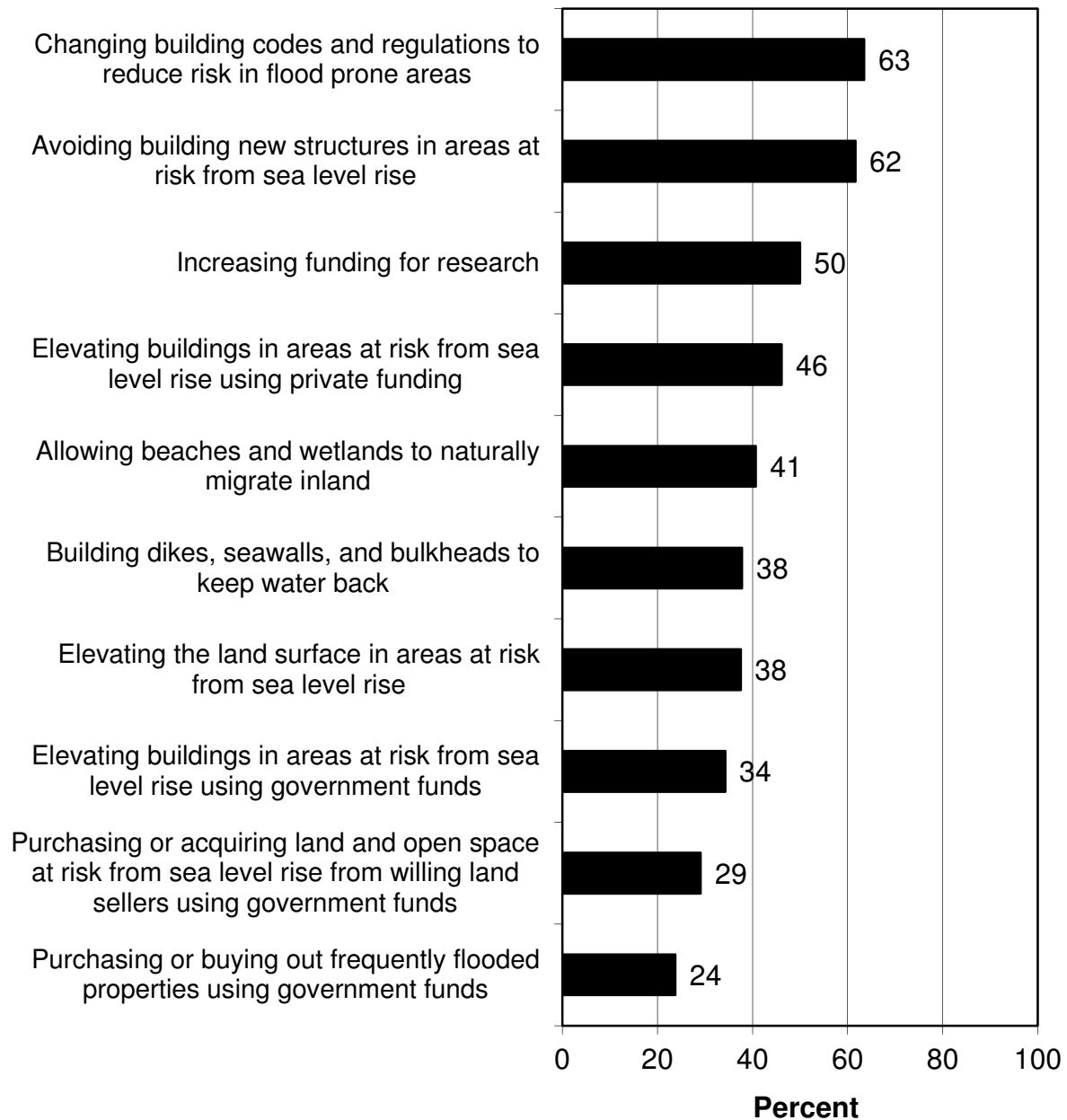




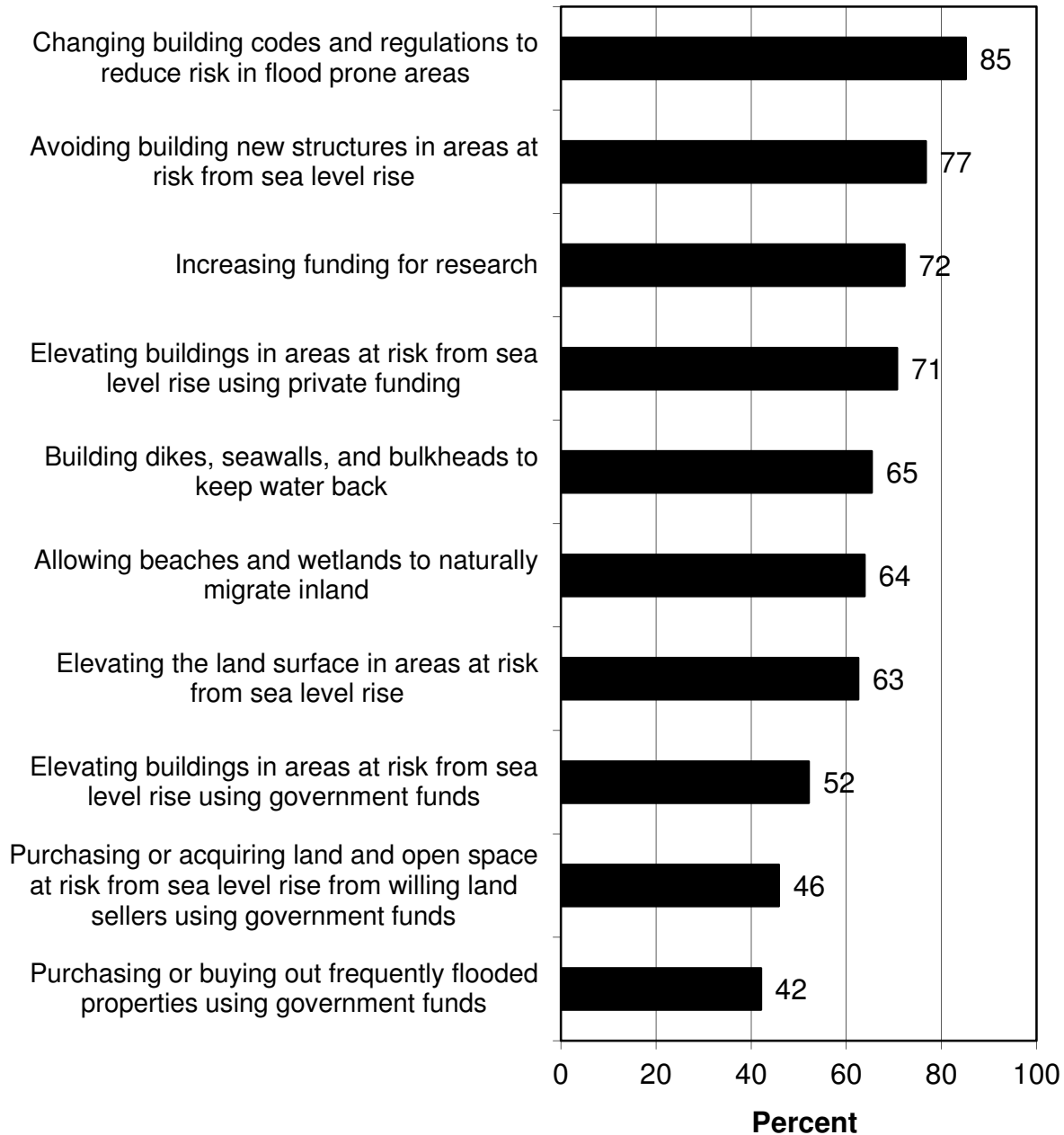
**Q100. Do you agree or disagree with this statement:  
The state of Delaware needs to conduct more research  
to identify the impacts of sea level rise in Delaware.**



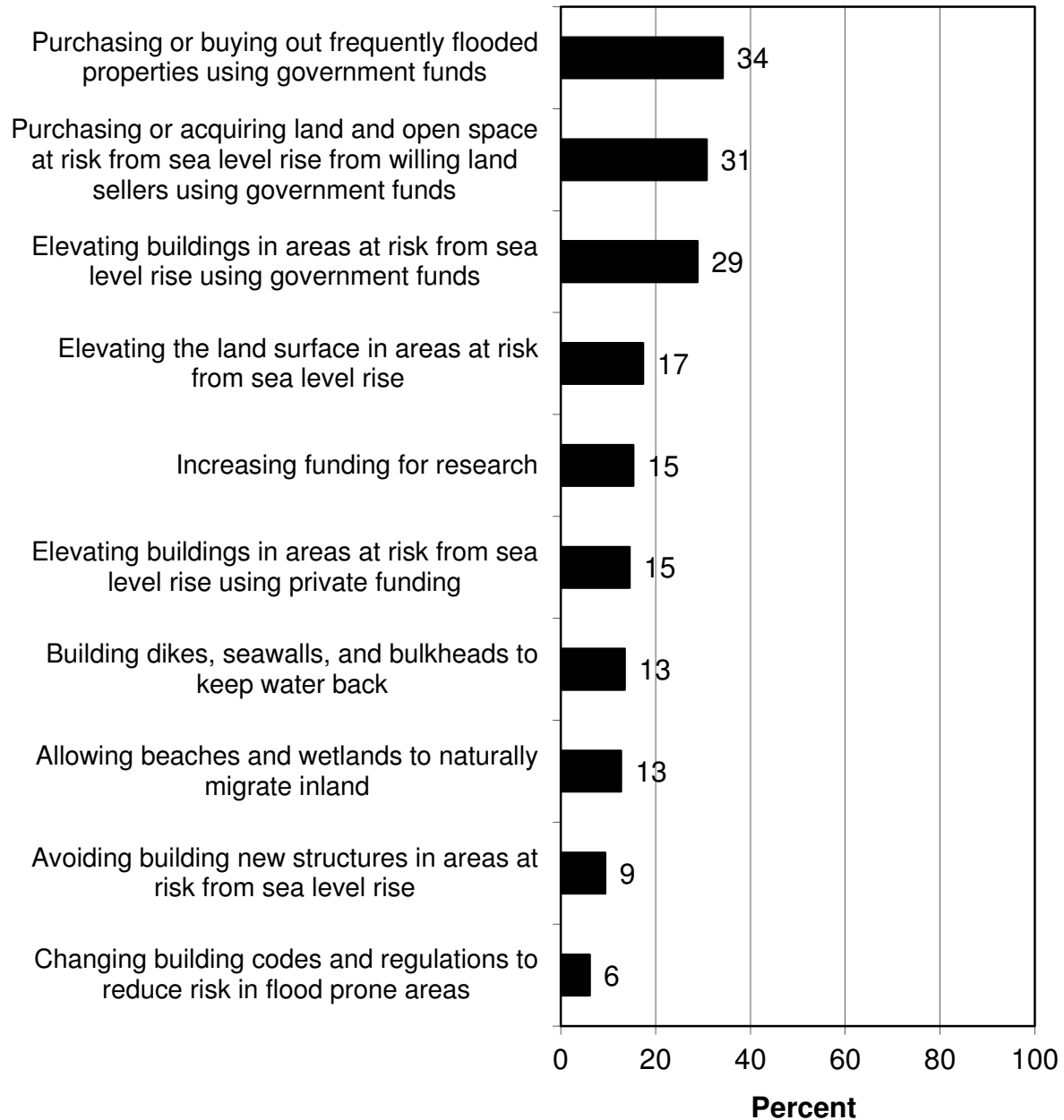
**Q107-Q116. Percent of respondents who strongly support the following potential actions that could be taken to address sea level rise in Delaware or reduce its impacts.**



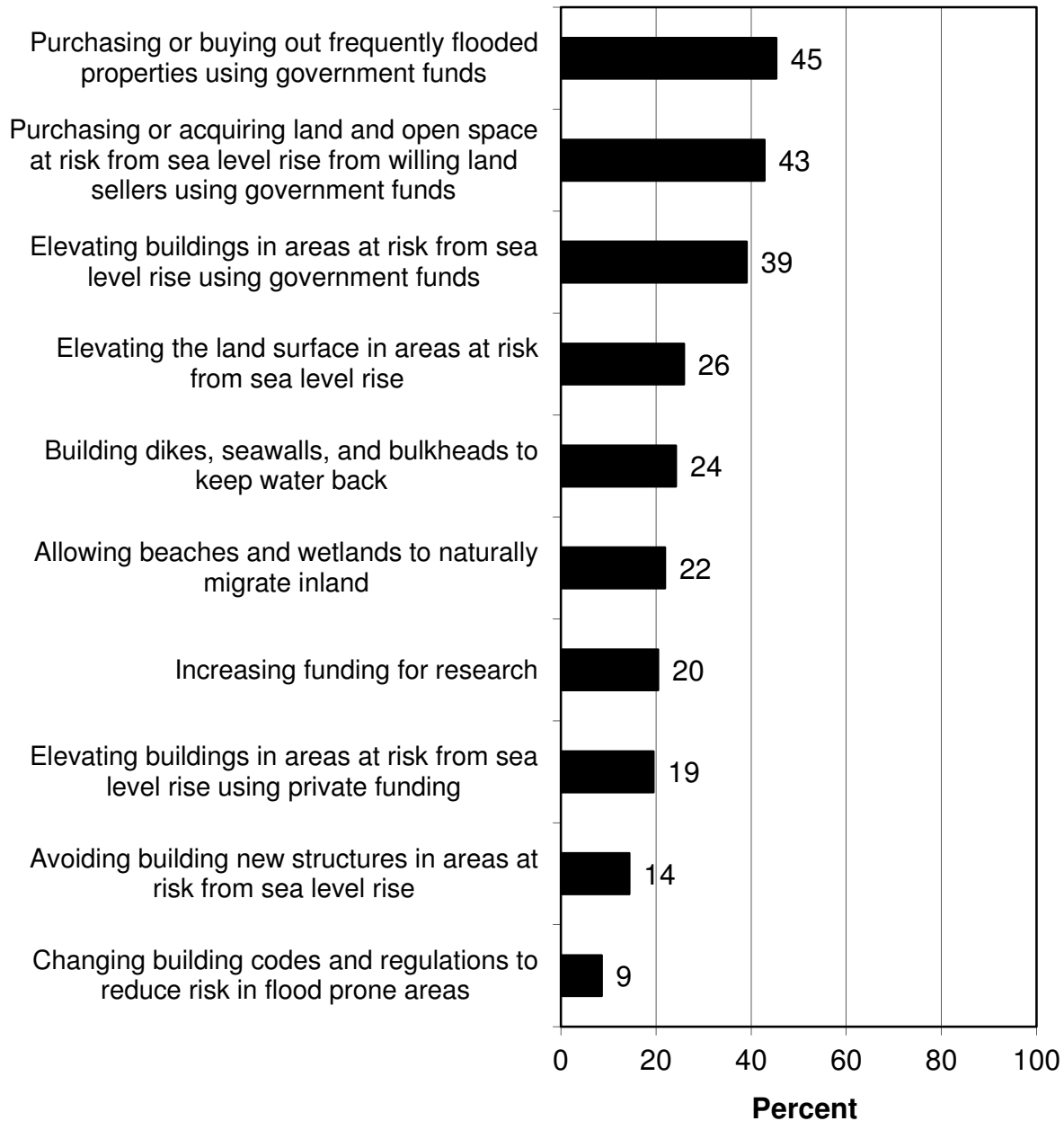
**Q107-Q116. Percent of respondents who strongly or moderately support the following potential actions that could be taken to address sea level rise in Delaware or reduce its impacts.**



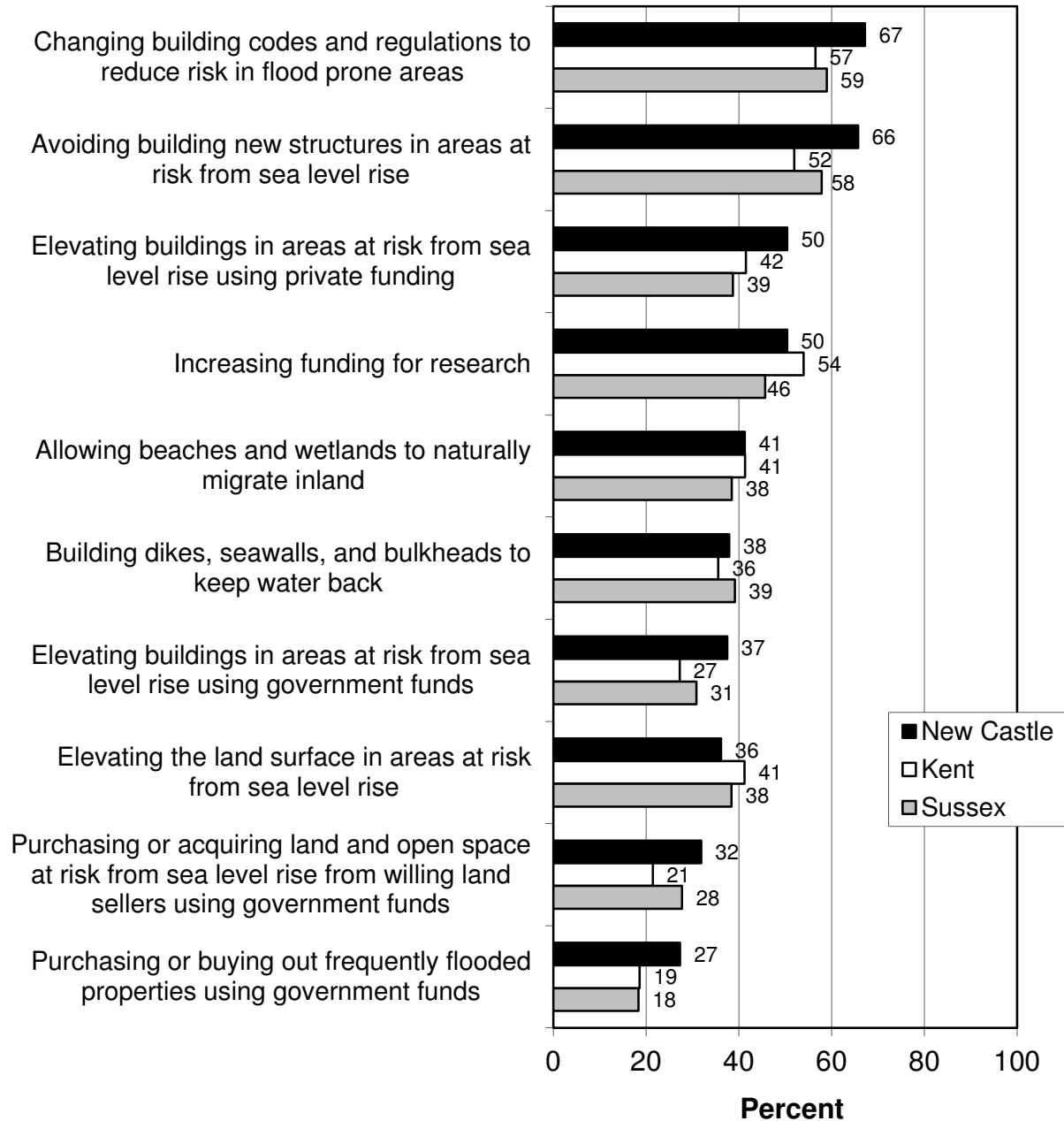
**Q107-Q116. Percent of respondents who strongly oppose the following potential actions that could be taken to address sea level rise in Delaware or reduce its impacts.**



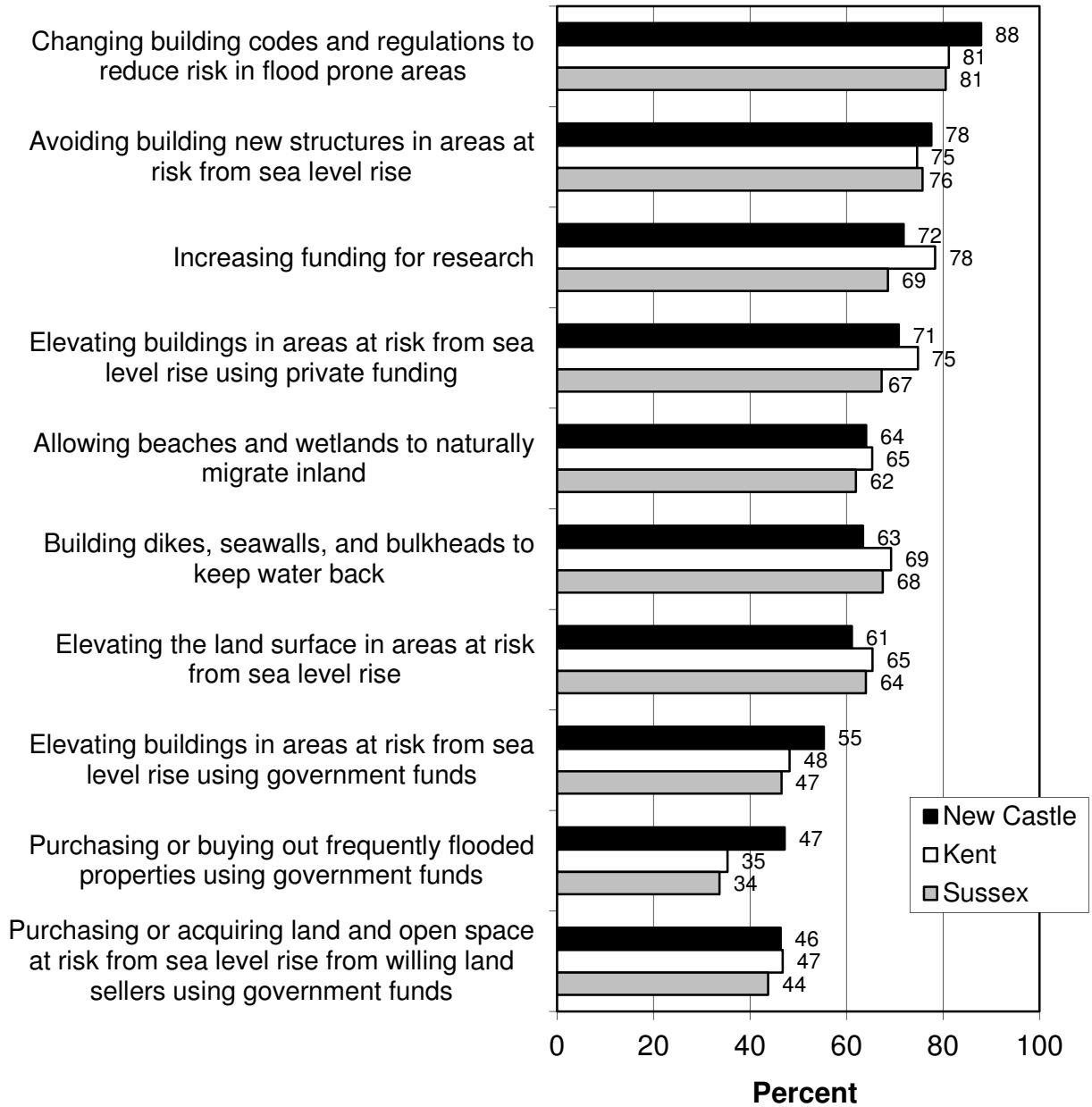
**Q107-Q116. Percent of respondents who strongly or moderately oppose the following potential actions that could be taken to address sea level rise in Delaware or reduce its impacts.**



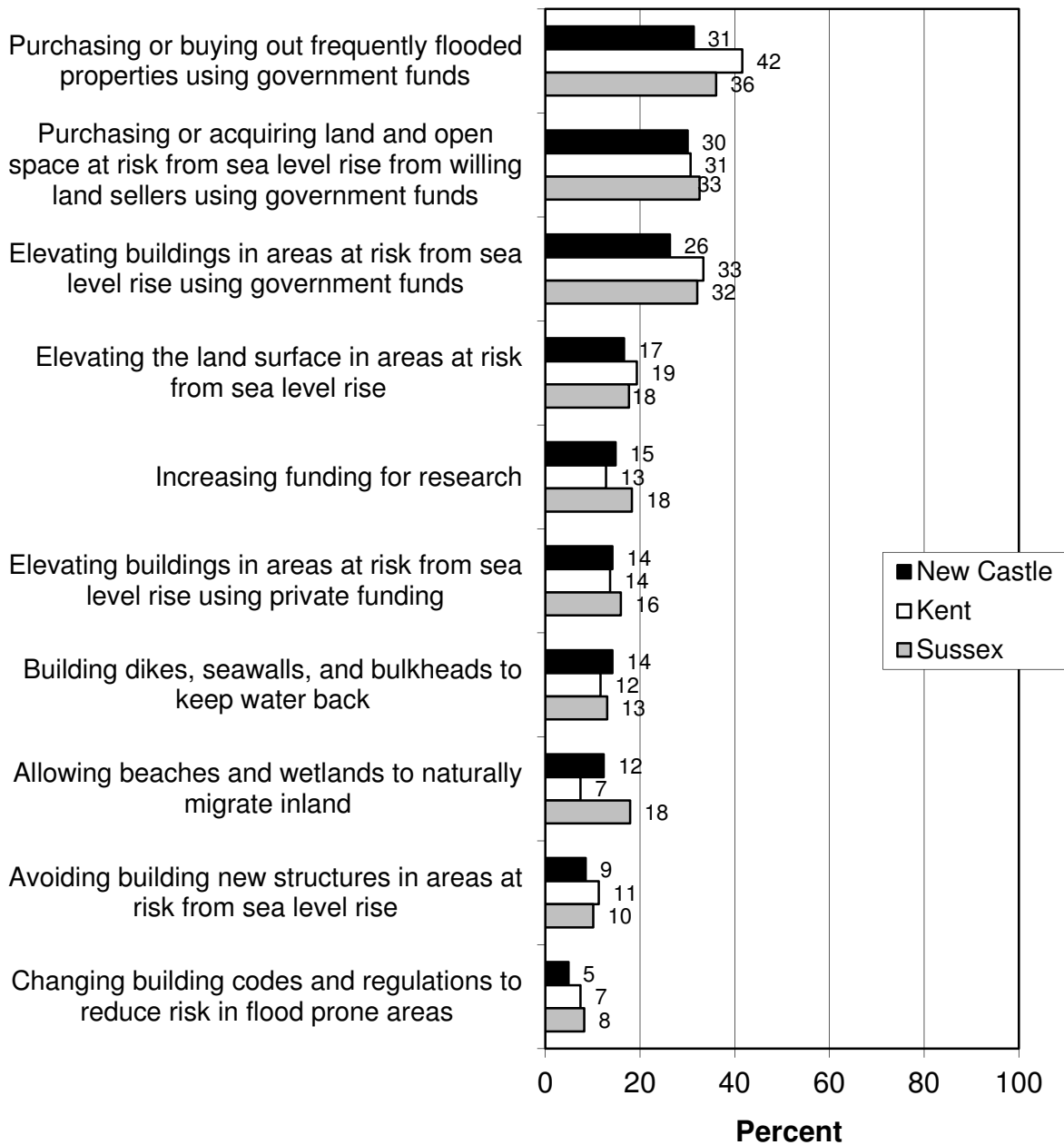
**Q107-Q116. Percent of respondents who strongly support the following potential actions that could be taken to address sea level rise in Delaware or reduce its impacts.**



**Q107-Q116. Percent of respondents who strongly or moderately support the following potential actions that could be taken to address sea level rise in Delaware or reduce its impacts.**

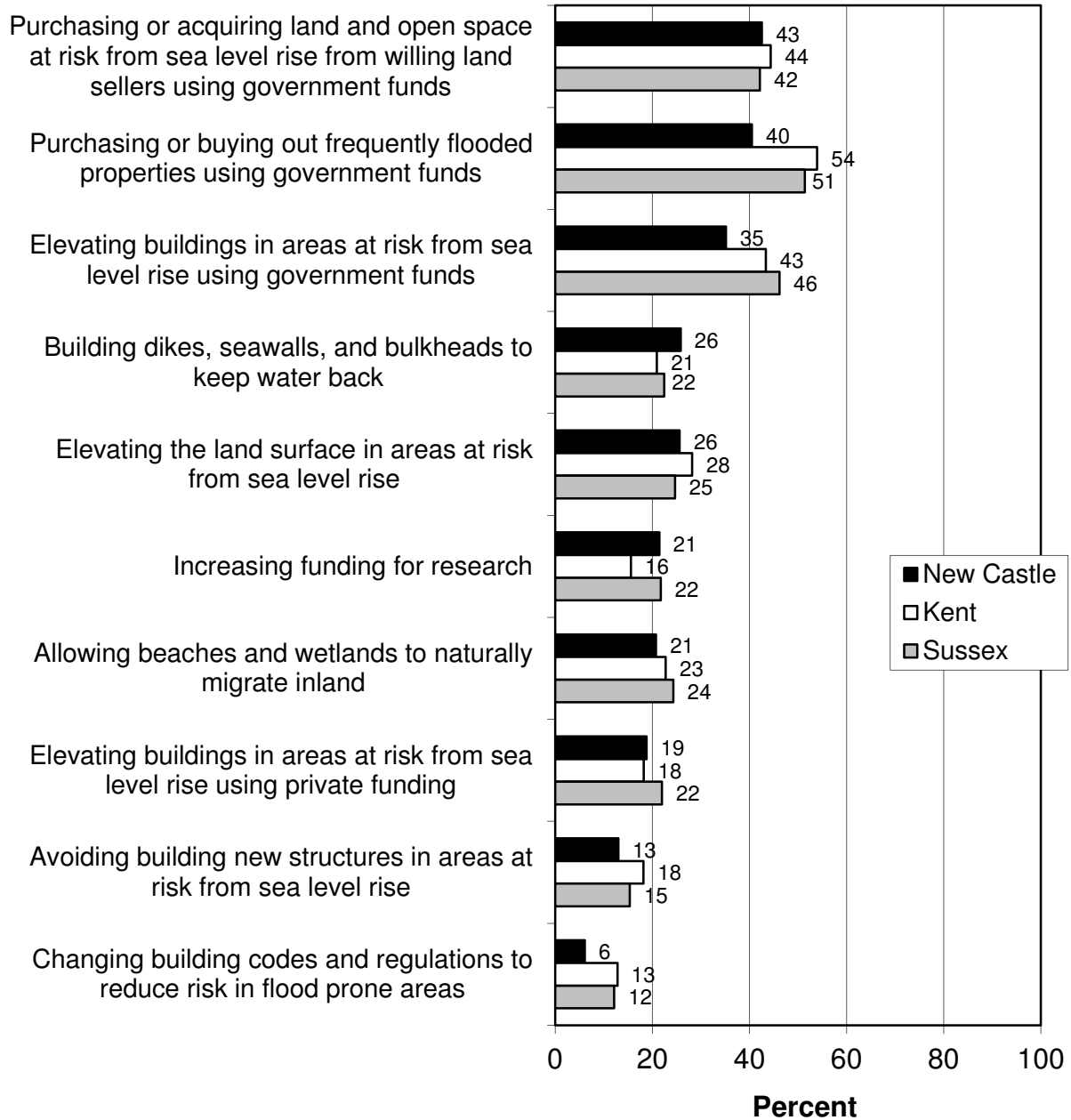


**Q107-Q116. Percent of respondents who strongly oppose the following potential actions that could be taken to address sea level rise in Delaware or reduce its impacts.**

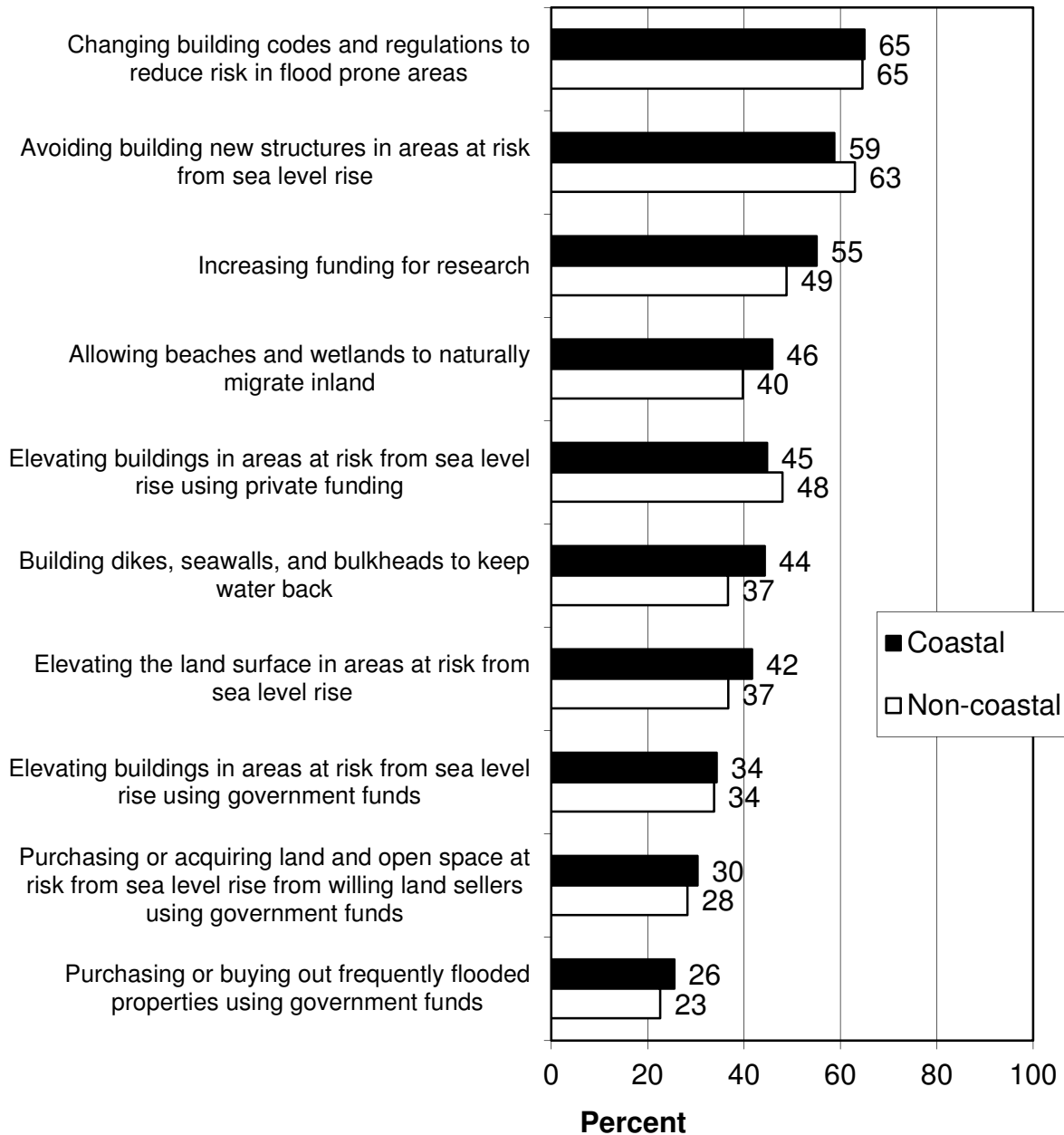




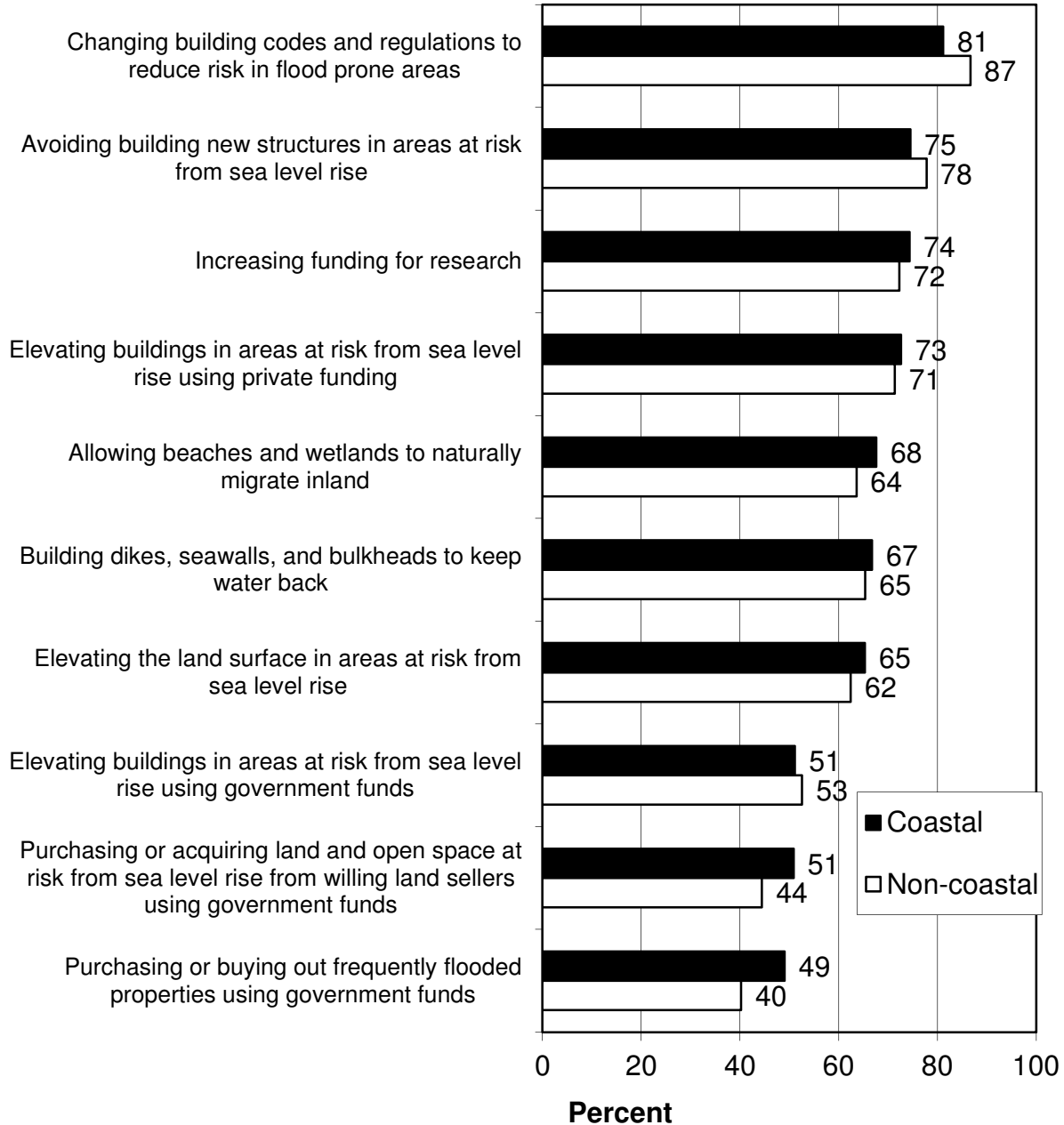
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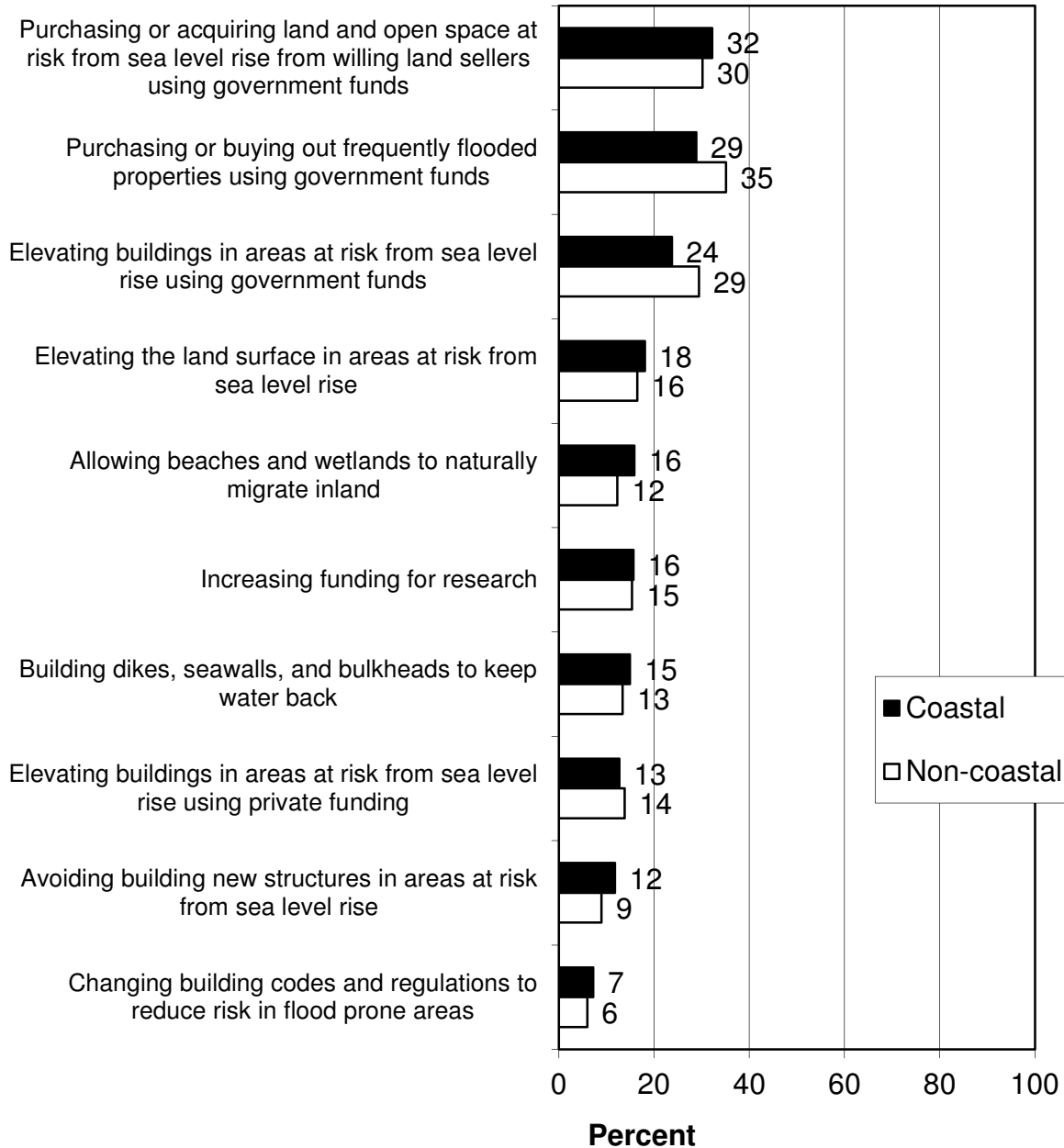
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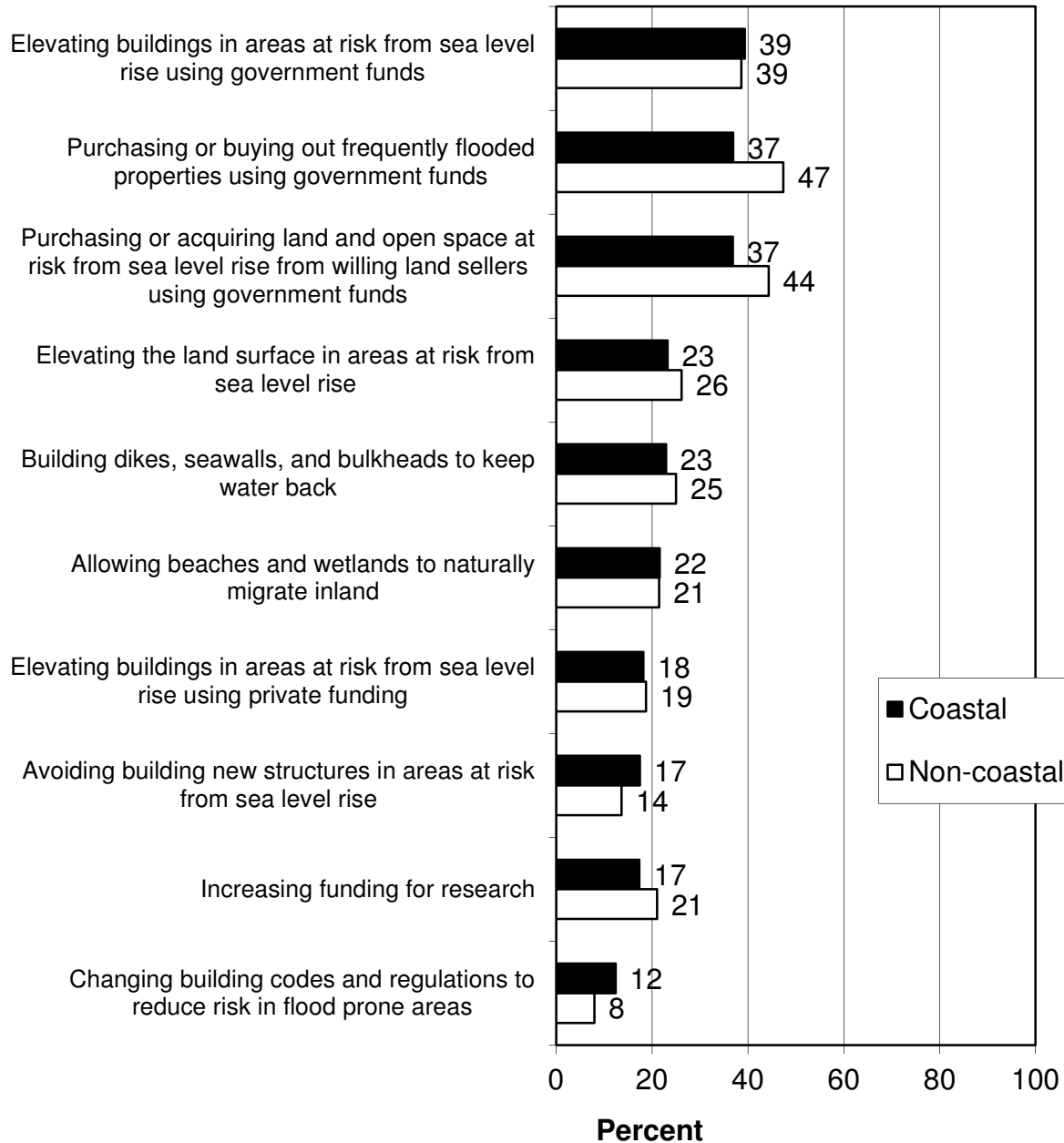
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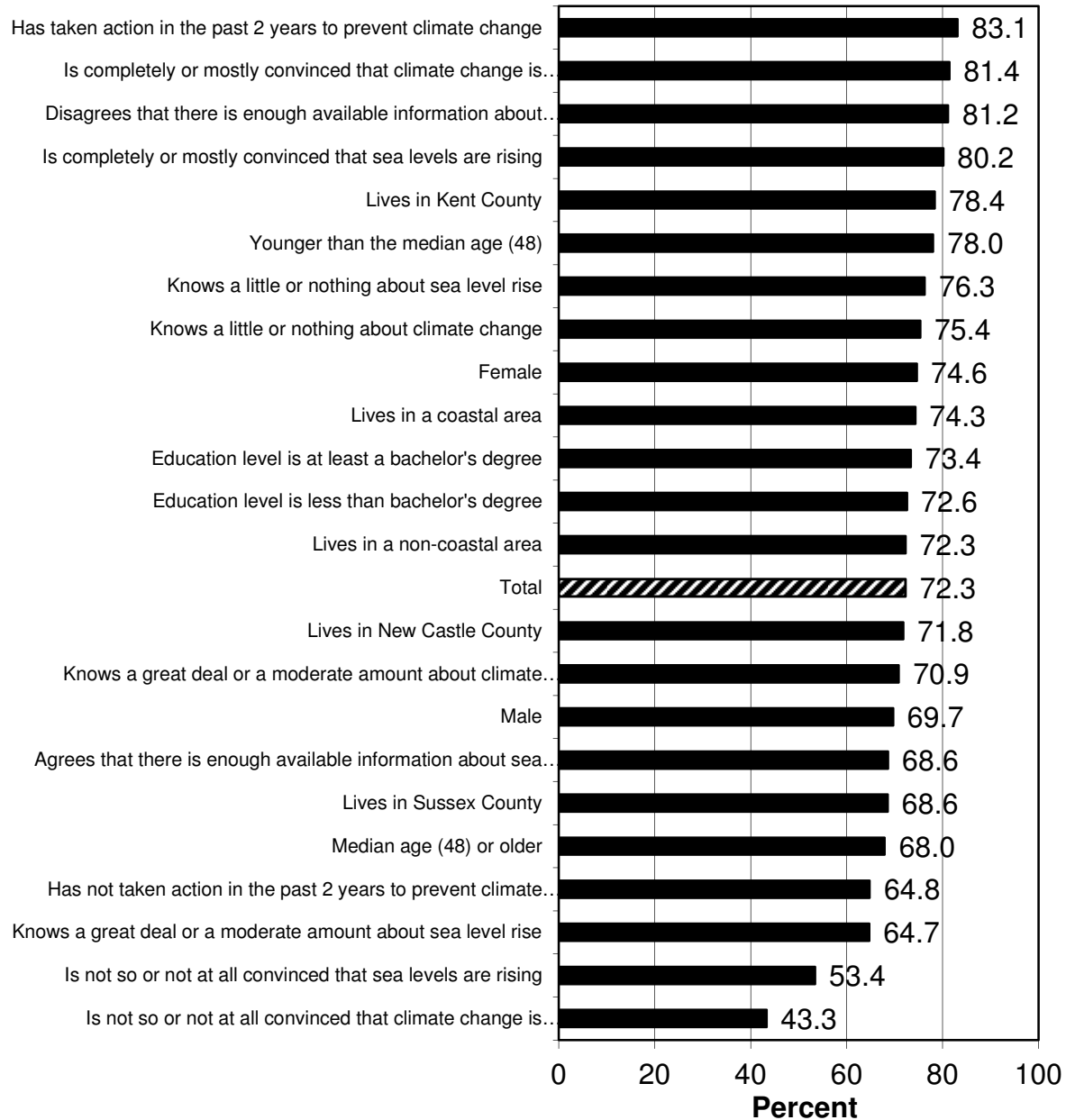
**Q107-Q116. Percent of respondents who strongly oppose the following potential actions that could be taken to address sea level rise in Delaware or reduce its impacts.**



**Q107-Q116. Percent of respondents who strongly or moderately oppose the following potential actions that could be taken to address sea level rise in Delaware or reduce its impacts.**

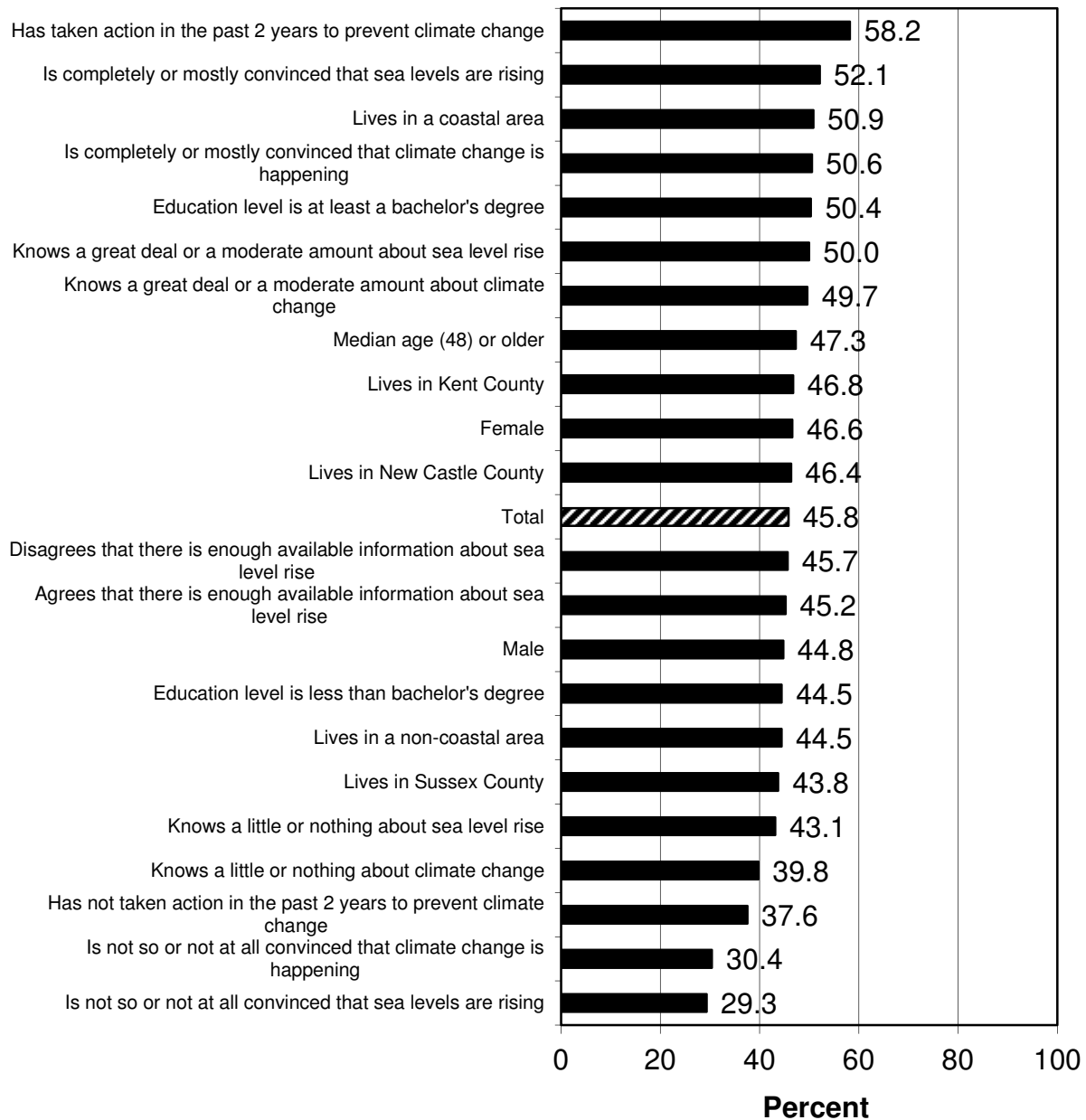


**Percent of each of the following group who support increasing funding for research to address sea rise in Delaware or reduce its impacts:**



The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to support increasing funding for research to address sea level rise or reduce its impacts, relative to residents as a whole. Overall, 72.3% of Delaware residents support this (striped bar). Those groups more inclined to support this are above that bar (for instance, 78.4% of Kent County residents support); those groups less inclined to support are below that bar (for instance, only 68.6% of Sussex County residents support).

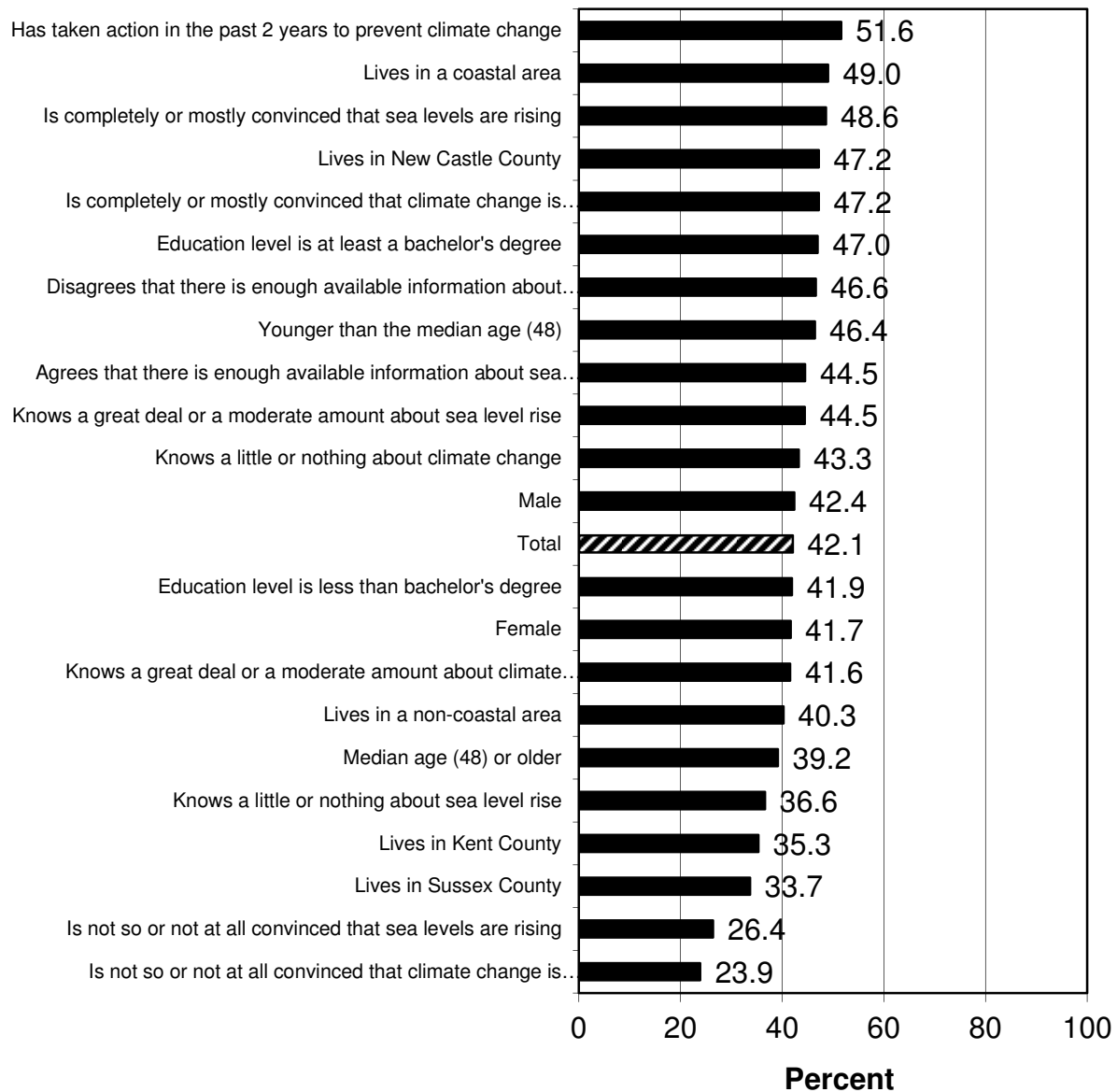
**Percent of each of the following groups who support purchasing or acquiring land and open space at risk from sea level rise from willing land sellers using government funds to address sea rise in Delaware or reduce its impacts:**





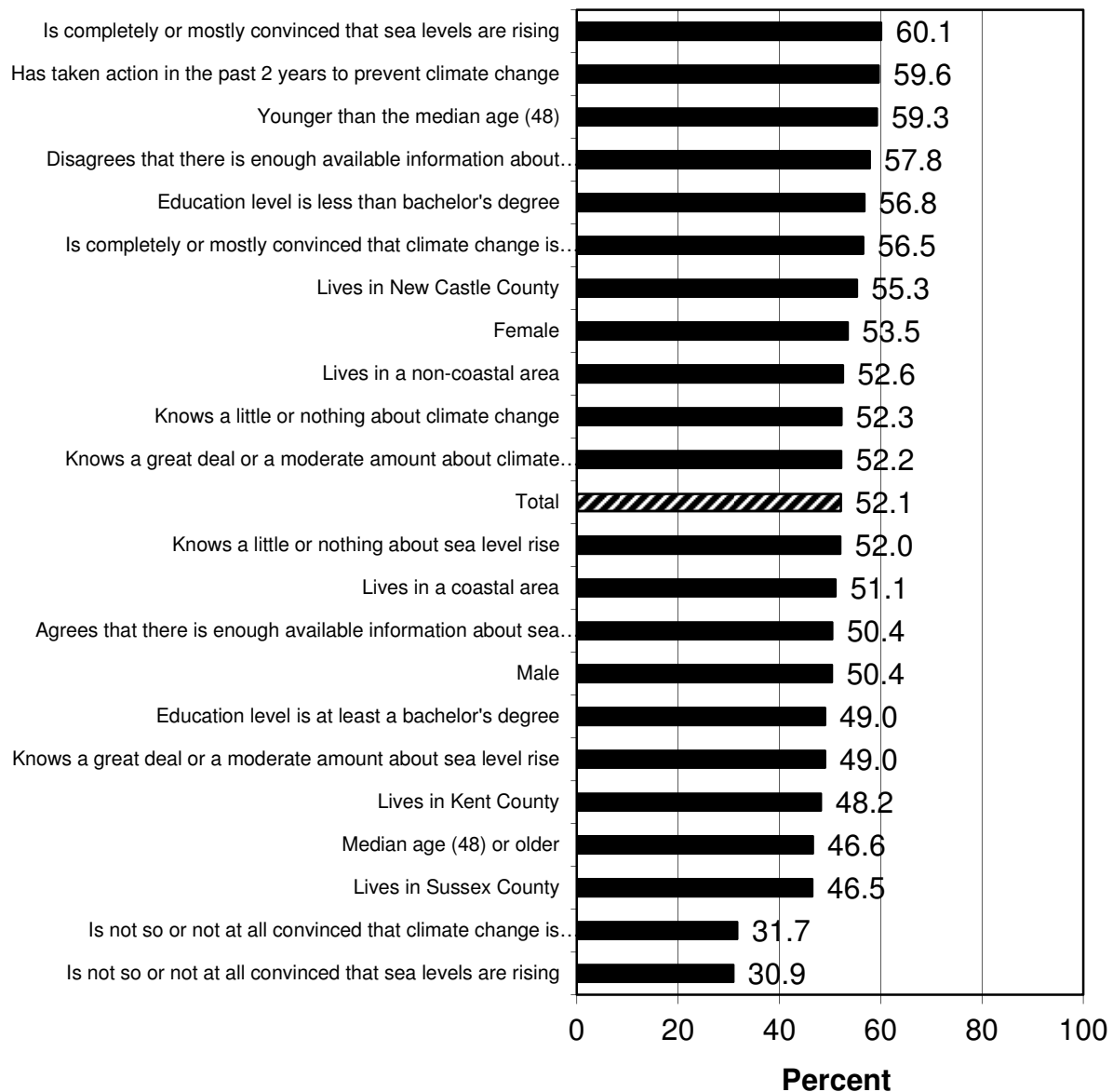
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to support purchasing or acquiring land and open space at risk from sea level rise using government funds, relative to residents as a whole. Overall, 45.8% of Delaware residents support this (striped bar). Those groups more inclined to support this are above that bar (for instance, 50.9% of those who live in a coastal area support); those groups less inclined to support are below that bar (for instance, only 43.8% of Sussex County residents support).

**Percent of each of the following groups who support purchasing or buying out frequently flooded properties using government funds to address sea rise in Delaware or reduce its impacts:**



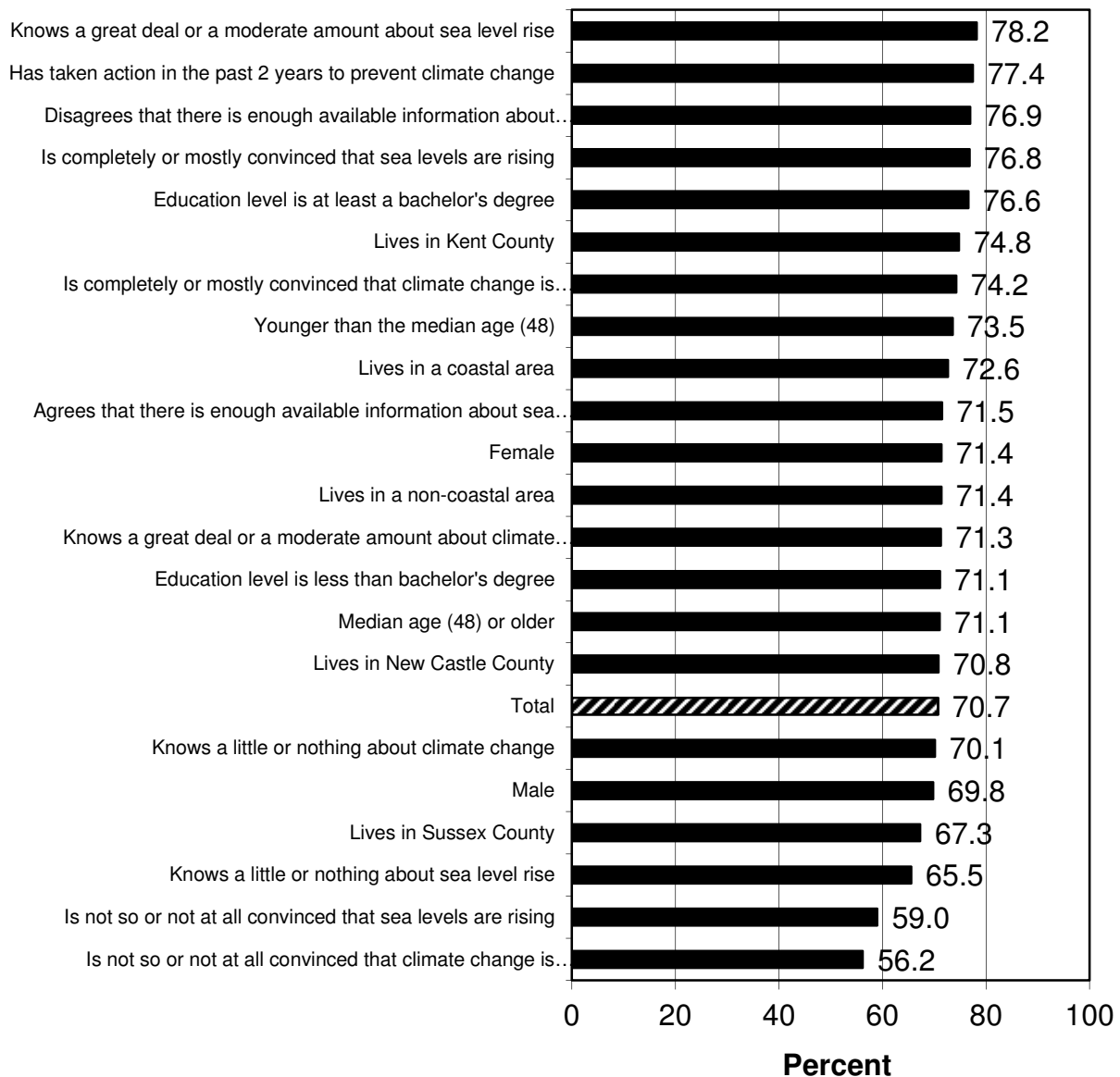
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to support purchasing or buying out frequently flooded properties using government funds, relative to residents as a whole. Overall, 42.1% of Delaware residents support this (striped bar). Those groups more inclined to support this are above that bar (for instance, 49.0% of those who live in a coastal area support); those groups less inclined to support are below that bar (for instance, only 35.3% of Kent County residents support).

**Percent of each of the following groups who support about elevating buildings in areas at risk from sea level rise using government funds to address sea rise in Delaware or reduce its impacts:**



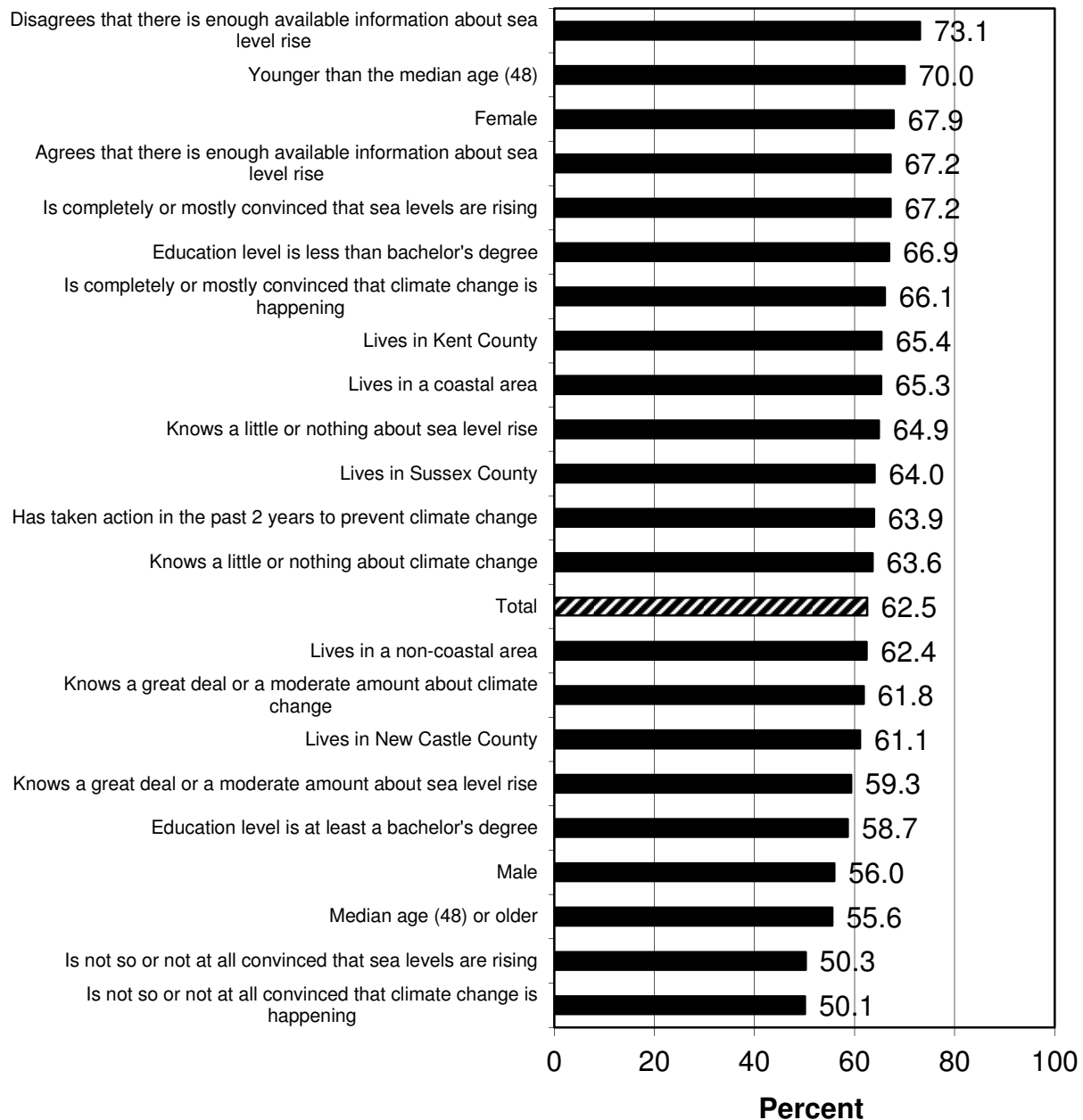
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to support elevating buildings in areas at risk from sea level rise using government funds, relative to residents as a whole. Overall, 52.1% of Delaware residents support this (striped bar). Those groups more inclined to support this are above that bar (for instance, 55.3% of New Castle County residents support); those groups less inclined to support are below that bar (for instance, only 46.5% of Sussex County residents support).

**Percent of each of the following groups who support elevating buildings in areas at risk from sea level rise using private funding to address sea rise in Delaware or reduce its impacts:**



The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to support elevating buildings in areas at risk from sea level rise using private funds, relative to residents as a whole. Overall, 70.7% of Delaware residents support this (striped bar). Those groups more inclined to support this are above that bar (for instance, 74.8% of Kent County residents support); those groups less inclined to support are below that bar (for instance, only 67.3% of Sussex County residents support).

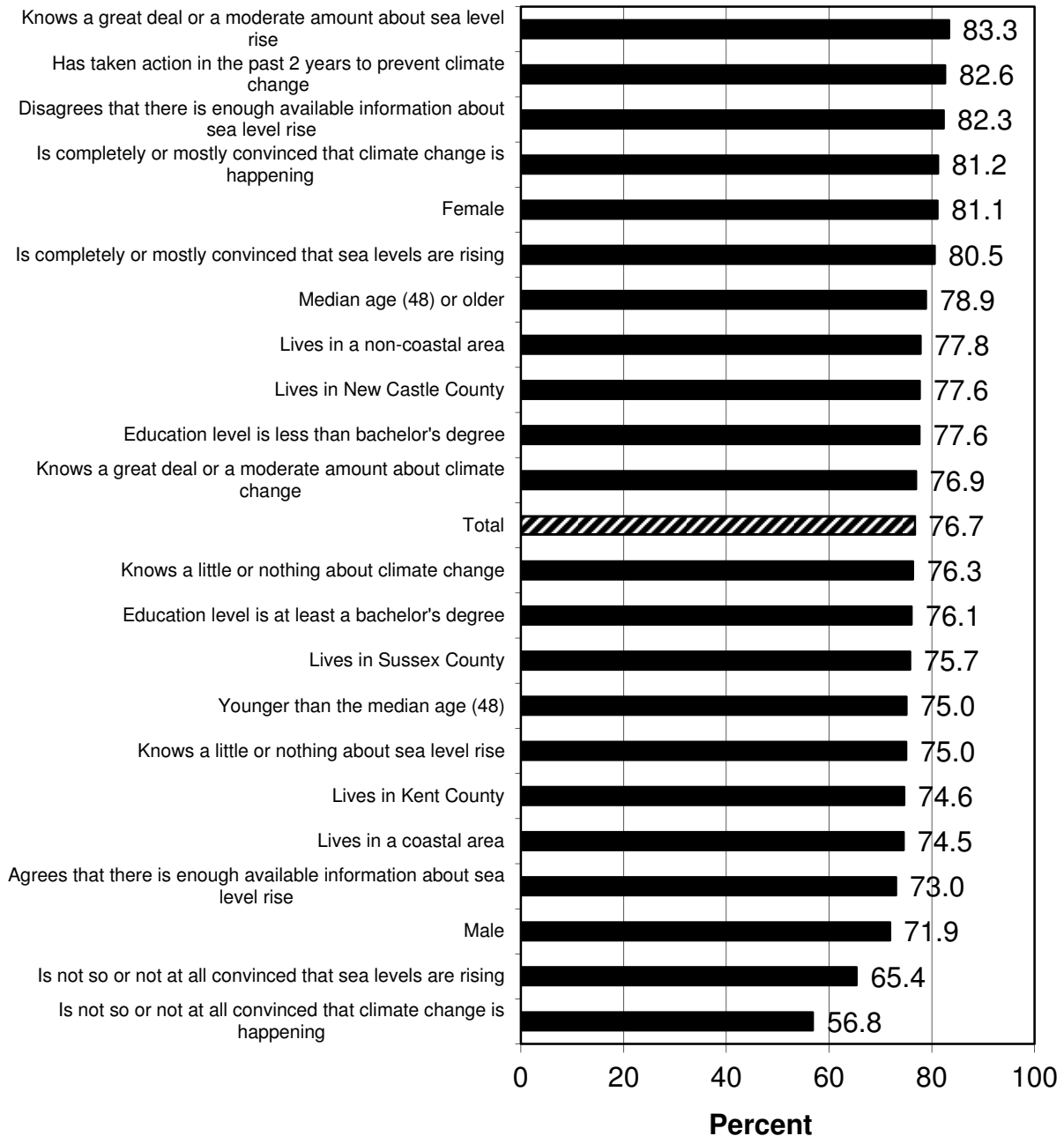
**Percent of each of the following groups who support elevating the land surface in areas at risk from sea level rise to address sea rise in Delaware or reduce its impacts:**





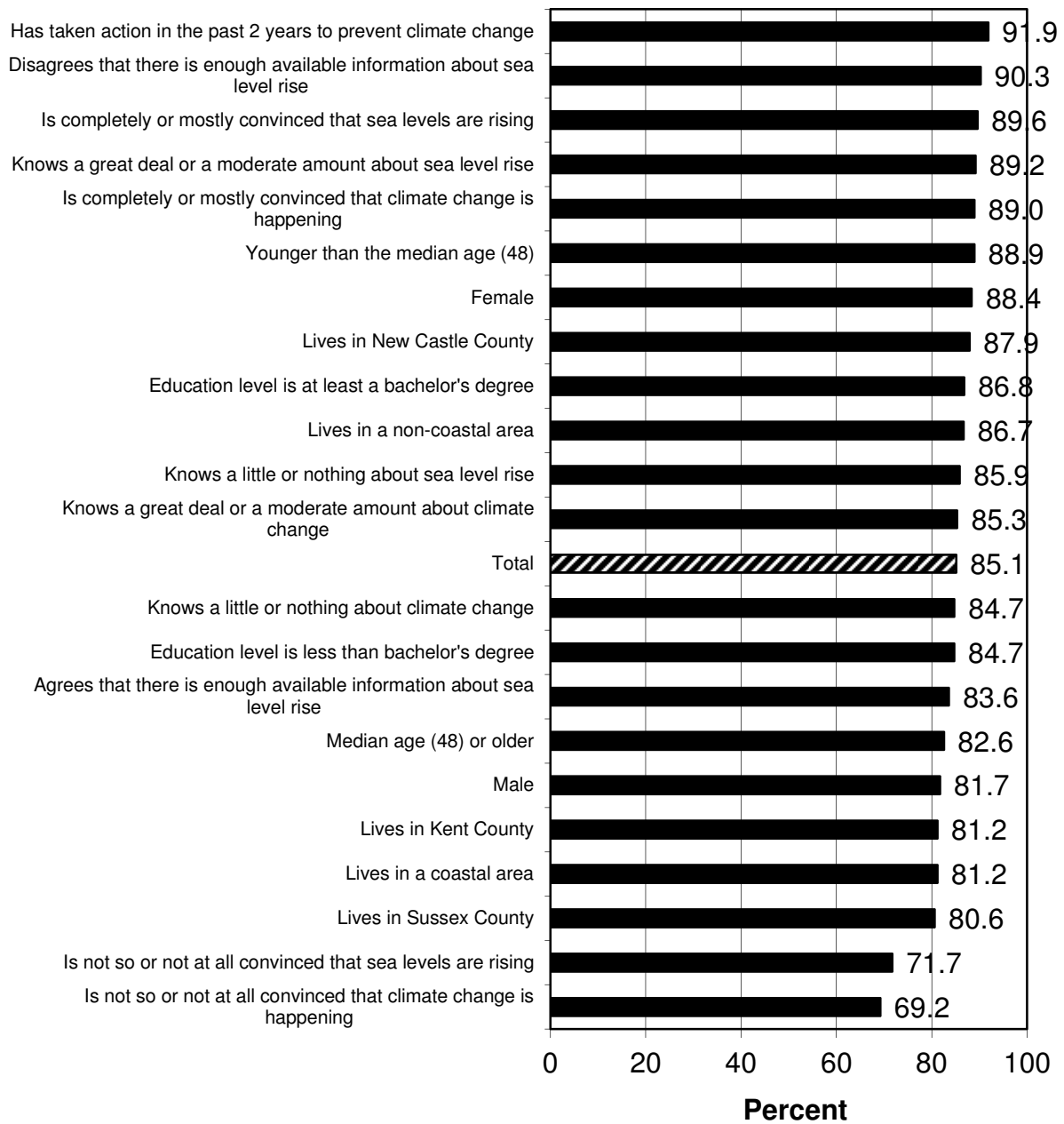
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to support elevating the land surface in areas at risk from sea level rise, relative to residents as a whole. Overall, 62.5% of Delaware residents support this (striped bar). Those groups more inclined to support this are above that bar (for instance, 67.9% of females support); those groups less inclined to support are below that bar (for instance, only 56.0% of males support).

**Percent of each of the following groups who support about avoiding building new structures in areas at risk from sea level rise to address sea rise in Delaware or reduce its impacts:**



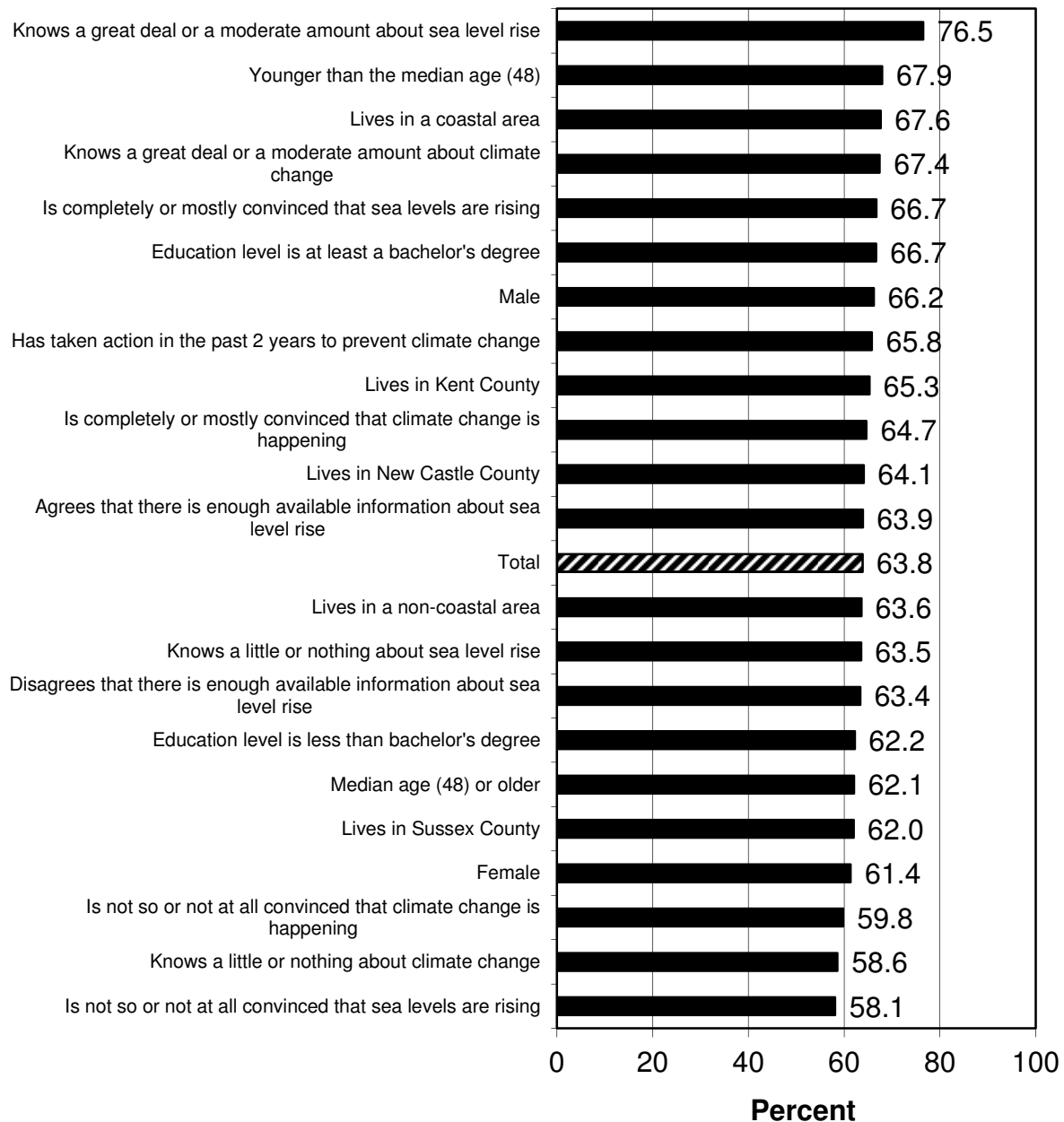
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to support avoiding building new structures in areas at risk from sea level rise, relative to residents as a whole. Overall, 76.7% of Delaware residents support this (striped bar). Those groups more inclined to support this are above that bar (for instance, 81.1% of females support); those groups less inclined to support are below that bar (for instance, only 71.9% of males support).

**Percent of each of the following groups who support changing building codes and regulations to reduce risk in flood prone areas to address sea rise in Delaware or reduce its impacts:**



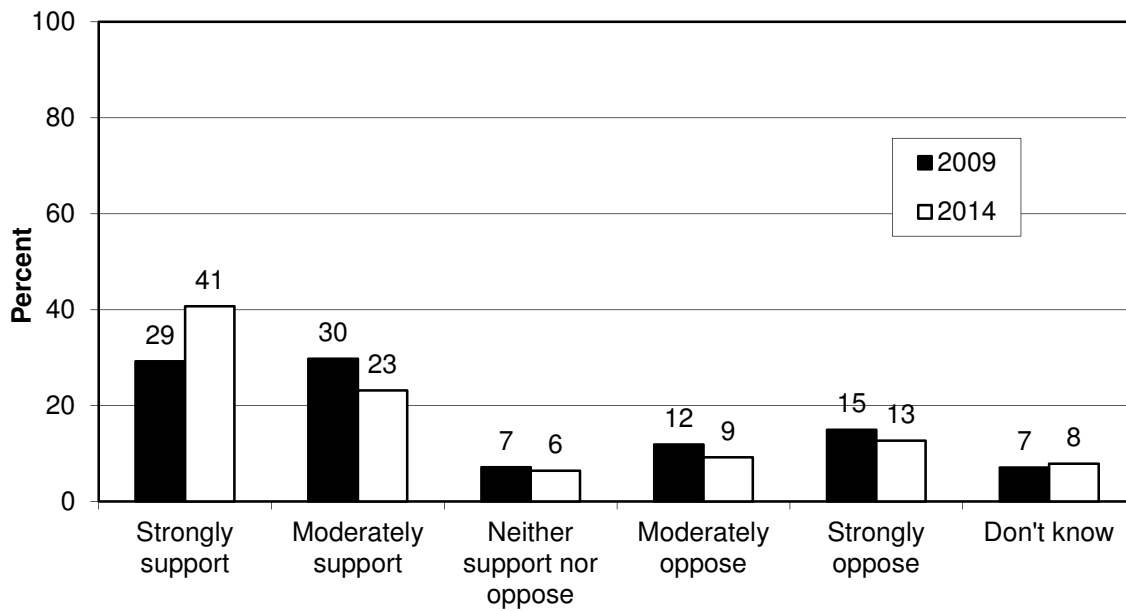
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to support changing building codes and regulations to reduce risk in flood prone areas, relative to residents as a whole. Overall, 85.1% of Delaware residents support this (striped bar). Those groups more inclined to support this are above that bar (for instance, 88.4% of females support); those groups less inclined to support are below that bar (for instance, only 80.6% of Sussex County residents support).

**Percent of each of the following groups who support allowing beaches and wetlands to naturally migrate inland to address sea rise in Delaware or reduce its impacts:**



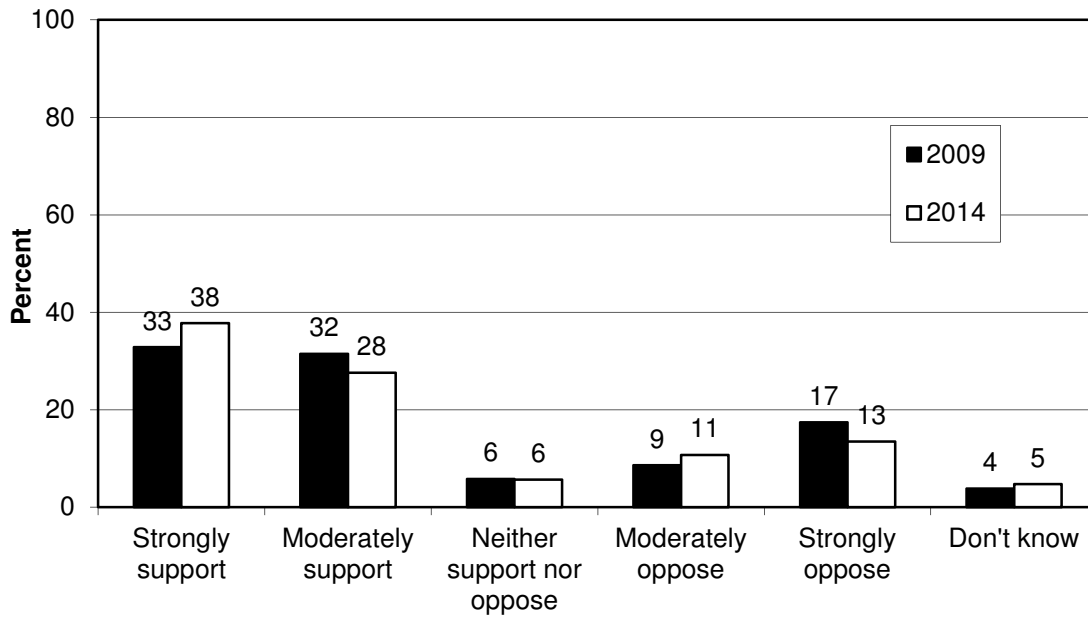
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to support allowing beaches and wetlands to naturally migrate inland, relative to residents as a whole. Overall, 63.8% of Delaware residents support this (striped bar). Those groups more inclined to support this are above that bar (for instance, 67.6% of those who live in a coastal area support); those groups less inclined to support are below that bar (for instance, only 62.0% of Sussex County residents support).

**Q107. Do you support or oppose allowing beaches and wetlands to naturally migrate inland to address sea level rise in Delaware or reduce its impacts?**

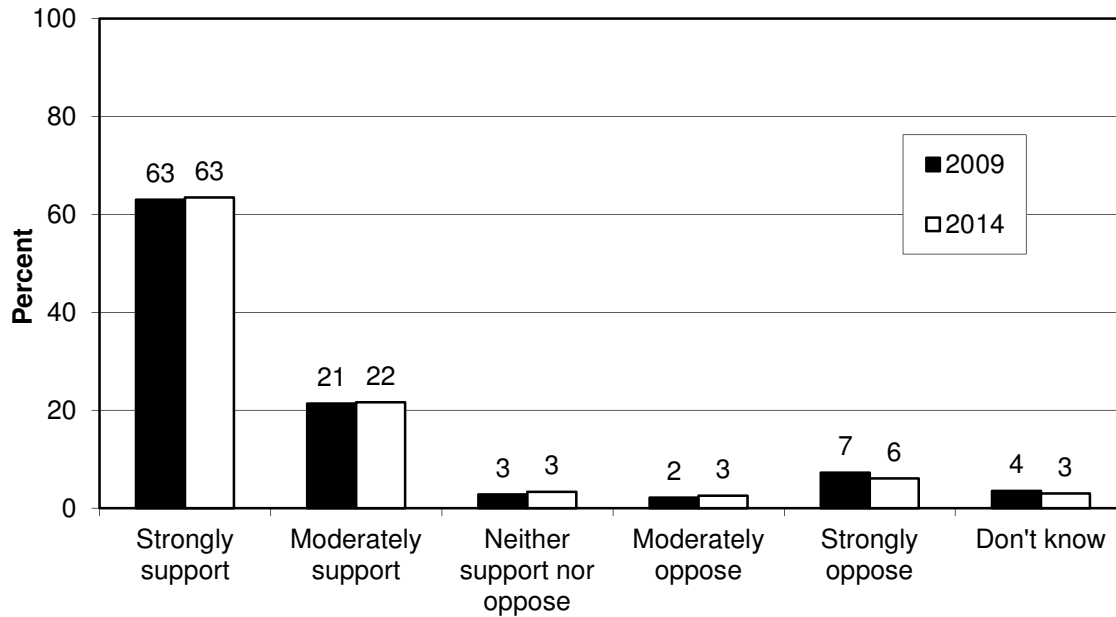




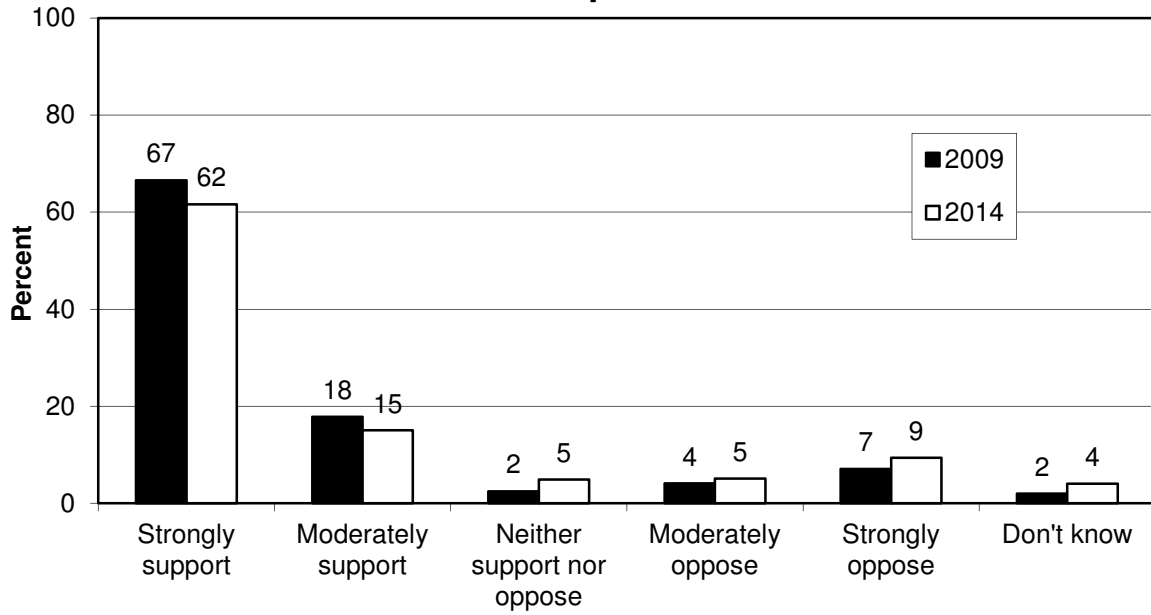
**Q108. Do you support or oppose building dikes, seawalls, and bulkheads to keep water back to address sea level rise in Delaware or reduce its impacts?**



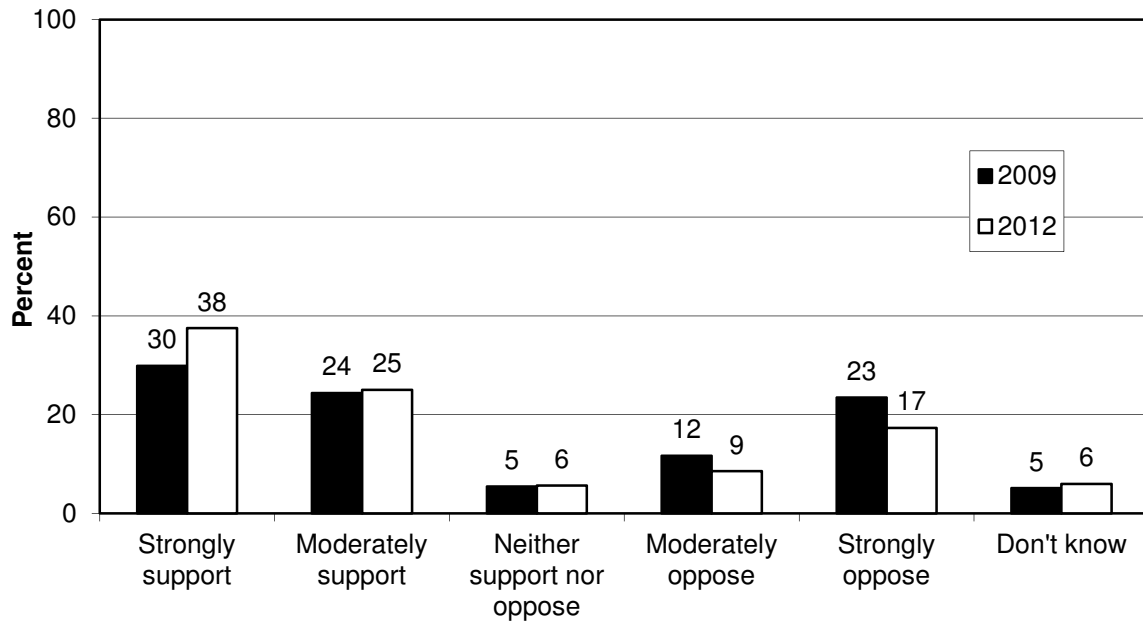
**Q109. Do you support or oppose changing building codes and regulations to reduce risk in flood prone areas to address sea level rise in Delaware or reduce its impacts?**



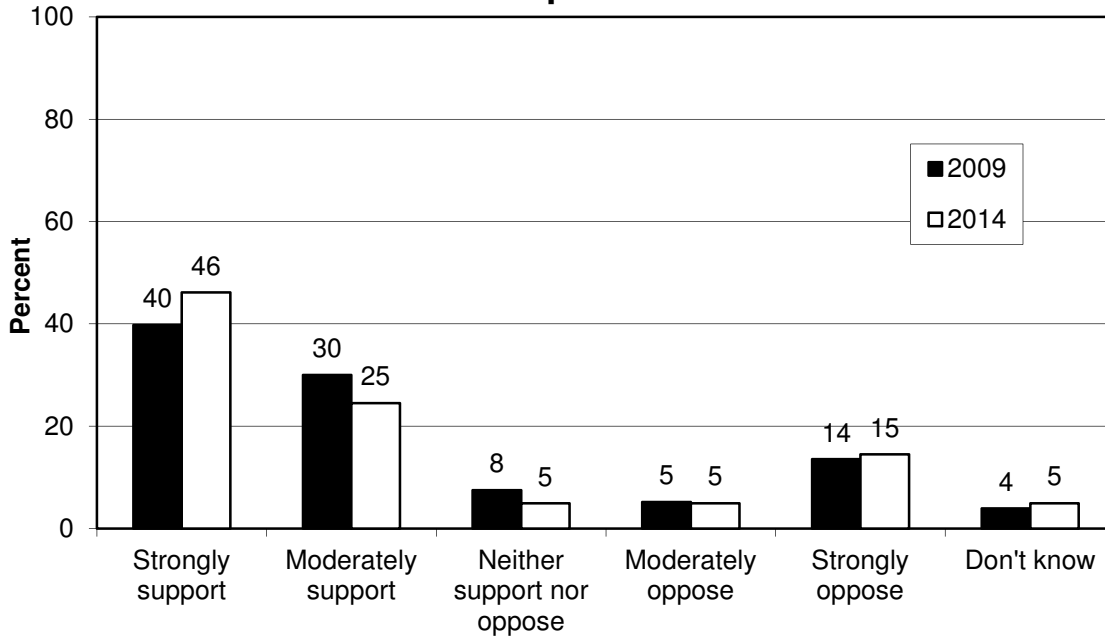
**Q110. Do you support or oppose avoiding building new structures in areas at risk from sea level rise to address sea level rise in Delaware or reduce its impacts?**



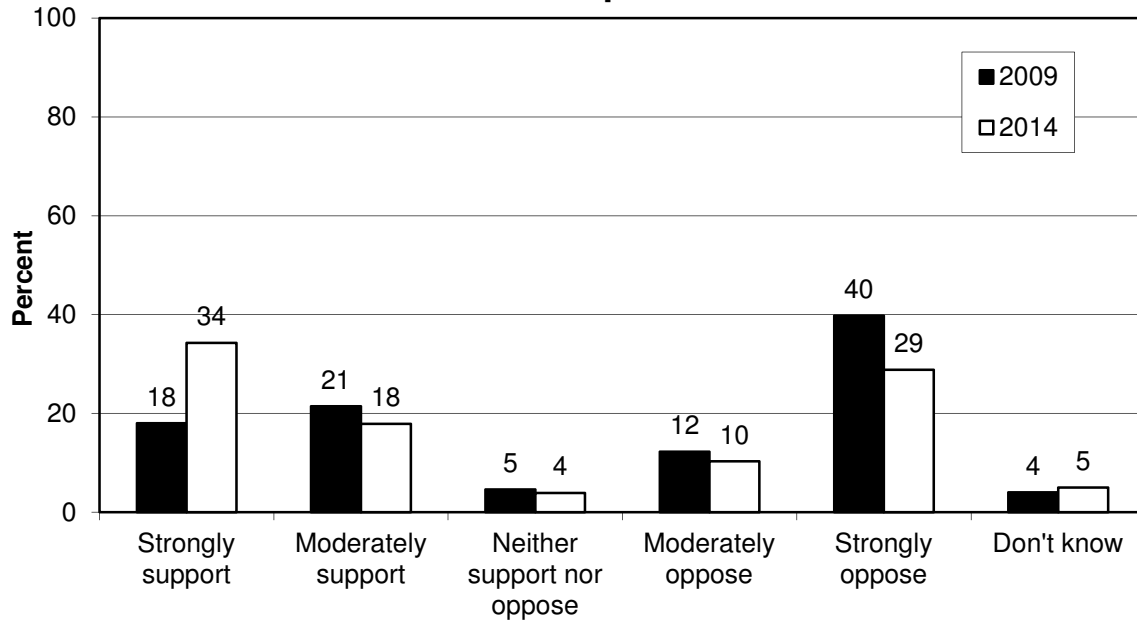
**Q111. Do you support or oppose elevating the land surface in areas at risk from sea level rise to address sea level rise in Delaware or reduce its impacts?**



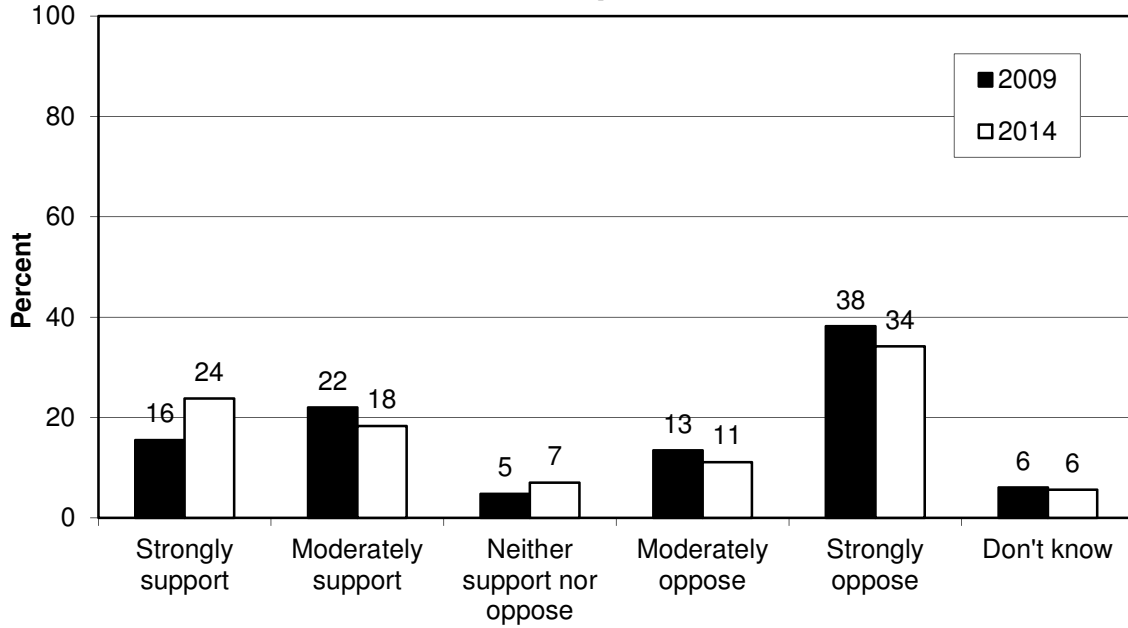
**Q112. Do you support or oppose elevating buildings in areas at risk from sea level rise using private funding to address sea level rise in Delaware or reduce its impacts?**



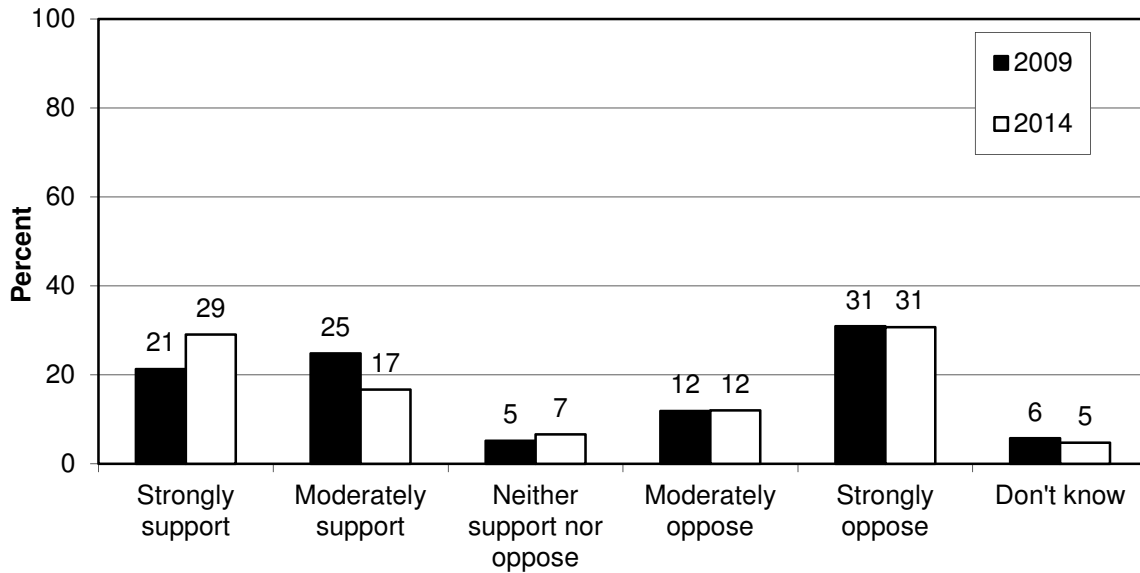
**Q113. Do you support or oppose elevating buildings in areas at risk from sea level rise using government funds to address sea level rise in Delaware or reduce its impacts?**



**Q114. Do you support or oppose purchasing or buying out frequently flooded properties using government funds to address sea level rise in Delaware or reduce its impacts?**

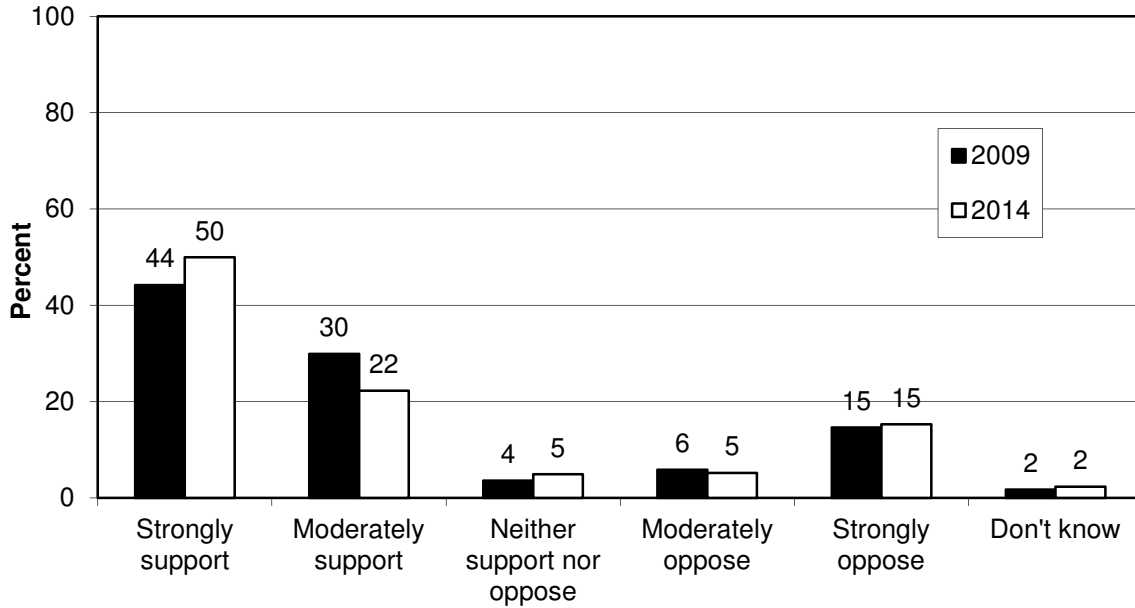


**Q115. Do you support or oppose purchasing or acquiring land and open space at risk from sea level rise from willing land sellers using government funds to address sea level rise in Delaware or reduce its impacts?**

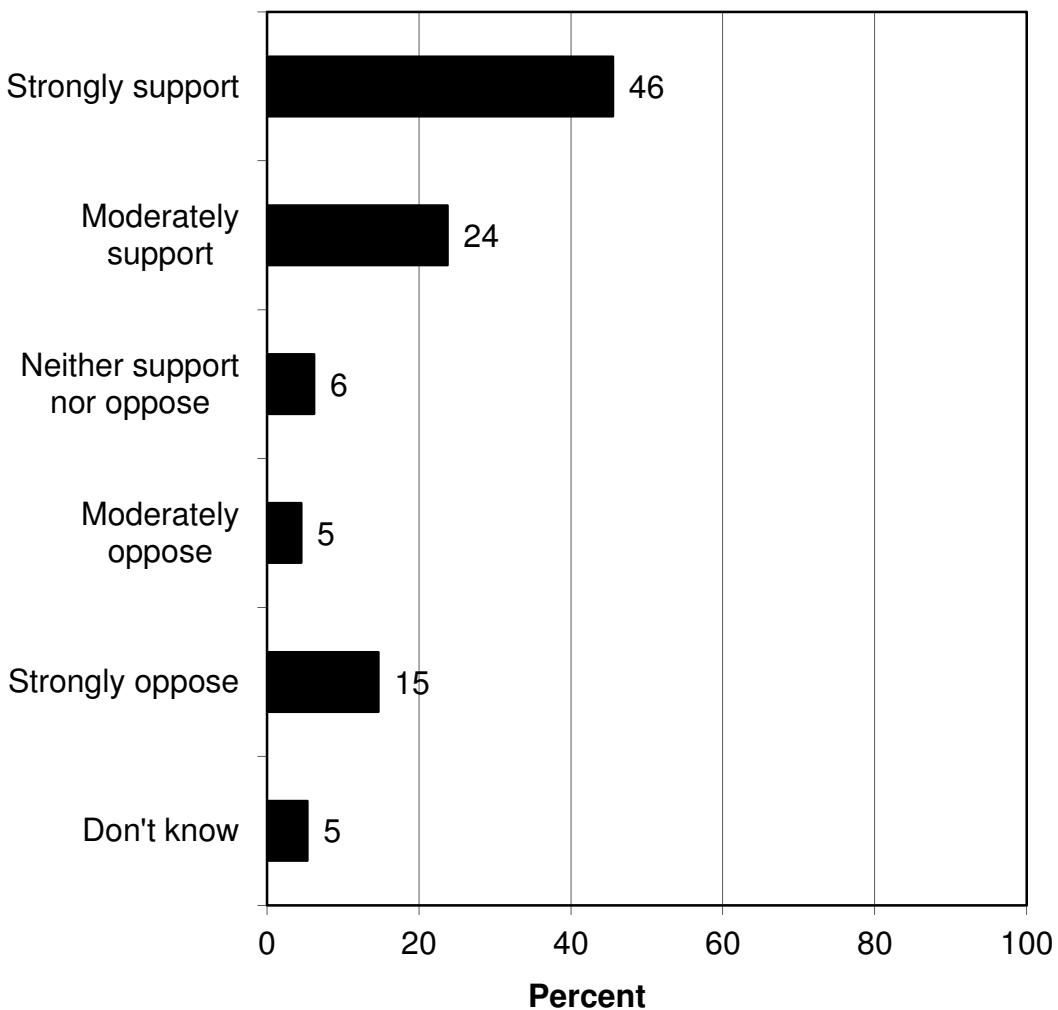




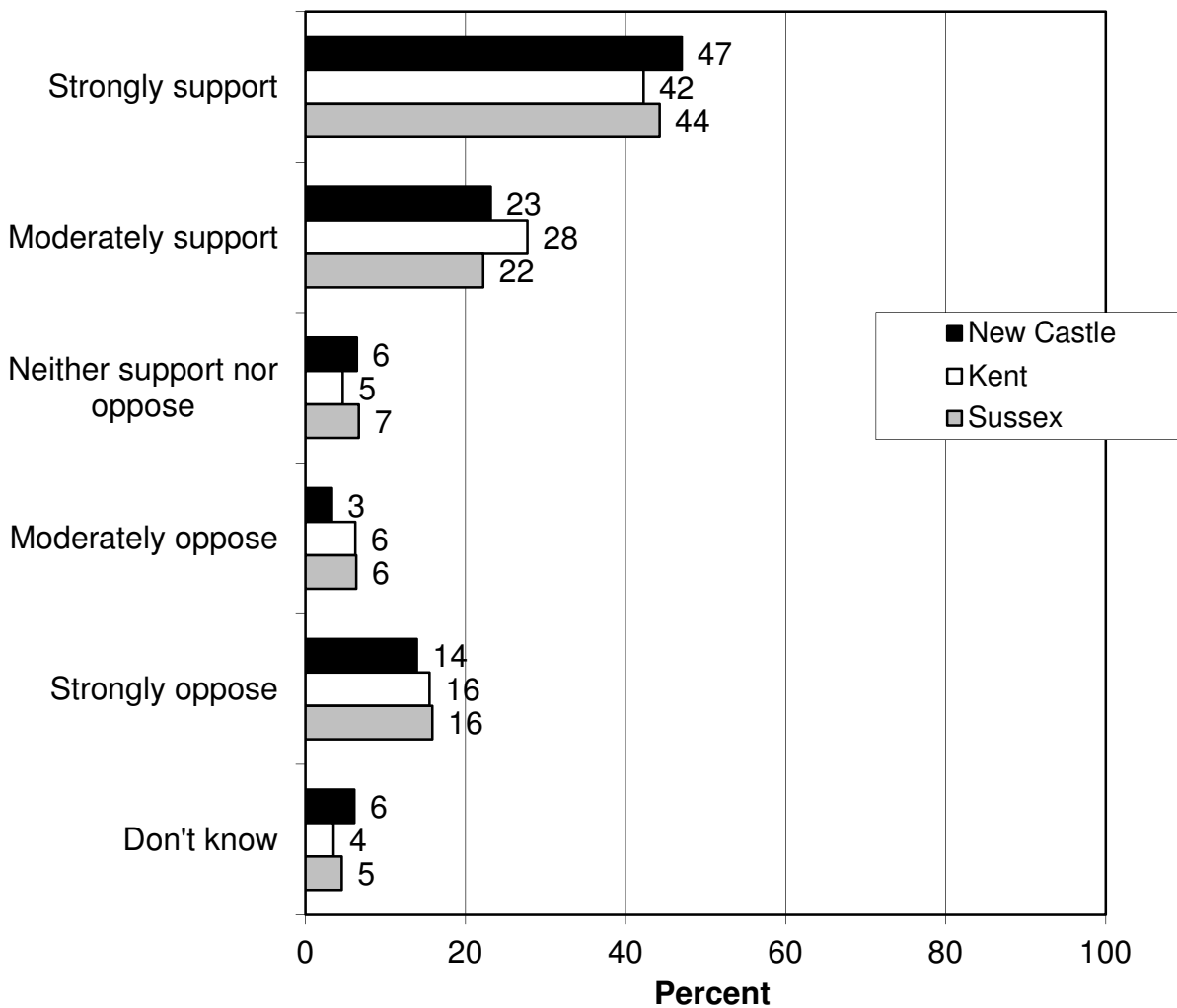
**Q116. Do you support or oppose increasing funding for research to address sea level rise in Delaware or reduce its impacts?**



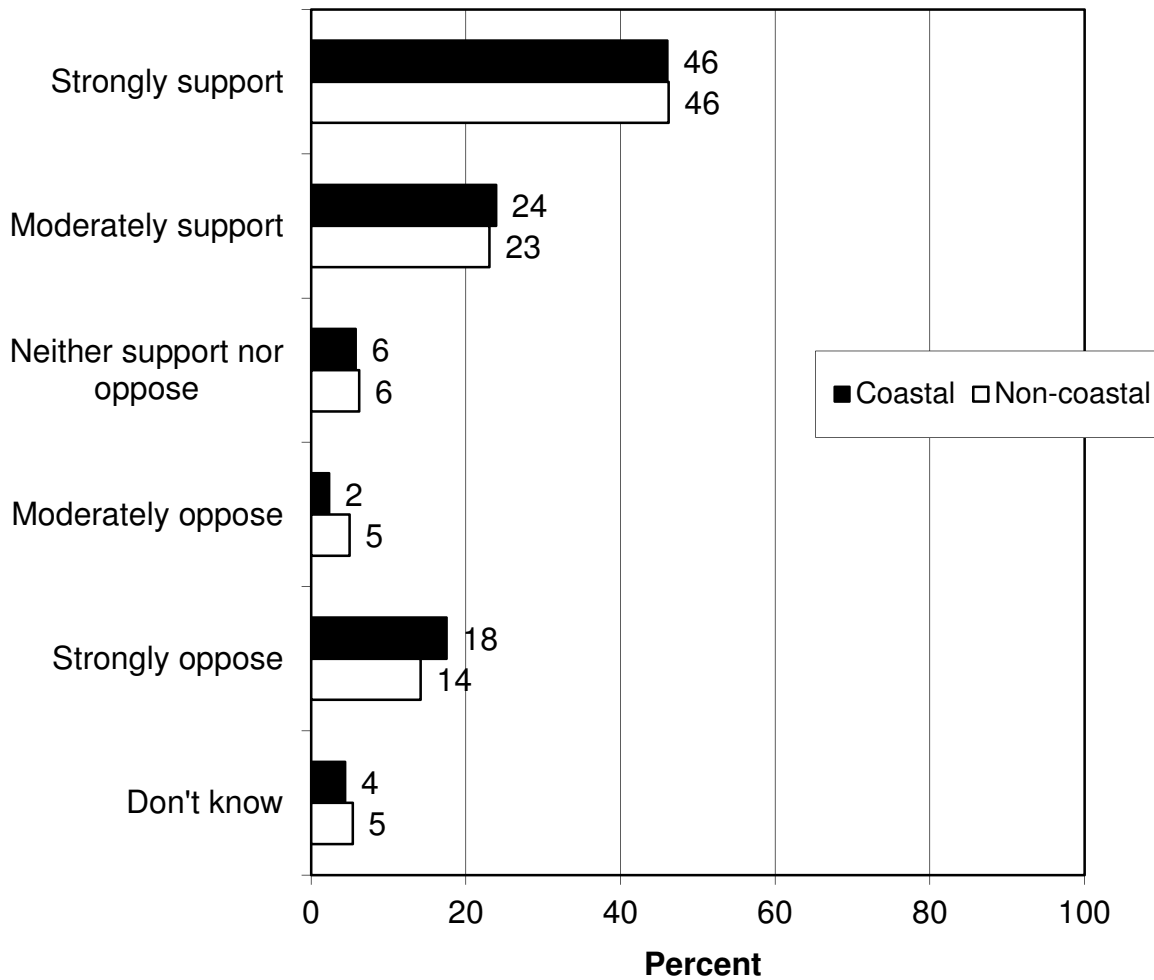
**Q117. Please consider that your local and state governments in Delaware could construct public buildings and other structures, such as roads and sewer systems, to withstand or accommodate sea level rise but that doing so would be more expensive than constructing structures that could not. Would you support or oppose your local and state governments spending more money on public construction projects if it meant the structures could withstand or accommodate sea level rise in Delaware?**



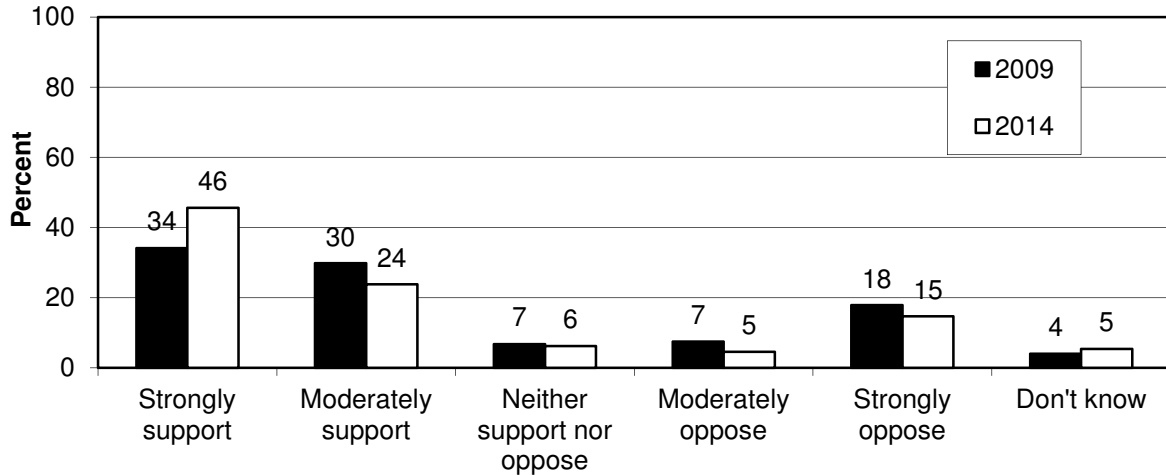
**Q117. Please consider that your local and state governments in Delaware could construct public buildings and other structures, such as roads and sewer systems, to withstand or accommodate sea level rise but that doing so would be more expensive than constructing structures that could not. Would you support or oppose your local and state governments spending more money on public construction projects if it meant the structures could withstand or accommodate sea level rise in Delaware?**



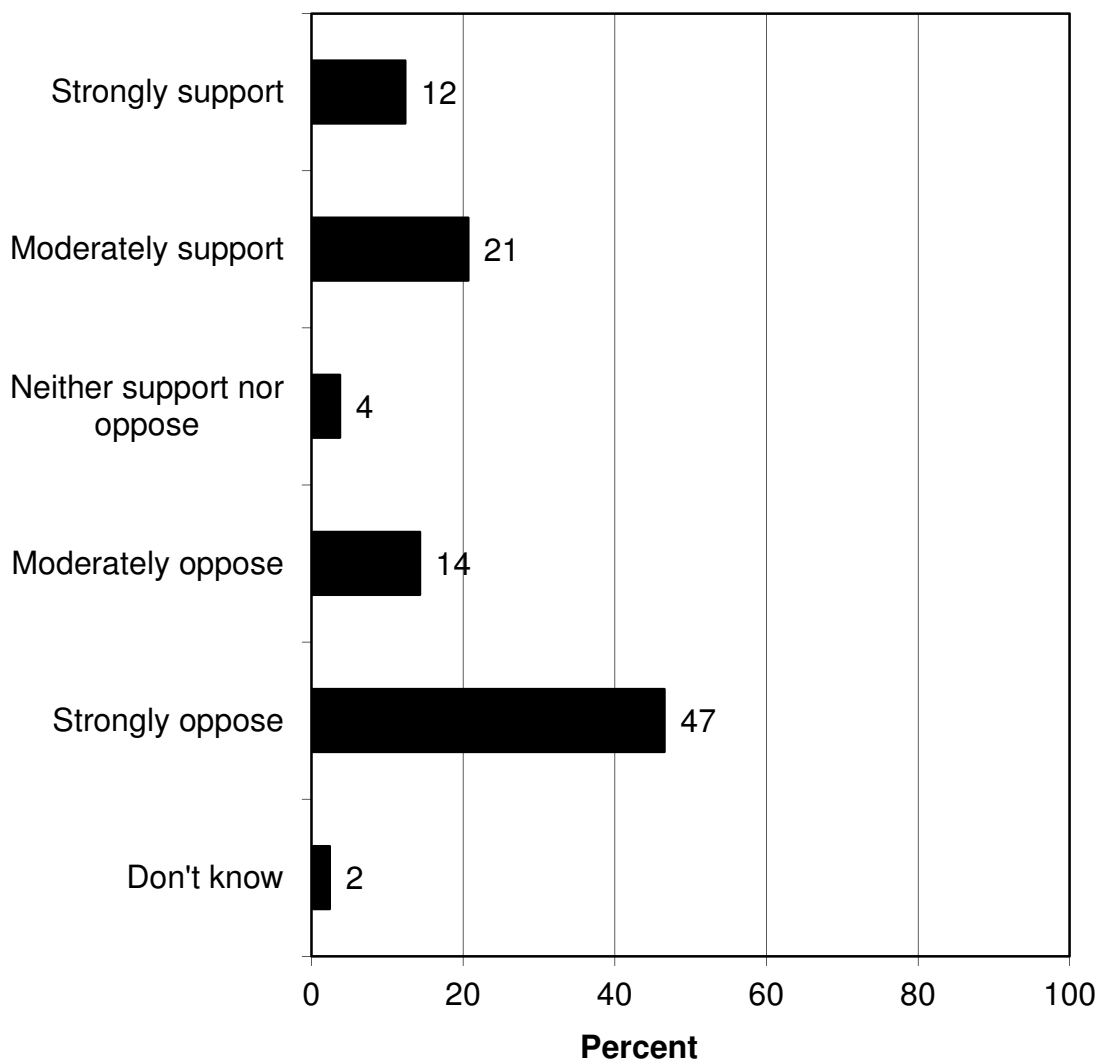
**Q117. Please consider that your local and state governments in Delaware could construct public buildings and other structures, such as roads and sewer systems, to withstand or accommodate sea level rise but that doing so would be more expensive than constructing structures that could not. Would you support or oppose your local and state governments spending more money on public construction projects if it meant the structures could withstand or accommodate sea level rise in Delaware?**



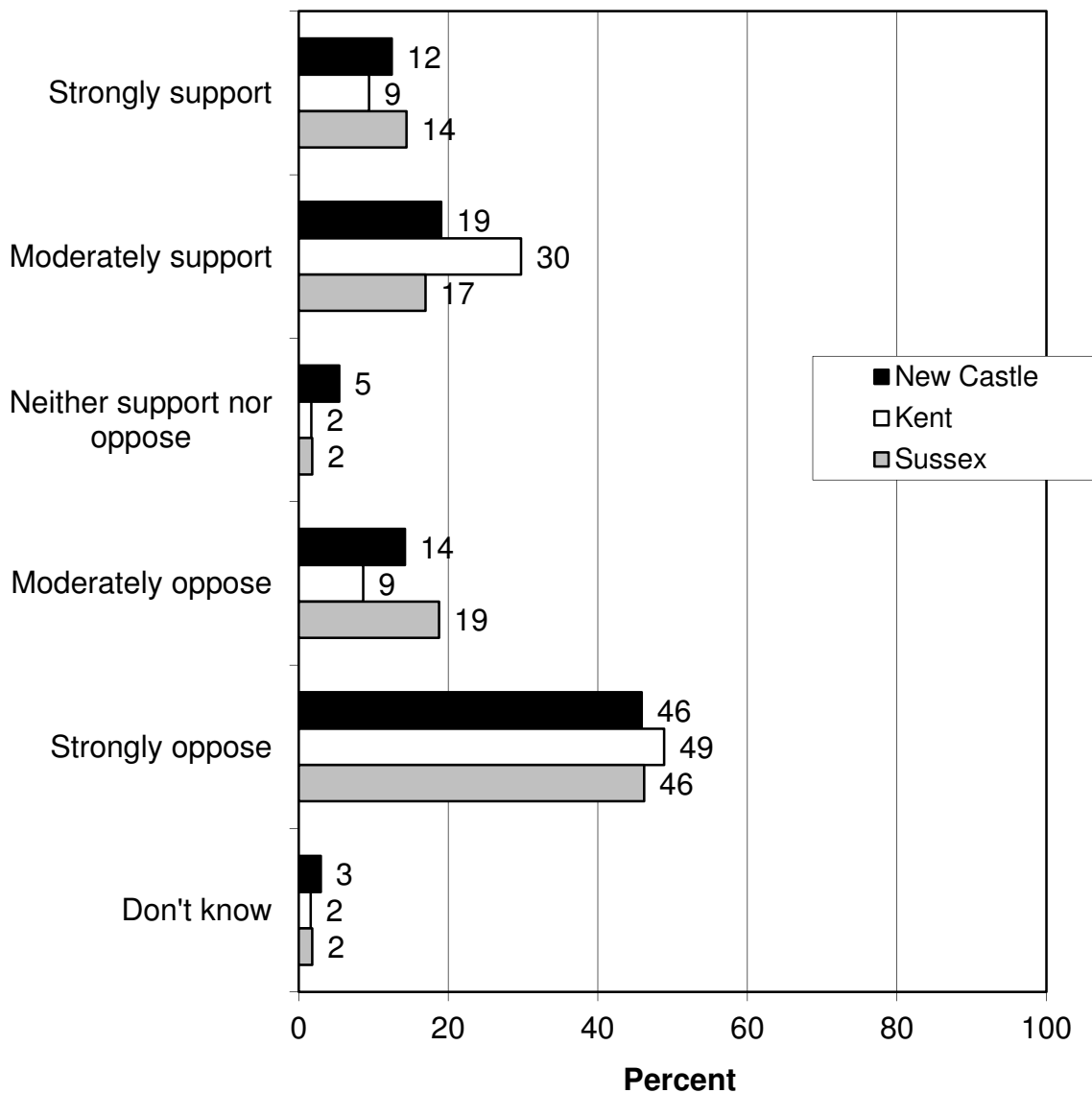
**Q117. Please consider that your local and state governments in Delaware could construct public buildings and other structures, such as roads and sewer systems, to withstand or accommodate sea level rise but that doing so would be more expensive than constructing structures that could not. Would you support or oppose your local and state governments spending more money on public construction projects if it meant the structures could withstand or accommodate sea level rise in Delaware?**



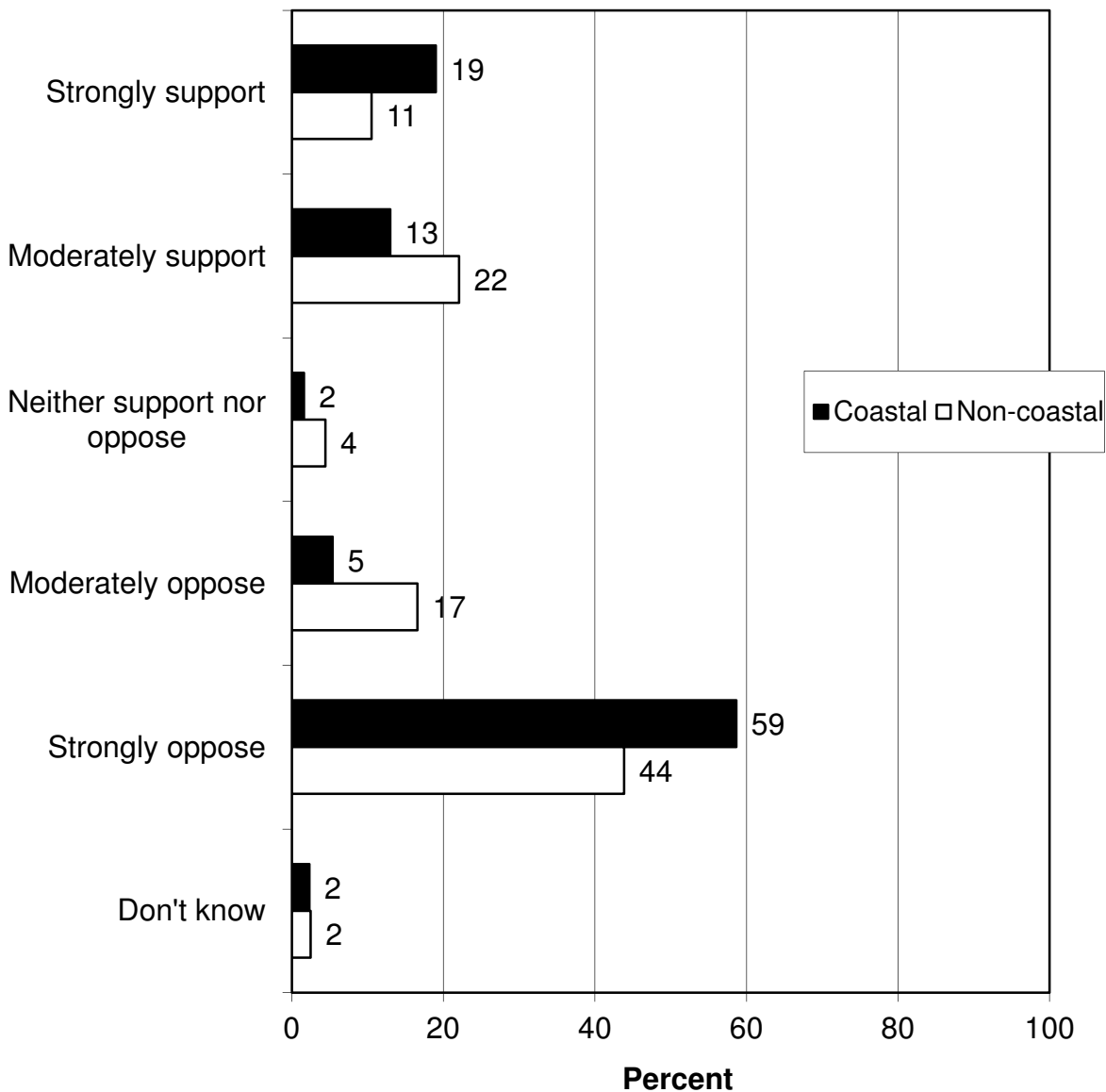
**Q118. What if you knew it would save money or be less costly long-term for Delaware to construct structures to withstand or accommodate sea level rise? (Asked of those who oppose spending more money on public construction projects if it meant the structures could withstand or accommodate sea level rise in Delaware.)**



**Q118. What if you knew it would save money or be less costly long-term for Delaware to construct structures to withstand or accommodate sea level rise? (Asked of those who oppose spending more money on public construction projects if it meant the structures could withstand or accommodate sea level rise in Delaware.)**

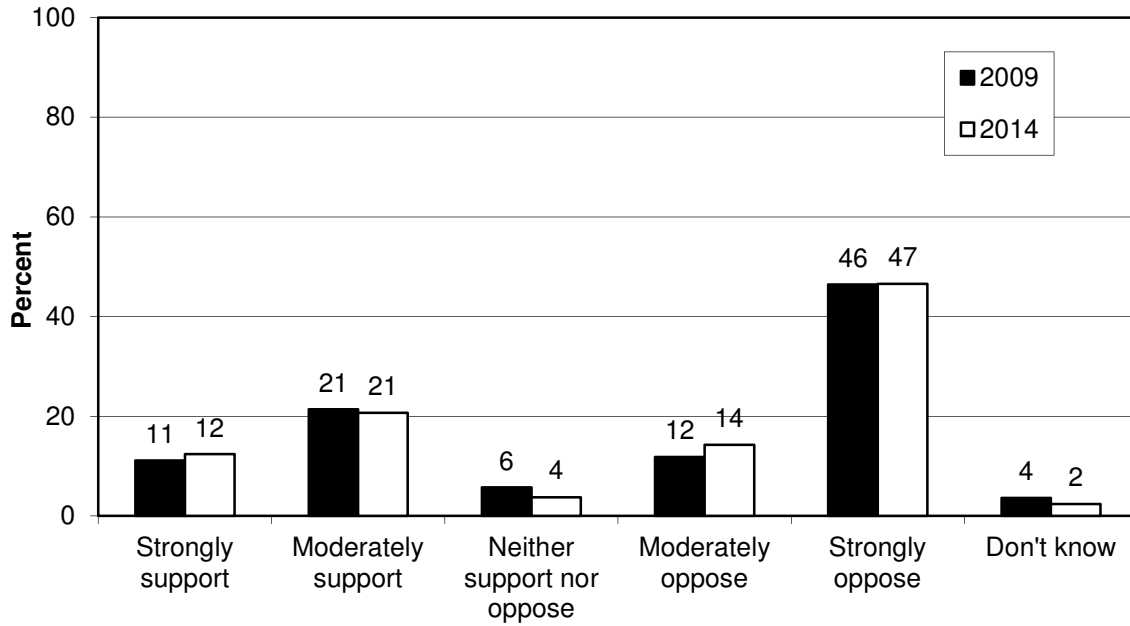


**Q118. What if you knew it would save money or be less costly long-term for Delaware to construct structures to withstand or accommodate sea level rise? (Asked of those who oppose spending more money on public construction projects if it meant the structures could withstand or accommodate sea level rise in Delaware.)**





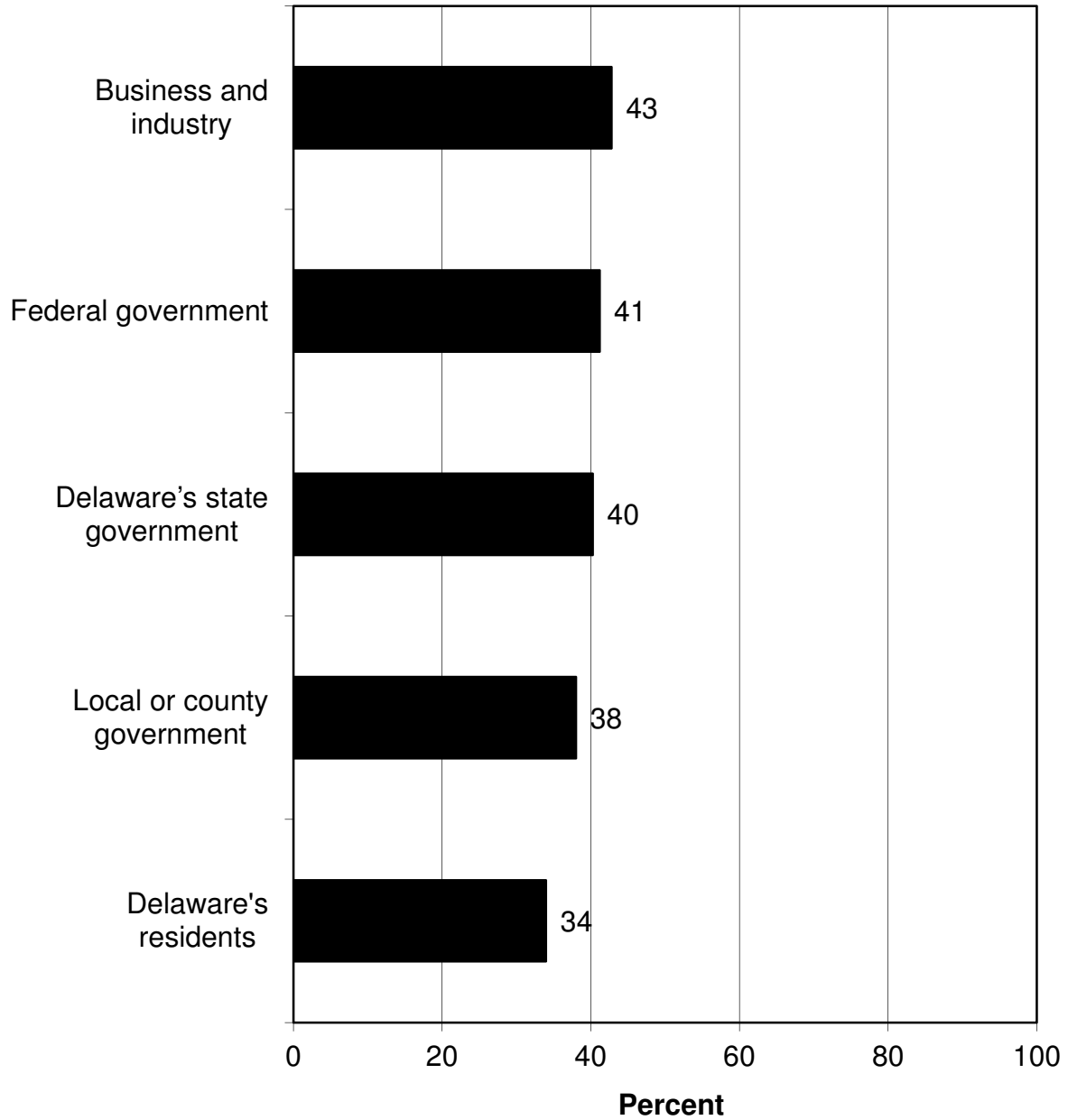
**Q118. What if you knew it would save money or be less costly long-term for Delaware to construct structures to withstand or accommodate sea level rise?**



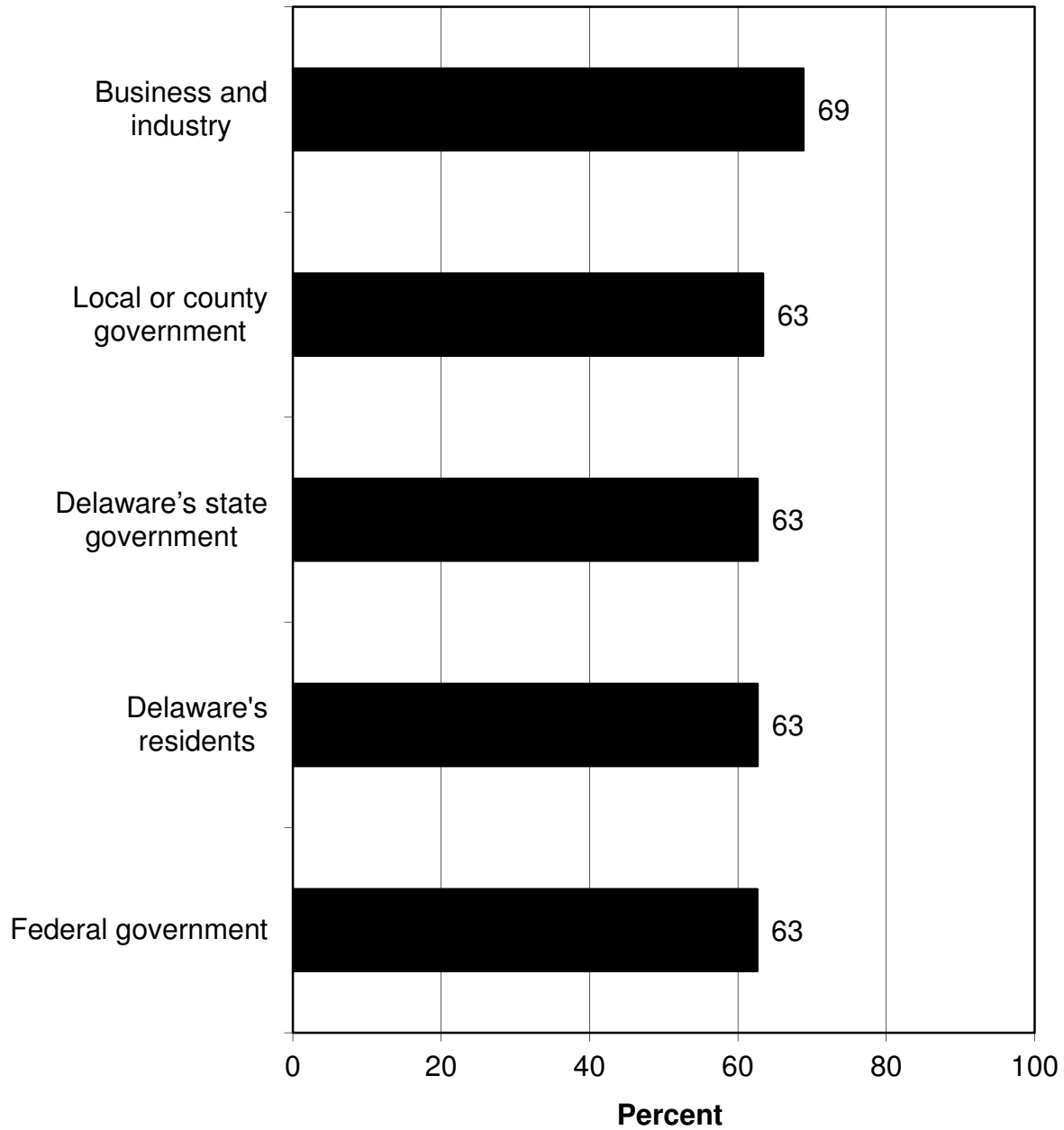
## RESPONSIBILITY FOR TAKING ACTION

- The survey presented five entities and asked whether each should be doing more to address or reduce the impacts of sea level rise in Delaware. In looking at the percentages who say that the entities should be doing *much* more, there is little separation between the top four entities: business and industry (43% say that they should do *much* more), the federal government (41%), the state government (40%), and the local/county government (38%). At the bottom are Delaware's residents (34% of residents say that Delaware's residents should be doing *much* more).
  - Most of the entities asked about in 2014 differed from those asked about in 2009. For the two entities that were comparable (corporations and industry / business and industry, Delaware citizens / Delaware's residents), the trends analysis shows little variation in the results from 2009 to 2014.
    - Four graphs are shown: the percentages who say *much* more, the percentages who say *much* or *somewhat* more, the percentages who say *much* less, and the percentages who say *much* or *somewhat* less.

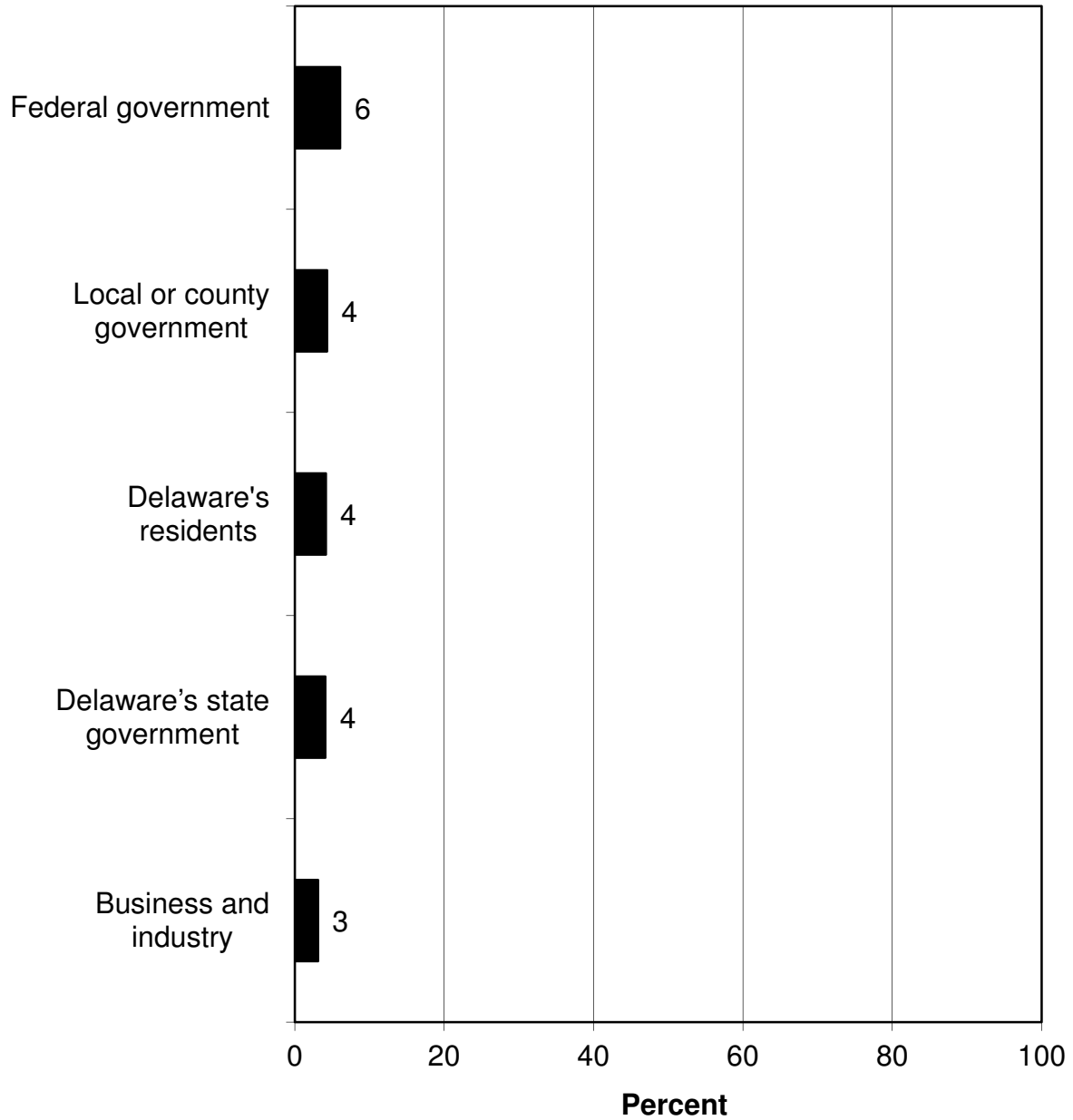
**Q121-125. Percent of respondents who think each of the following should be doing much more to address or reduce the impacts of sea level rise in Delaware.**



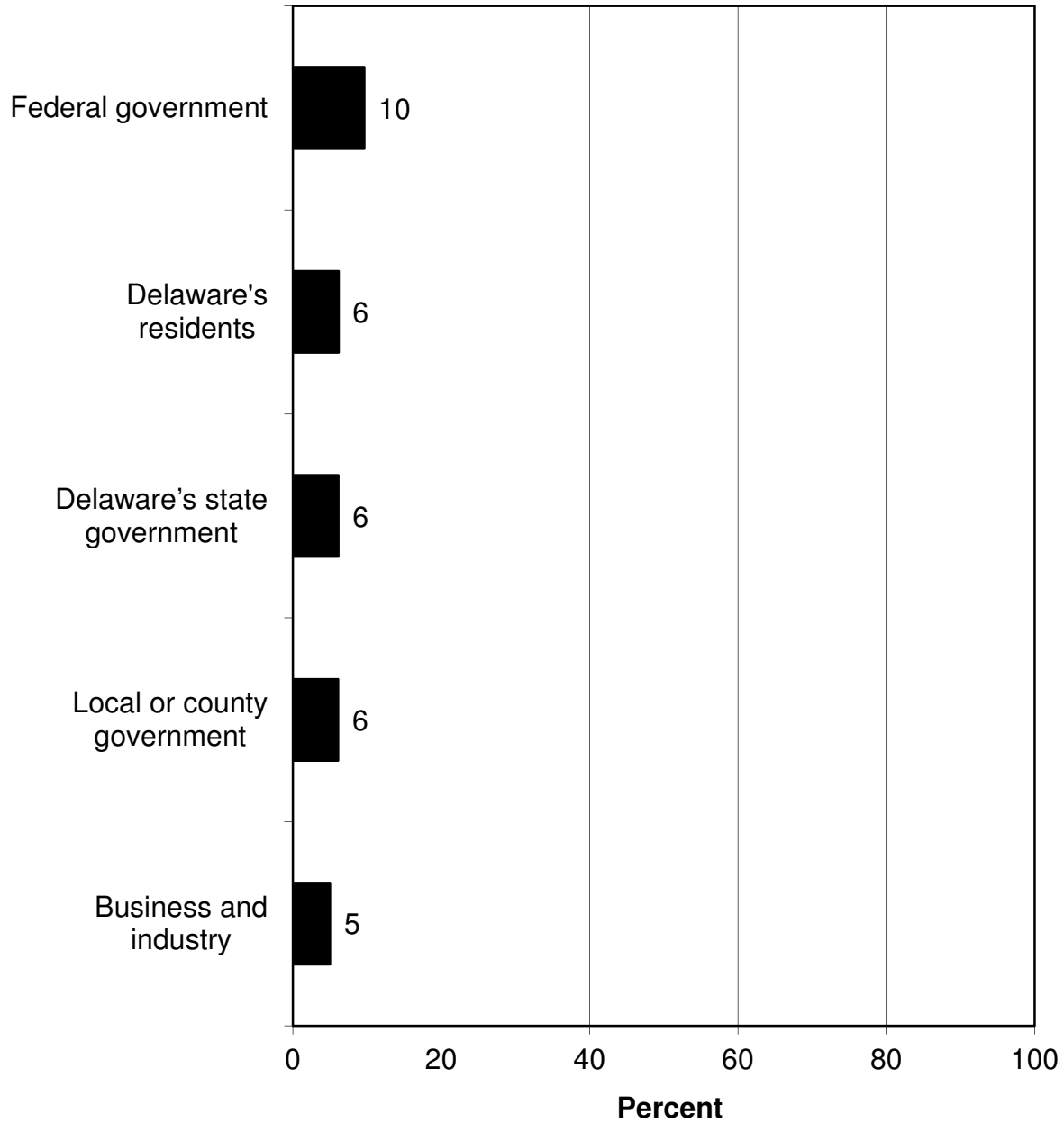
**Q121-125. Percent of respondents who think each of the following should be doing much or somewhat more to address or reduce the impacts of sea level rise in Delaware.**



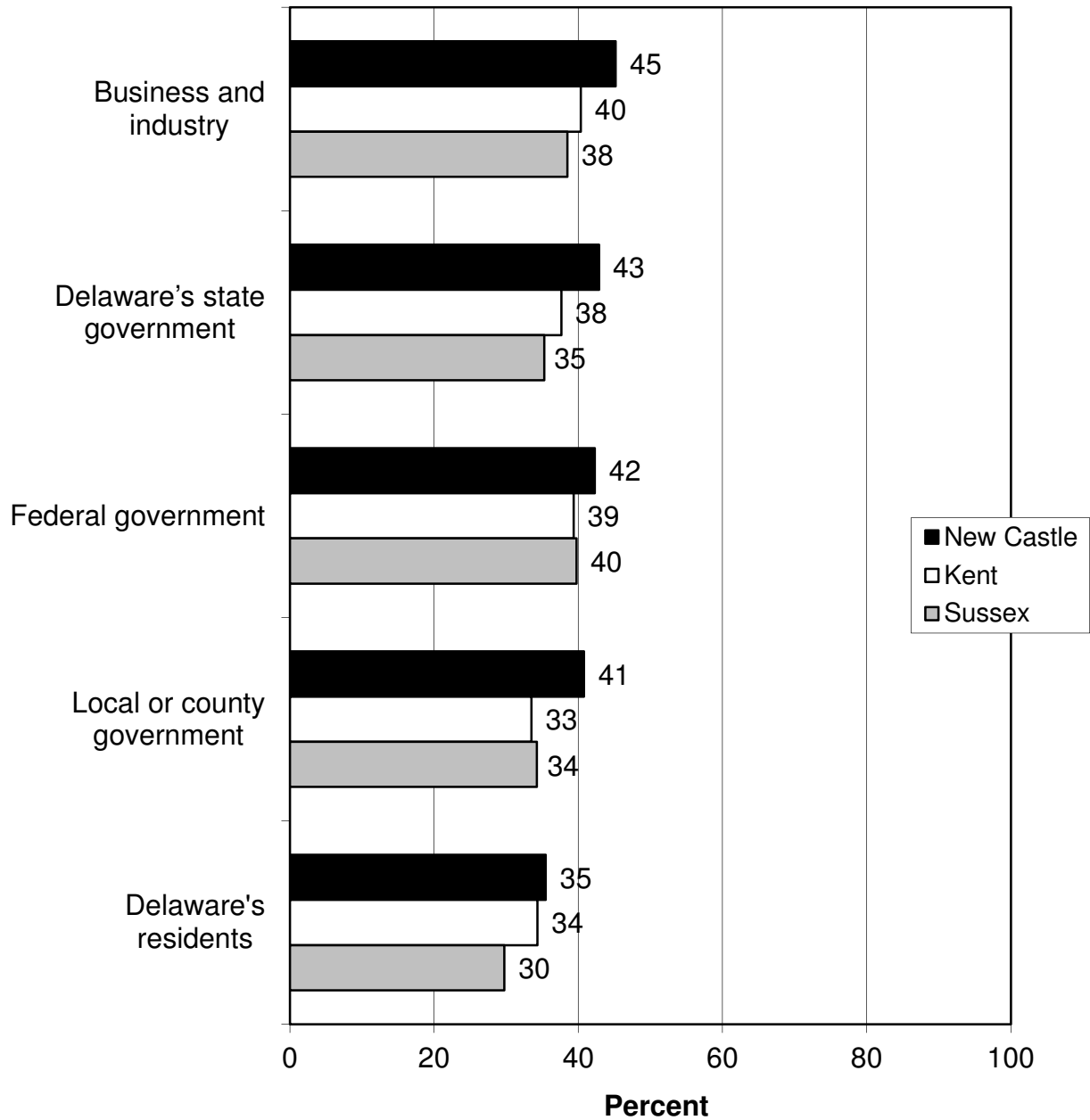
**Q121-125. Percent of respondents who think each of the following should be doing much less to address or reduce the impacts of sea level rise in Delaware.**



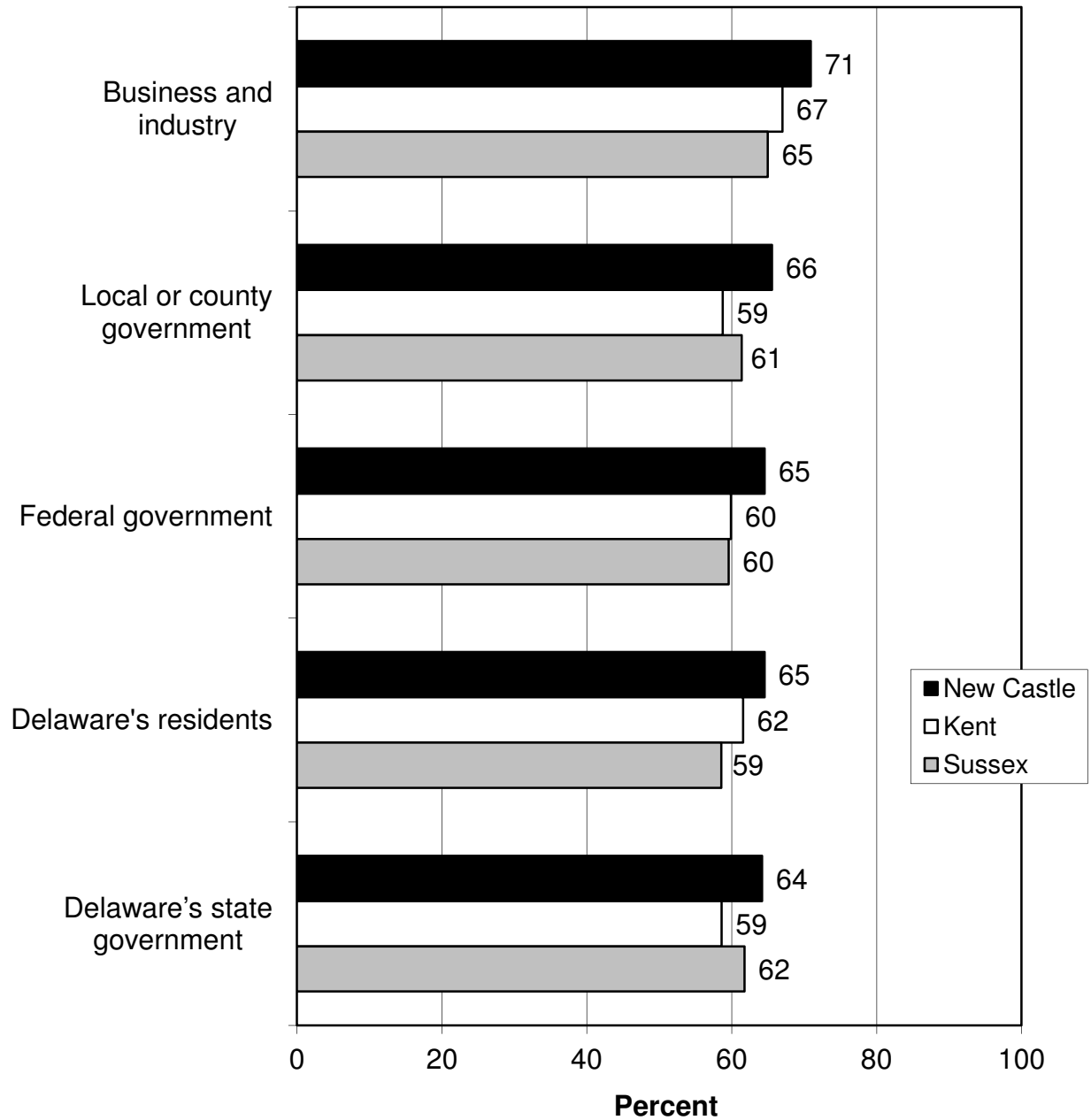
**Q121-125. Percent of respondents who think each of the following should be doing much or somewhat less to address or reduce the impacts of sea level rise in Delaware.**



**Q121-125. Percent of respondents who think each of the following should be doing much more to address or reduce the impacts of sea level rise in Delaware.**

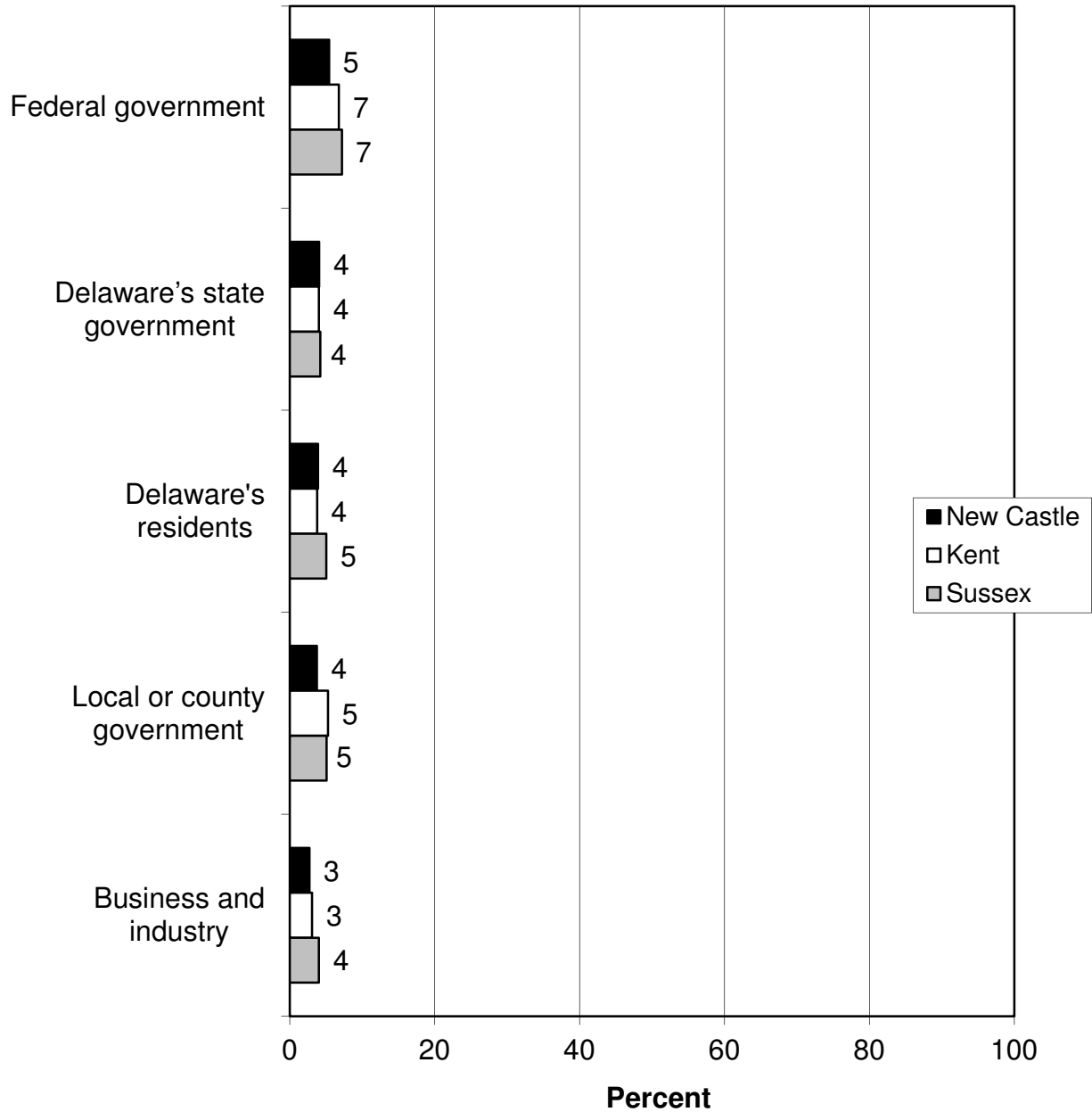


**Q121-125. Percent of respondents who think each of the following should be doing much or somewhat more to address or reduce the impacts of sea level rise in Delaware.**

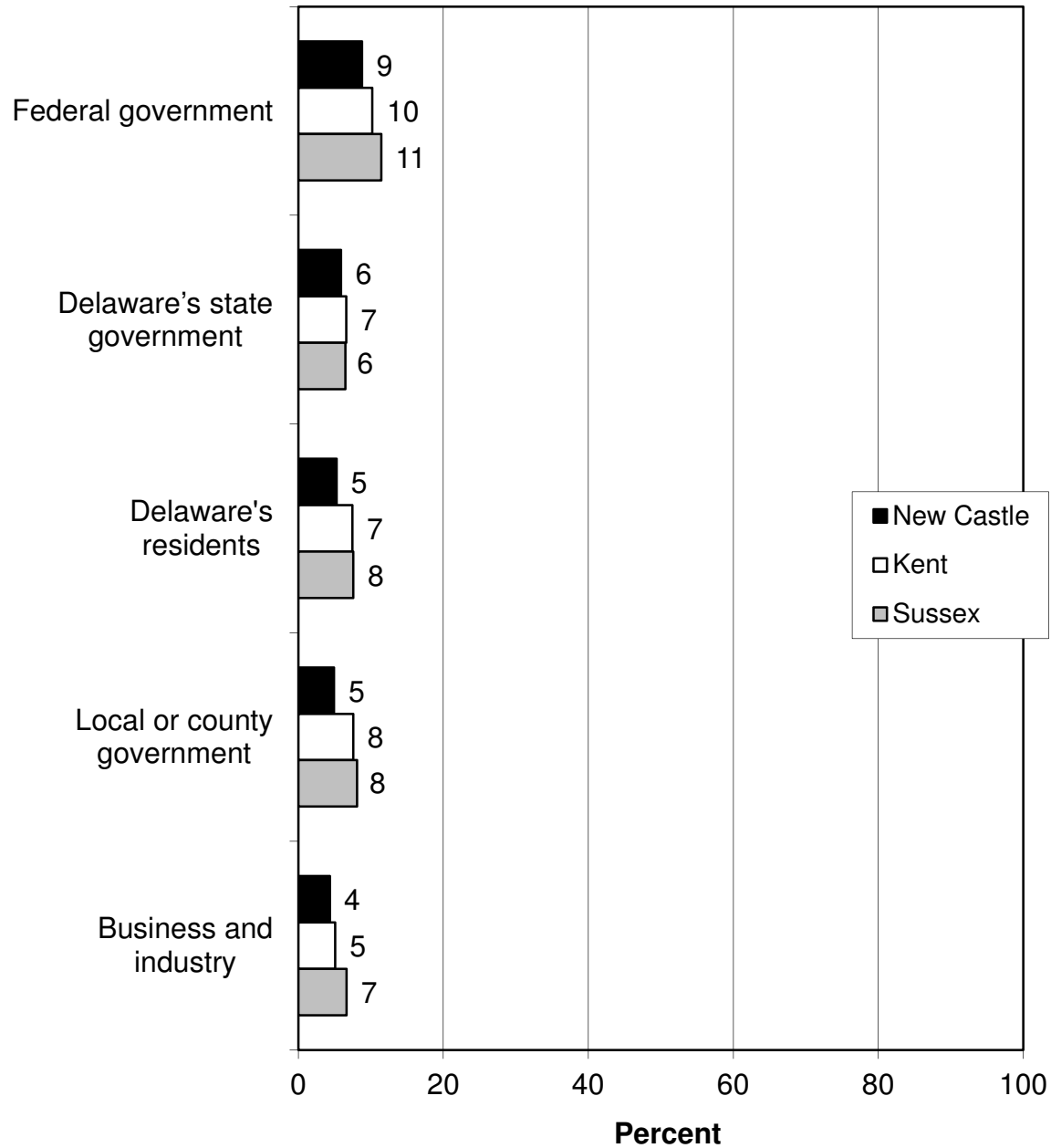




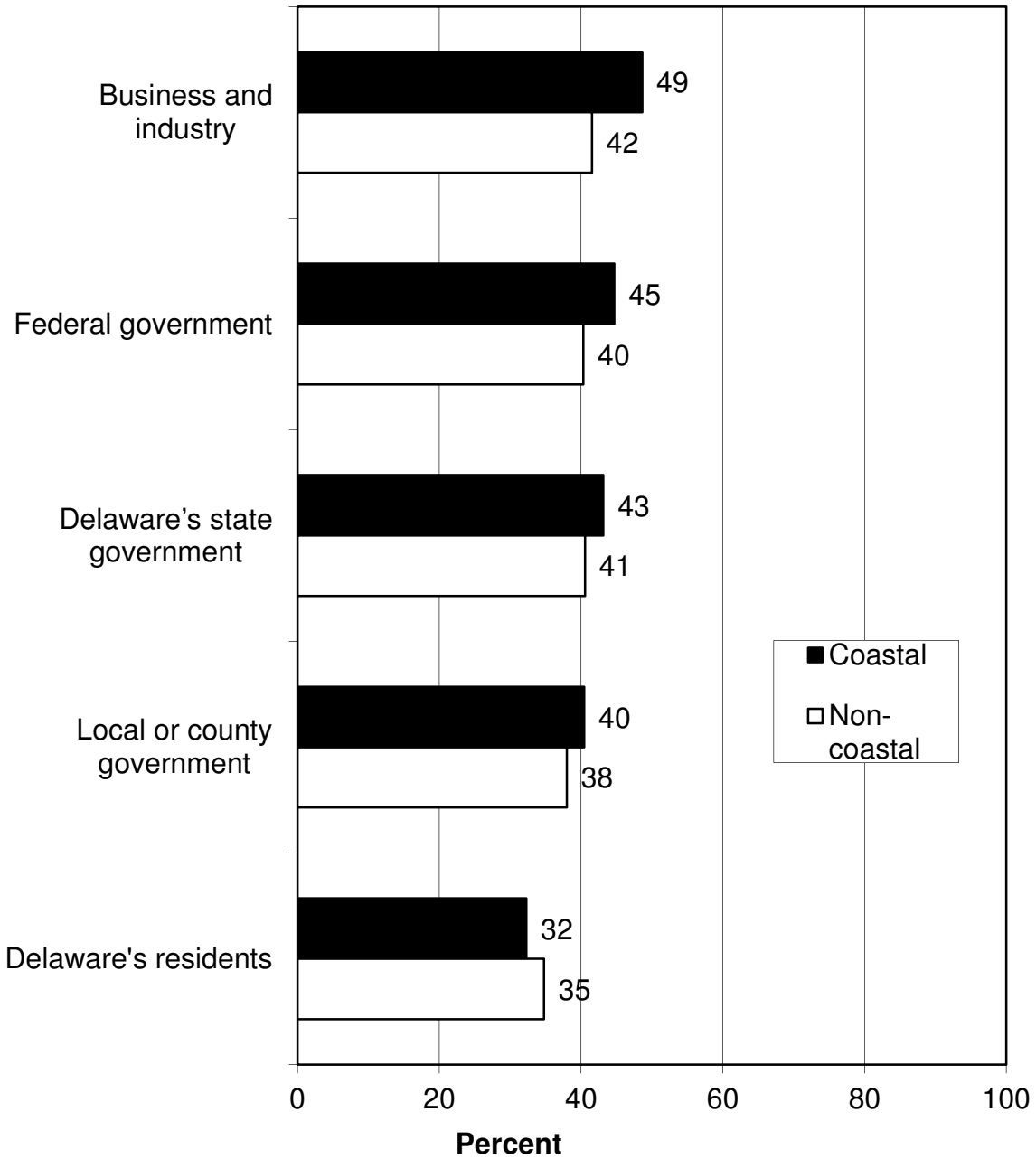
**Q121-125. Percent of respondents who think each of the following should be doing much less to address or reduce the impacts of sea level rise in Delaware.**



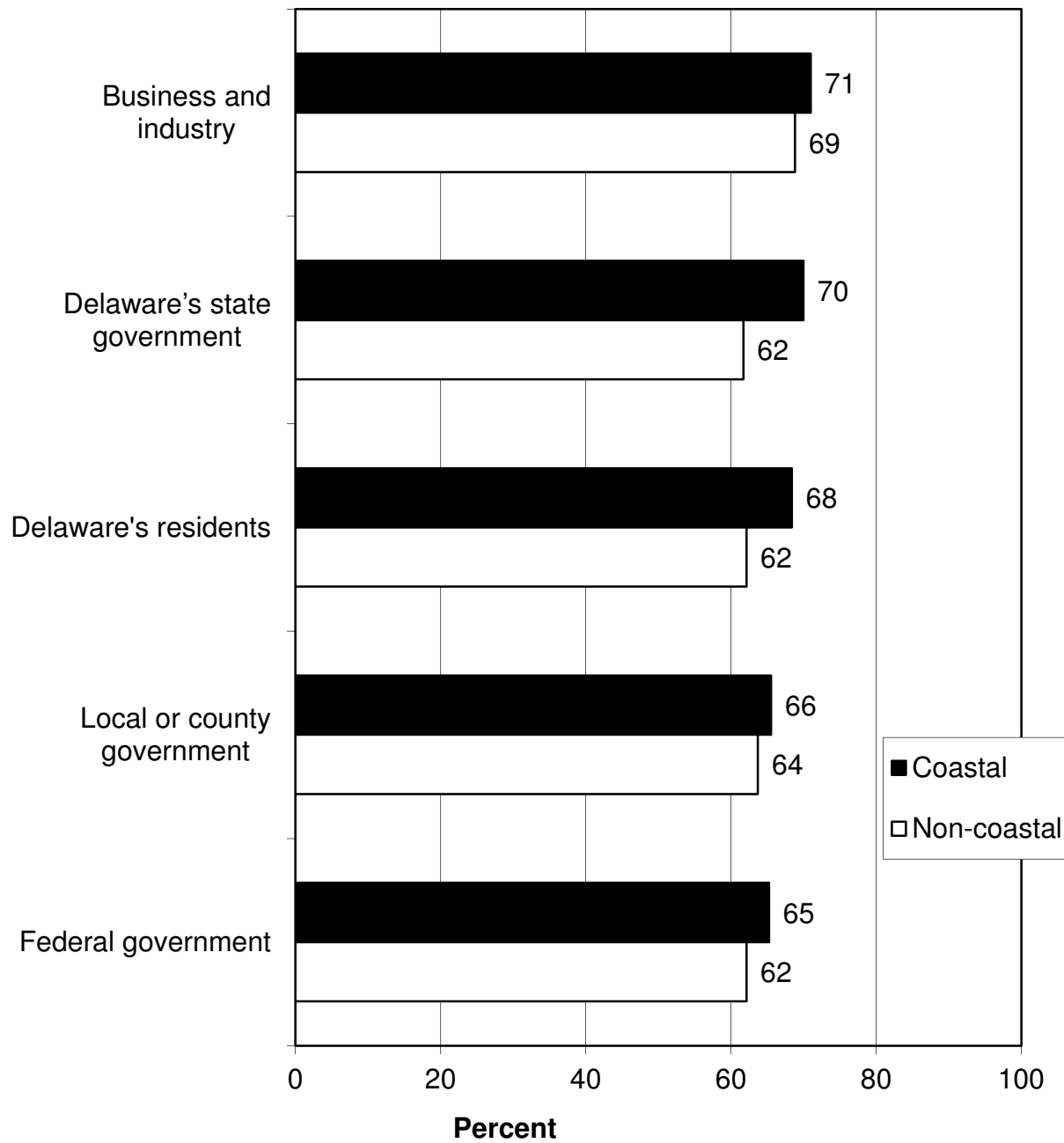
**Q121-125. Percent of respondents who think each of the following should be doing much or somewhat less to address or reduce the impacts of sea level rise in Delaware.**



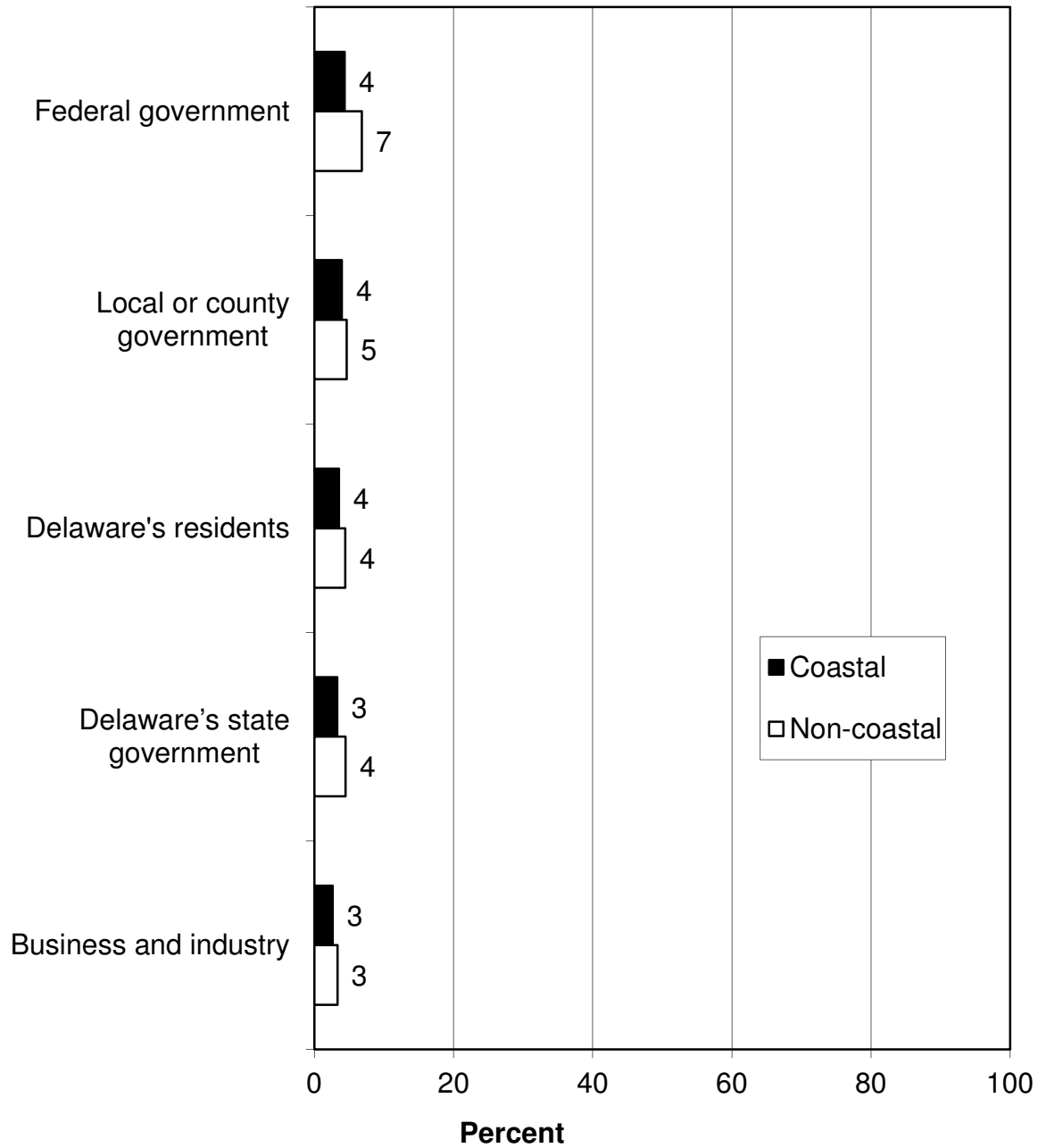
**Q121-125. Percent of respondents who think each of the following should be doing much more to address or reduce the impacts of sea level rise in Delaware.**



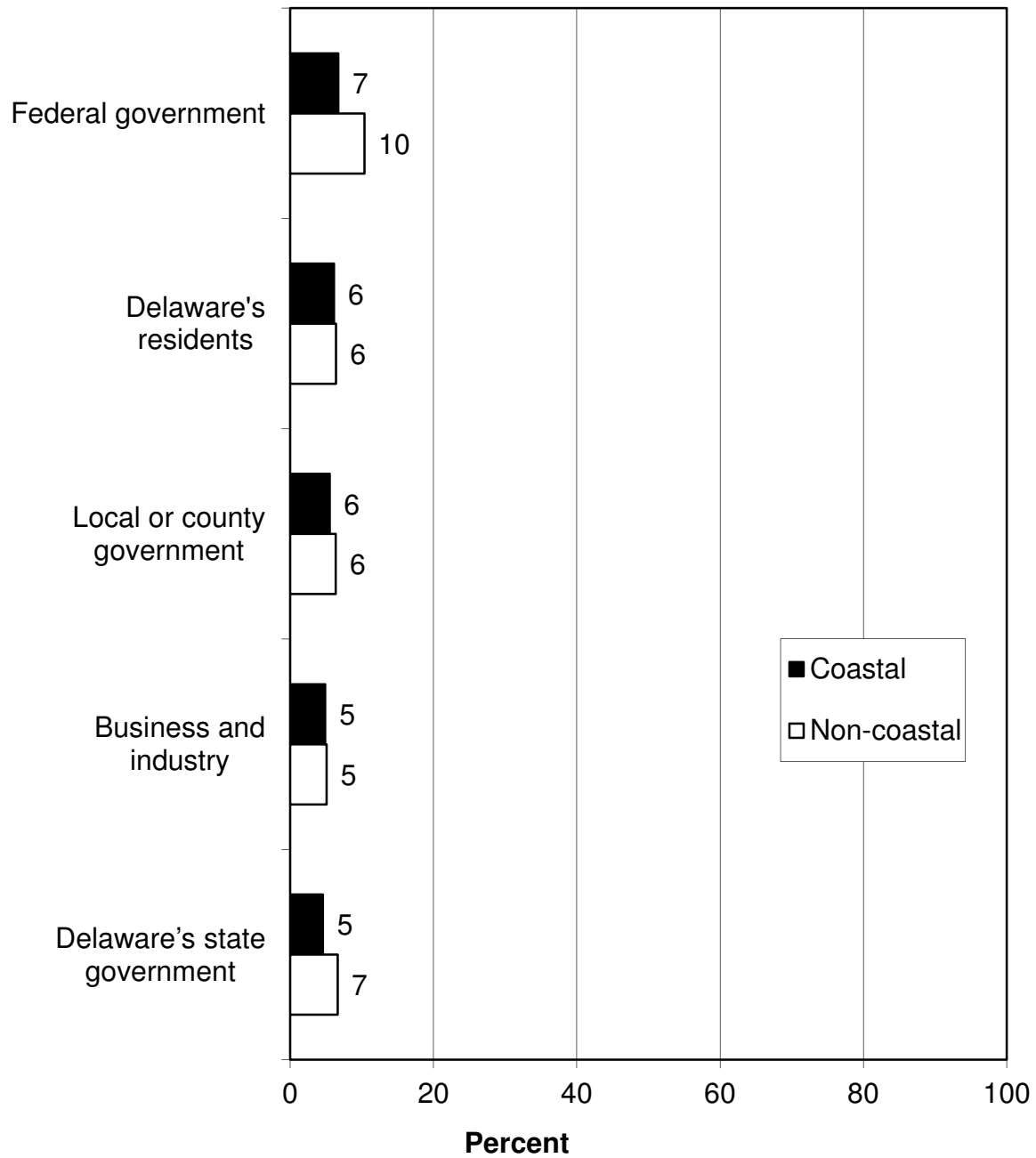
**Q121-125. Percent of respondents who think each of the following should be doing much or somewhat more to address or reduce the impacts of sea level rise in Delaware.**



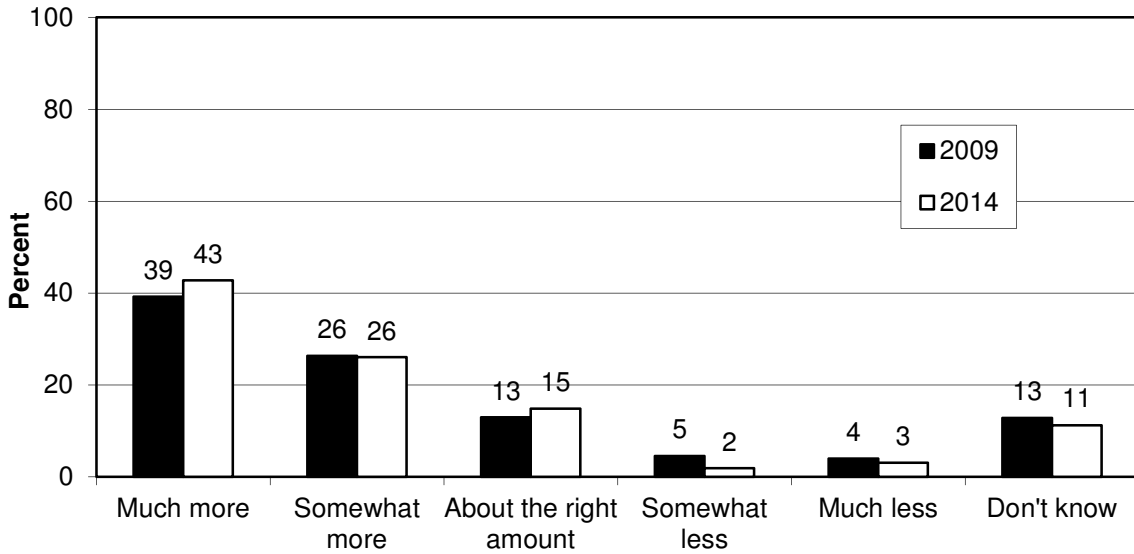
**Q121-125. Percent of respondents who think each of the following should be doing much less to address or reduce the impacts of sea level rise in Delaware.**



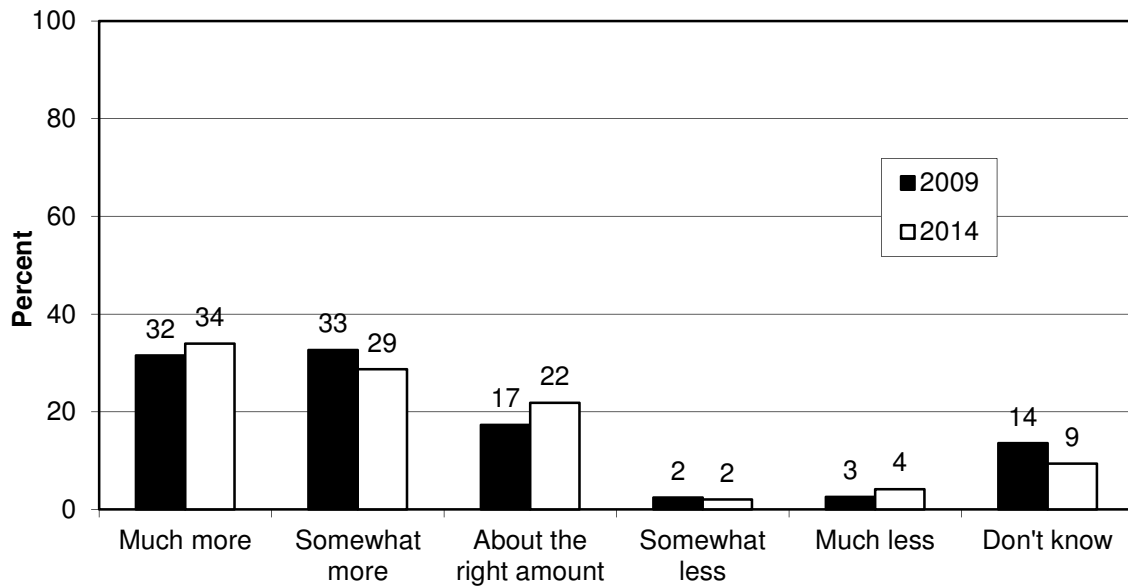
**Q121-125. Percent of respondents who think each of the following should be doing much or somewhat less to address or reduce the impacts of sea level rise in Delaware.**



**Q124. Do you think corporations and industry should be doing more or less to address or reduce the impacts of sea level rise in Delaware or are they currently doing about the right amount?**



**Q125. Do you think Delaware citizens should be doing more or less to address or reduce the impacts of sea level rise in Delaware or are they currently doing about the right amount?**

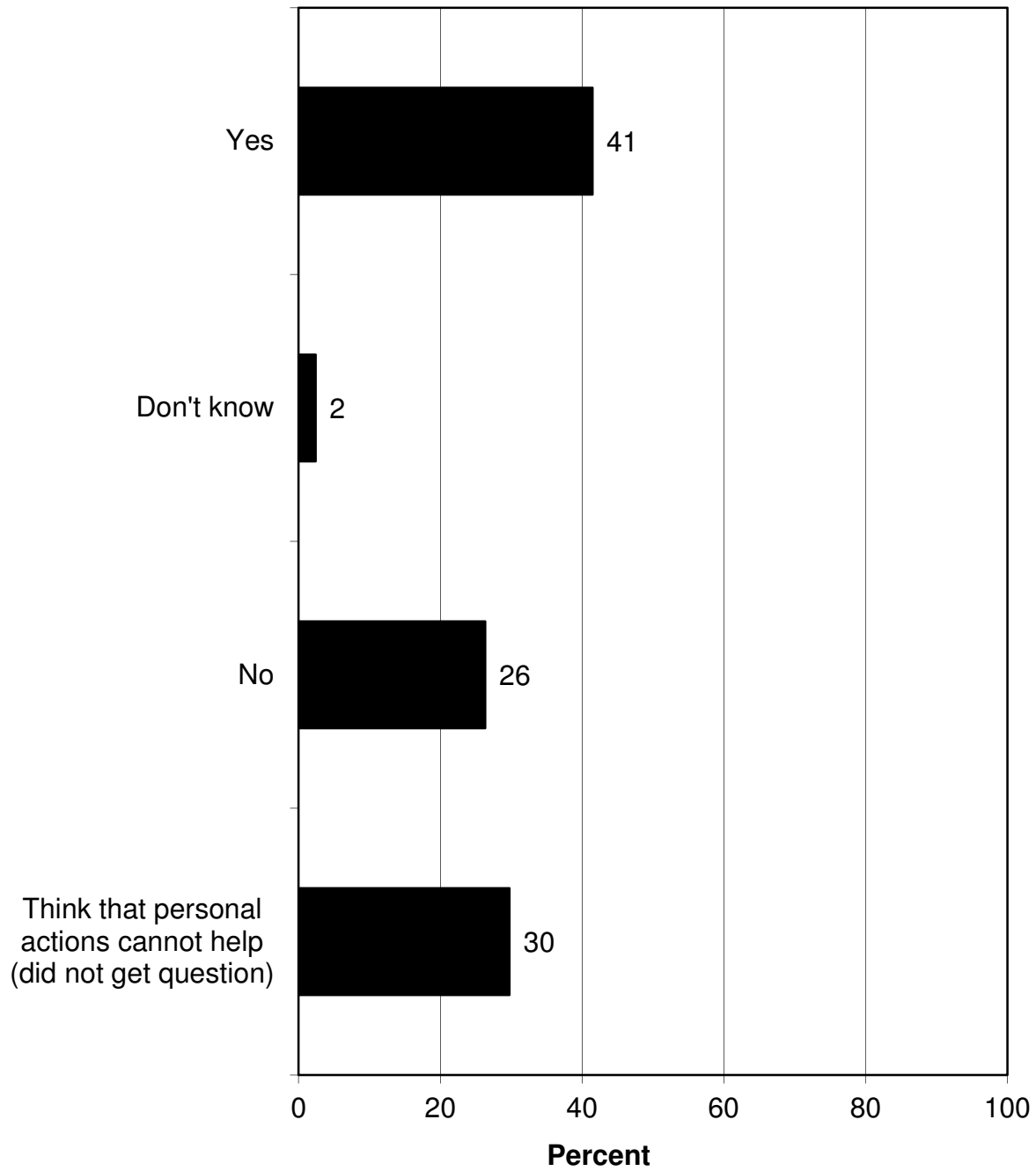




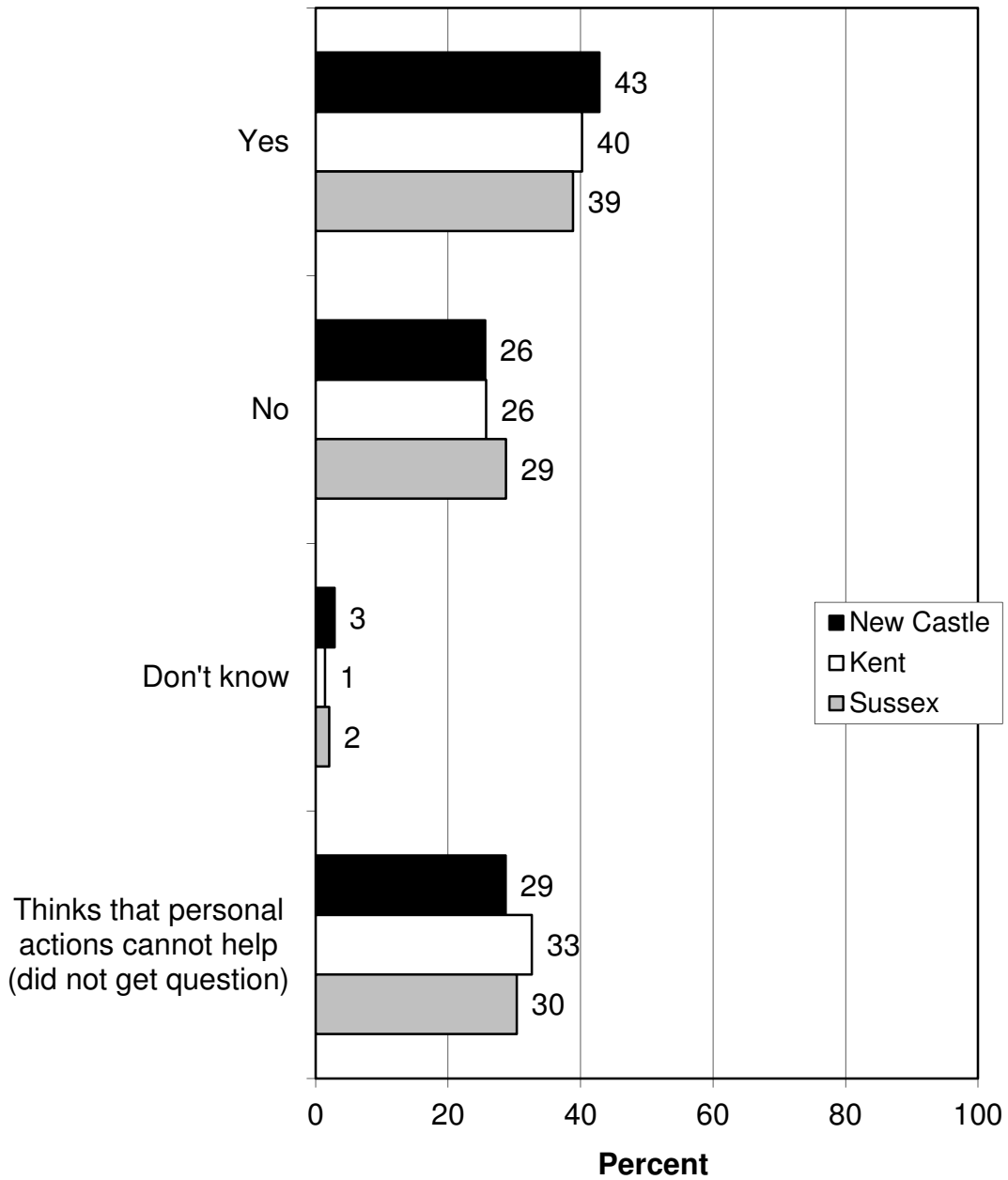
**PERSONAL ACTIONS TAKEN RELATED TO CLIMATE CHANGE AND SEA LEVEL RISE**

- About 2 in 5 Delaware residents (41% of them) say that they have personally taken action within the past 2 years to try to reduce climate change.
  - Note that 30% of residents do not believe that personal actions can help mitigate the impacts of climate change. If it is assumed that they did not take any action, 56% of residents did not take any action to try to reduce climate change.
    - That 56% includes those who may have taken a conservation action that mitigates climate change/sea level rise without consciously doing it for that reason (they may have had another reason for taking the action).
  
- The survey presented six things that people could have done pertaining to addressing sea level rise or learning more about sea level rise. The majority of residents have read a newspaper or magazine article about sea level rise (53%), and nearly half have had a conversation with a friend or family member about sea level rise (45%). Lesser percentages have read about sea level rise on social media (29%), have visited a website for sea level rise information (24%), have read a brochure or handout about sea level rise (17%), or have attended a public meeting or workshop about sea level rise (7%).

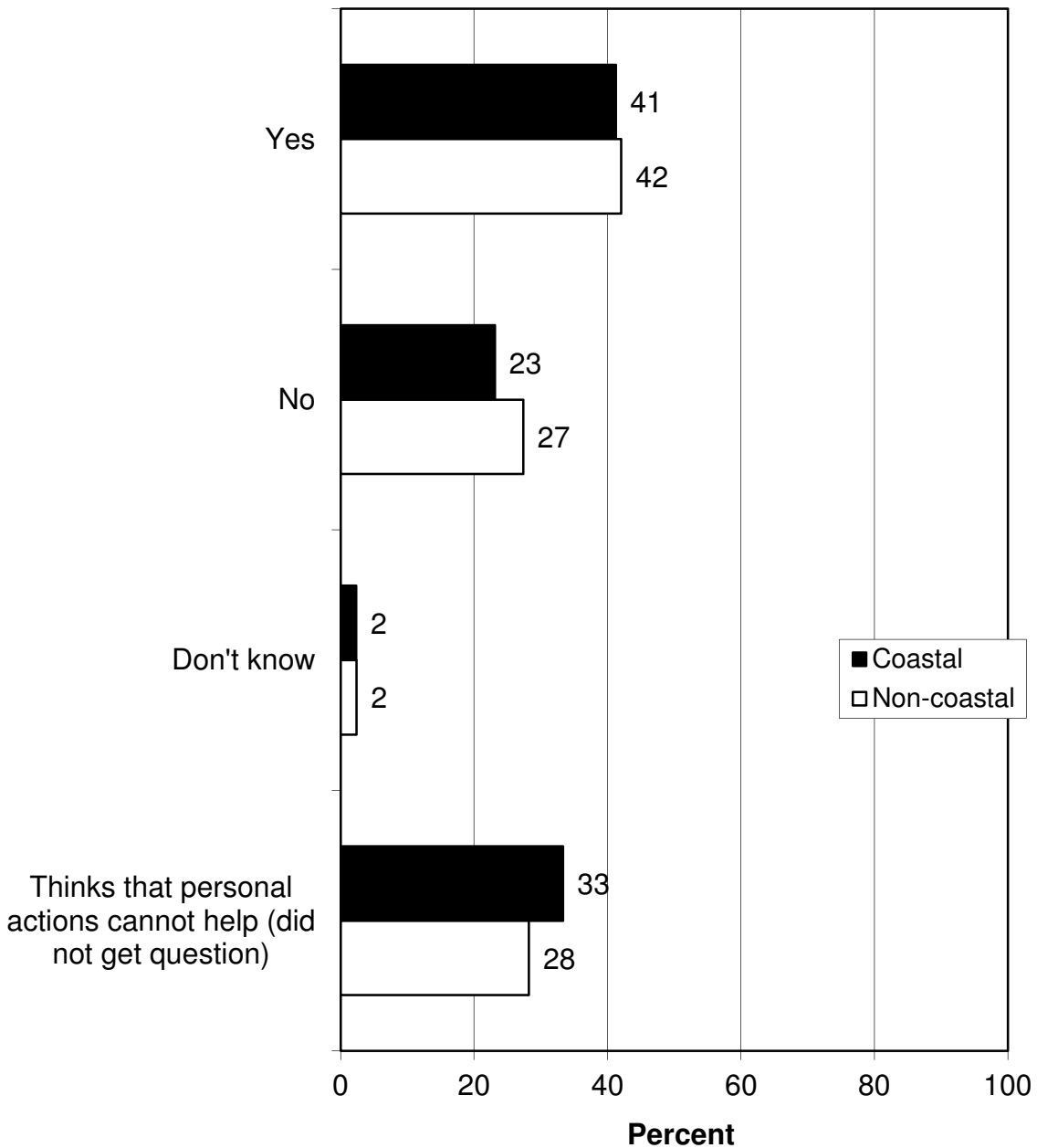
**Q95. Have you personally taken action in the past 2 years to try to reduce climate change?**



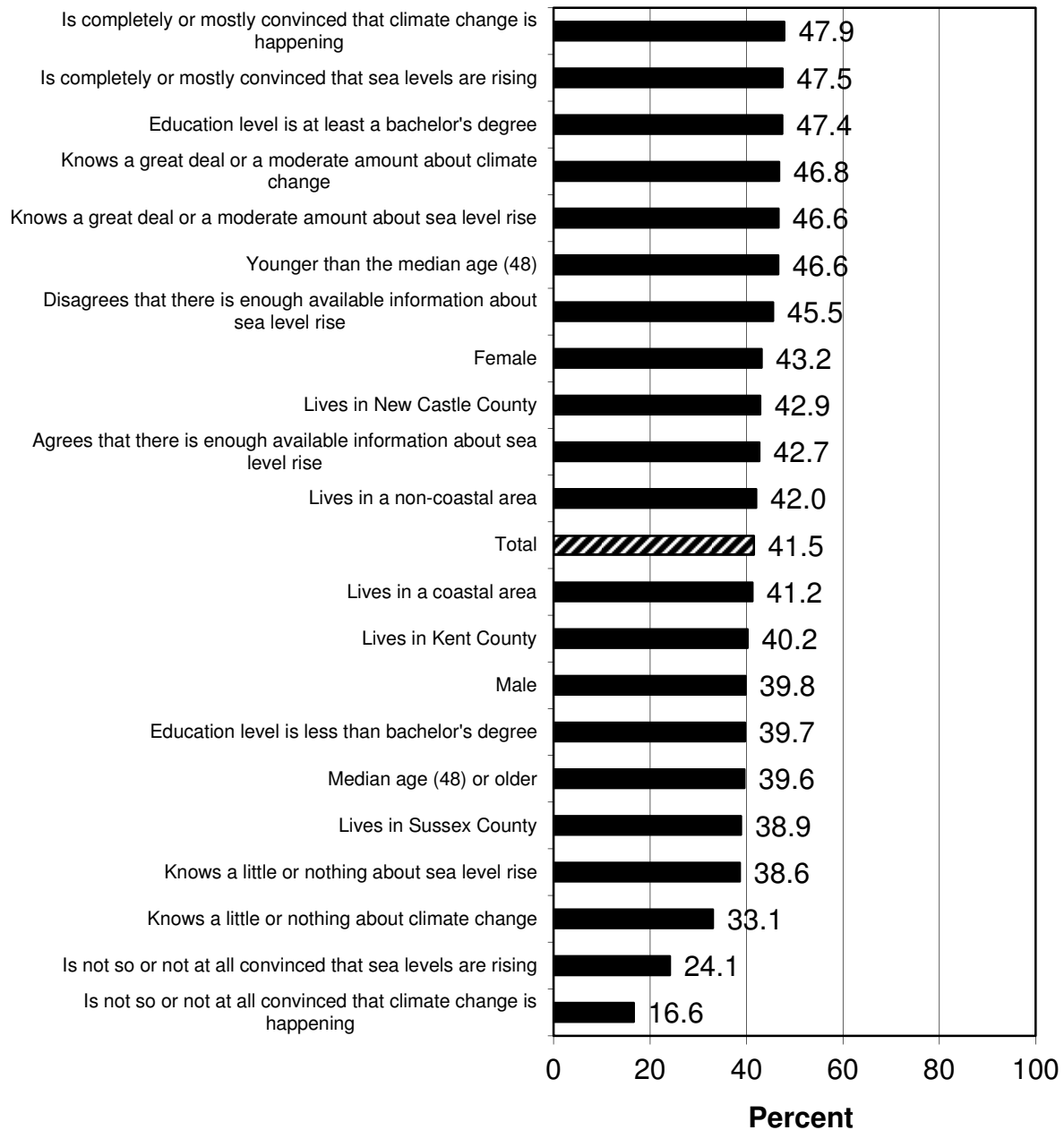
**Q95. Have you personally taken action in the past 2 years to try to reduce climate change?**



**Q95. Have you personally taken action in the past 2 years to try to reduce climate change?**

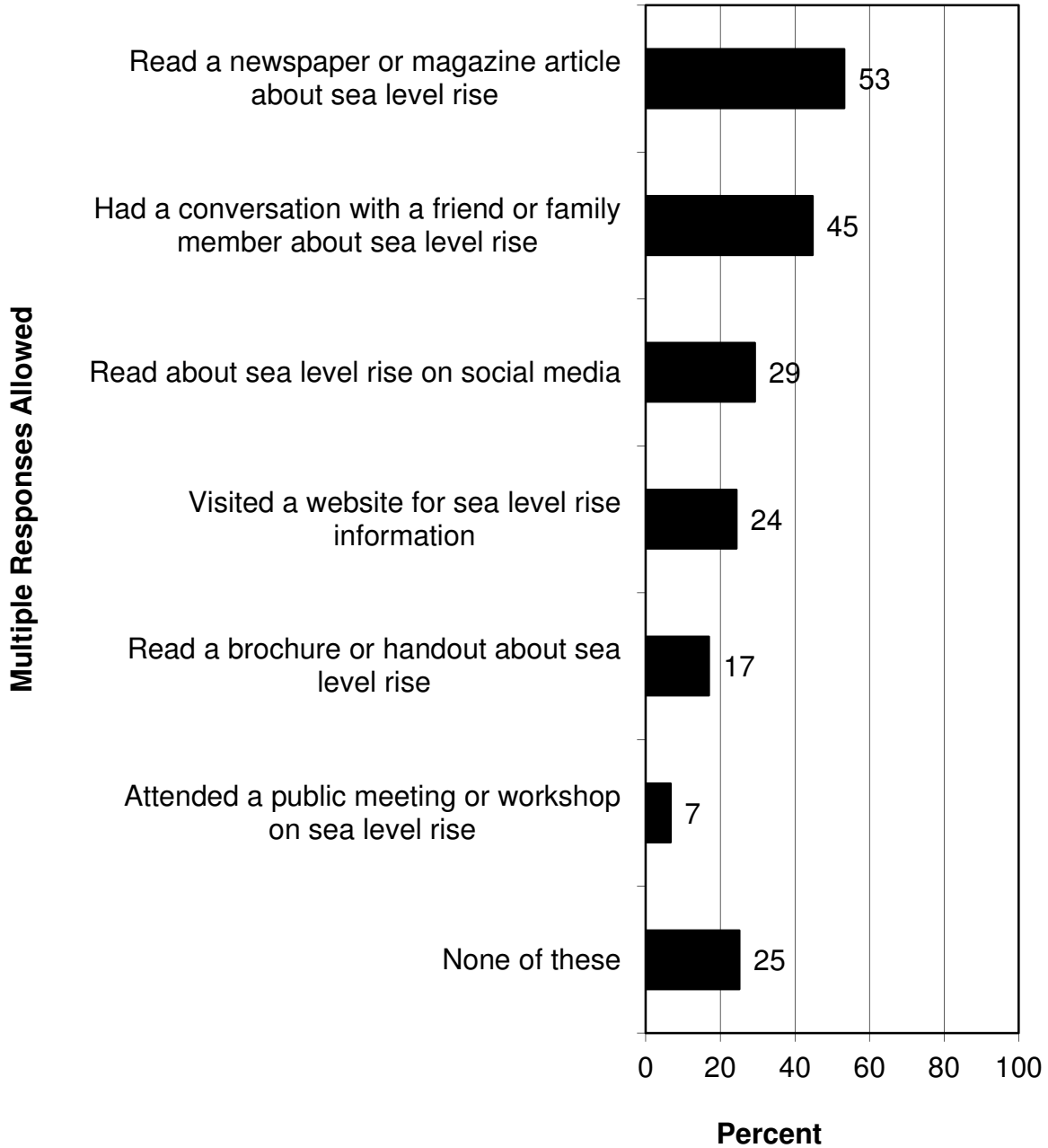


**Percent of each of the following groups who have personally taken action in the past 2 years to reduce climate change:**

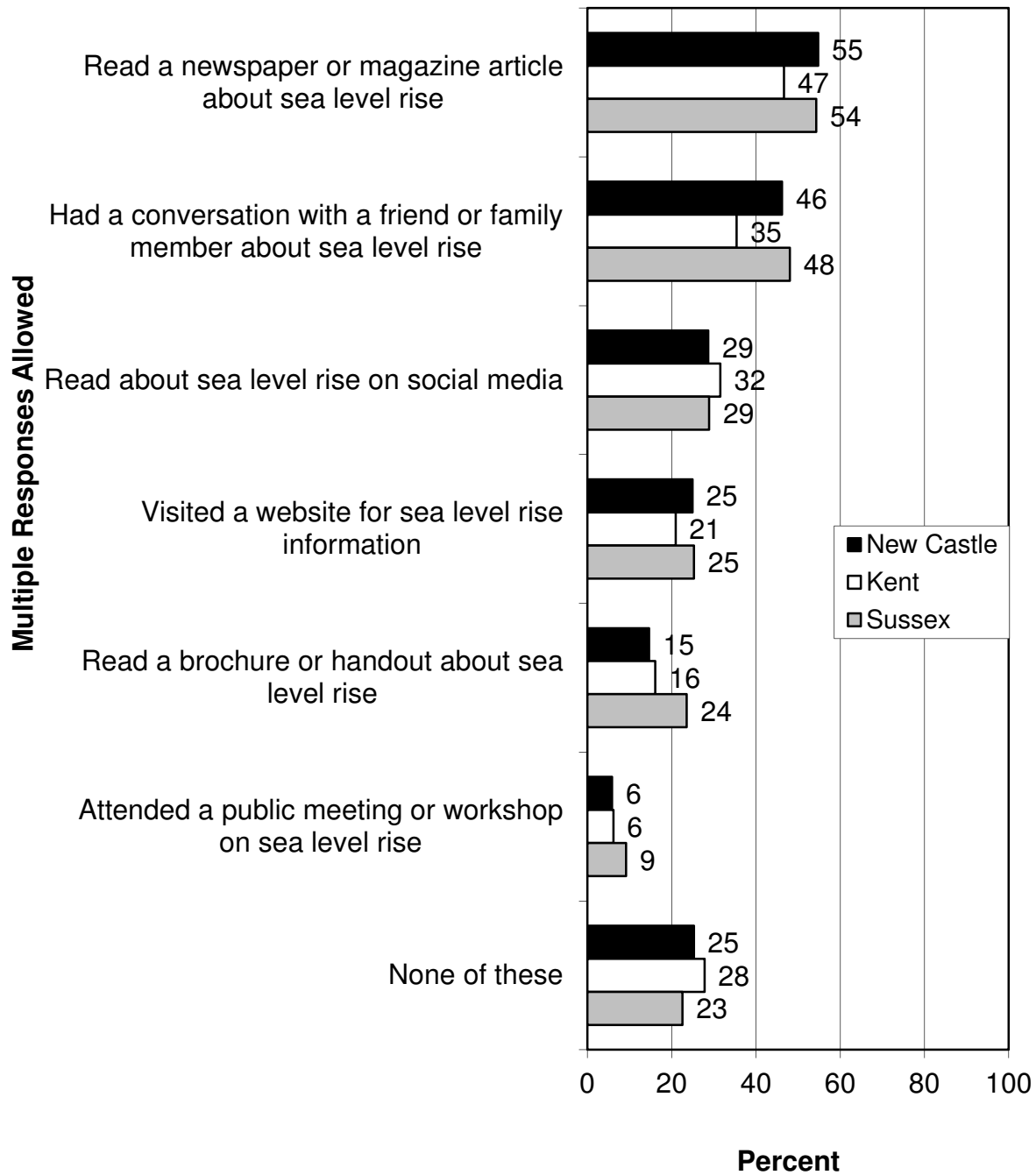


The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to have personally taken action to reduce climate change, relative to residents as a whole. Overall, 41.5% of Delaware residents have taken action (striped bar). Those groups more inclined to have taken action are above that bar (for instance, 46.6% of those people younger than the median age have taken action); those groups less inclined to have taken action are below that bar (for instance, only 39.8% of males have taken action).

**Q134. In the past 12 months, have you done any of the following?**

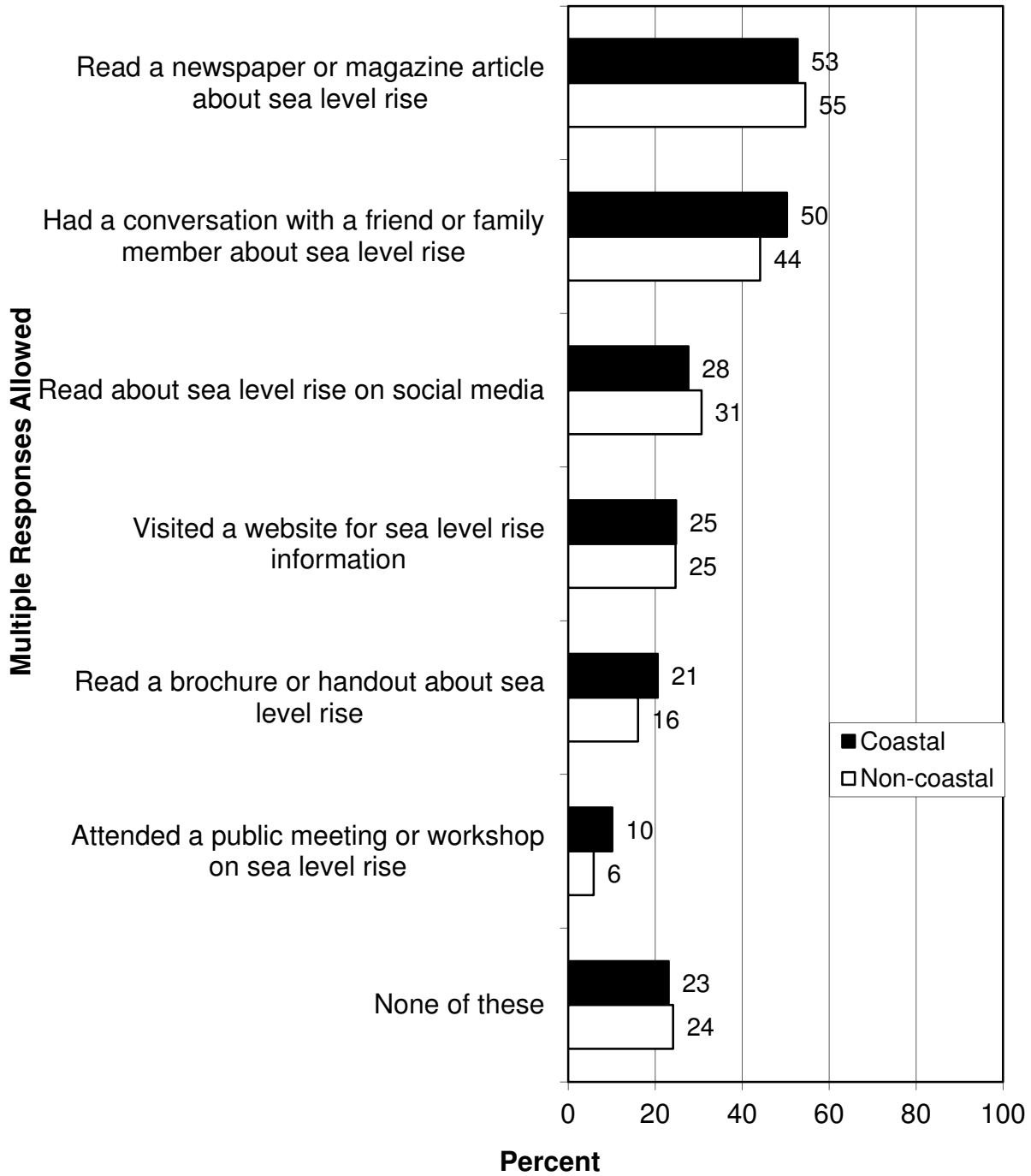


### Q134. In the past 12 months, have you done any of the following?





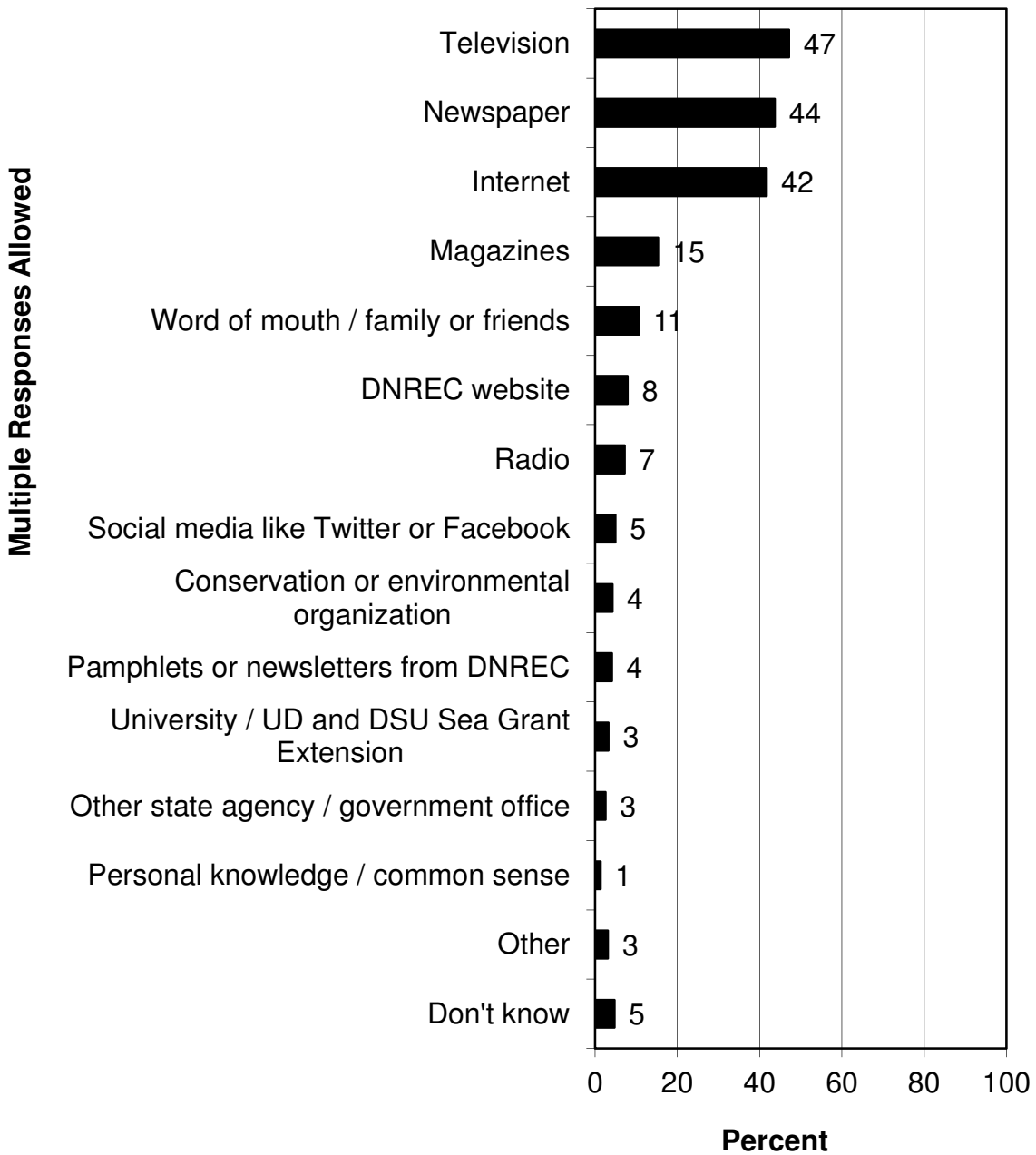
**Q134. In the past 12 months, have you done any of the following?**



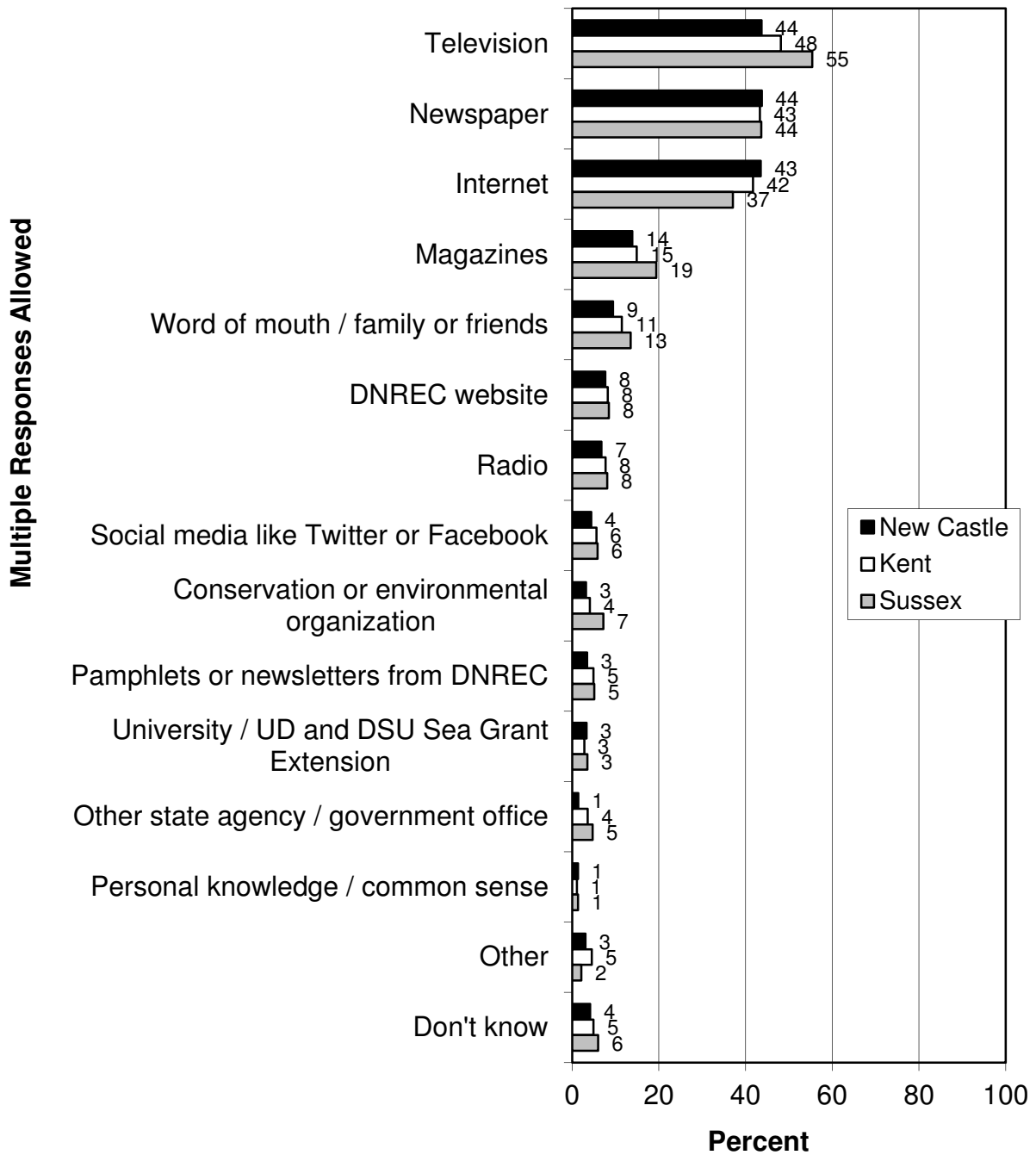
## SOURCES OF INFORMATION ABOUT CLIMATE CHANGE AND SEA LEVEL RISE

- The most popular sources of information about environmental issues in Delaware are television (47% get environmental information this way), newspapers (44%), and the Internet (42%). No other source was named by more than 15% of residents.
  
- The sample was randomly split, with one group being asked to name the topics about climate change on which they want more information, and the other group being asked to name the topics about sea level rise on which they want more information. The questions were open-ended, meaning that no answer set was read to respondents; instead, they could say whatever topics came to mind.
  - The topics about climate change and sea level rise most in demand include the impacts of climate change and sea level rise, the impacts specifically on the Delaware Bay and the state's beaches, actions that can be taken to mitigate climate change and sea level rise, impacts on specific resources or groups, how to protect property, how climate change and sea level rise correlate, and funding needs to address the impacts.
  
- Residents are split on whether there is enough available information about sea level rise: 46% agree that there is, but 44% disagree.
  - The trends analysis shows a slight increase in the percentage of residents who agree that there is enough available information about sea level rise (from 39% in 2009 to 46% in 2014), with most of that increase occurring in the *strongly* agree category (from 22% to 28%). The increase in the percentage of those who *strongly* agree is significant at  $p \leq 0.01$ , meaning each correlation would happen by chance only 1 out of 100 times.

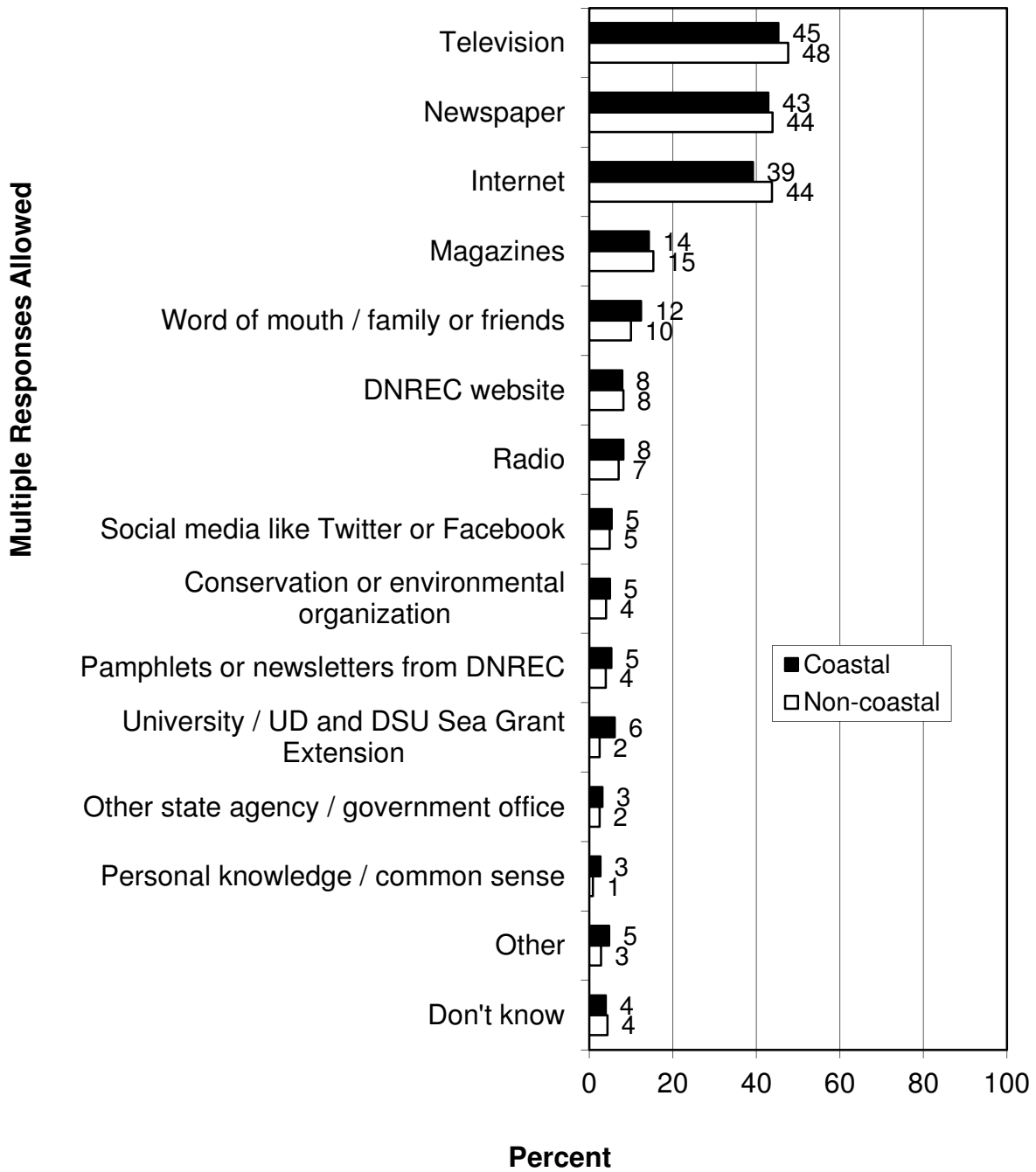
**Q130. Where do you get most of your information about environmental issues in Delaware?**



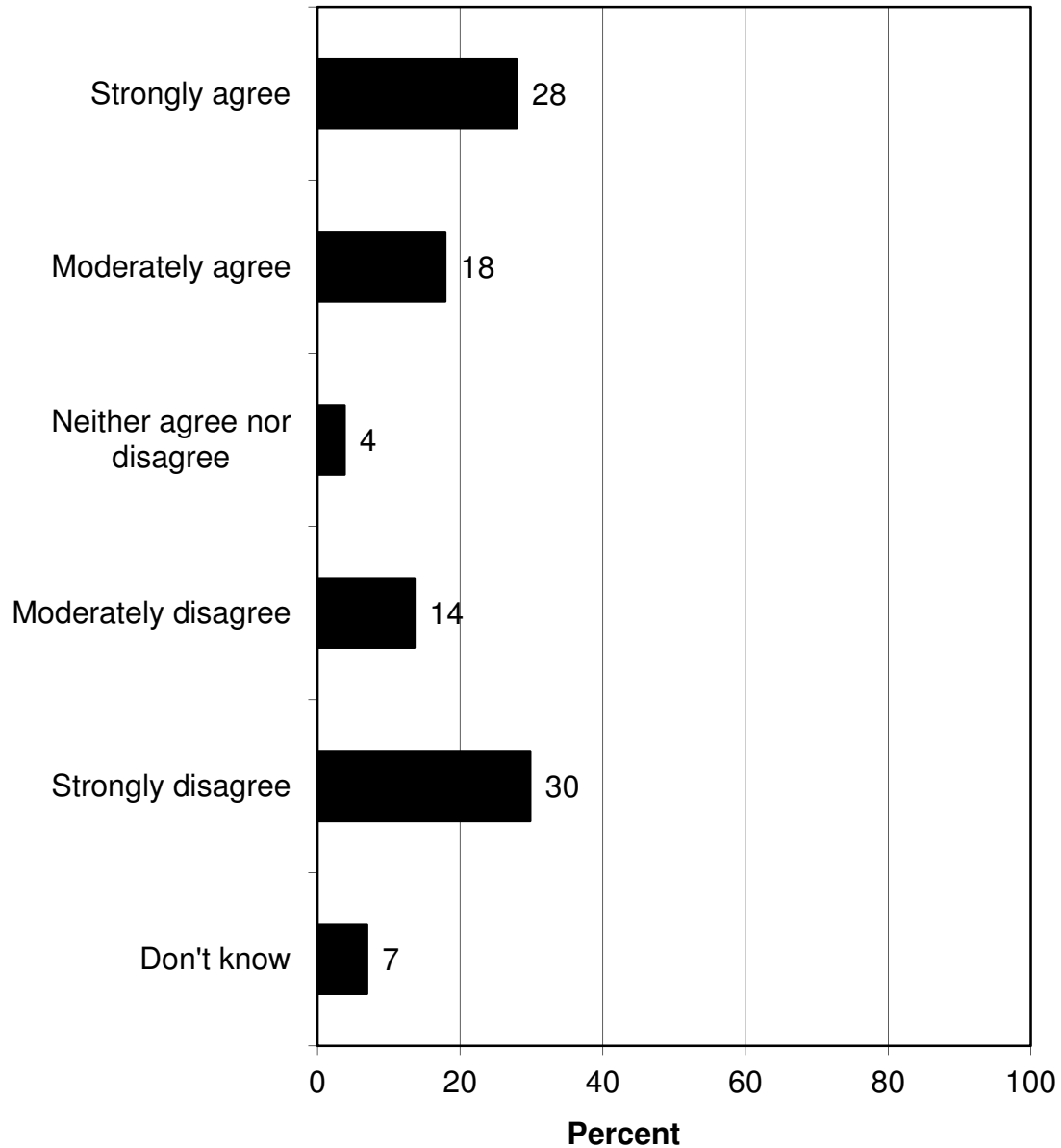
### Q130. Where do you get most of your information about environmental issues in Delaware?



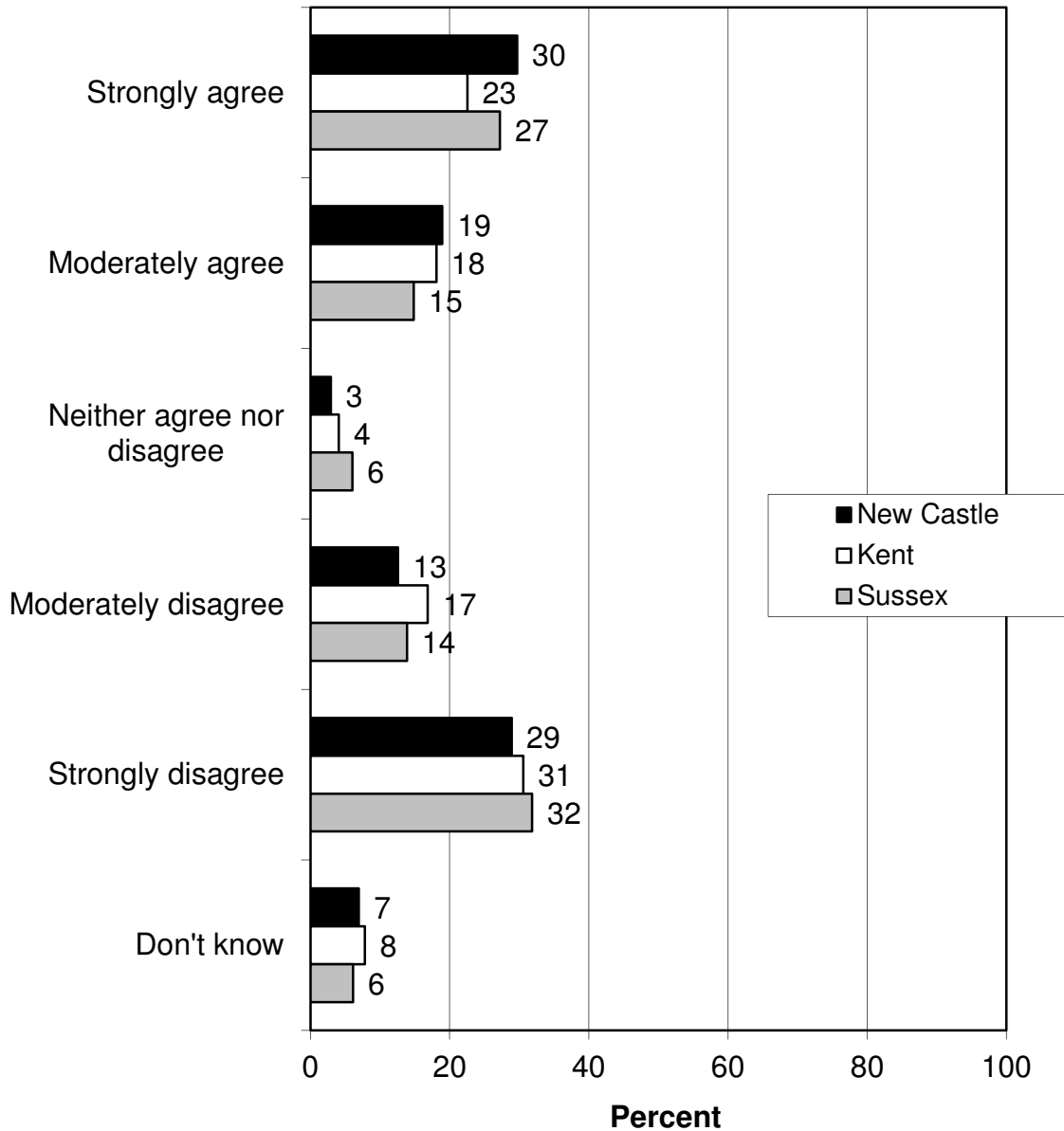
### Q130. Where do you get most of your information about environmental issues in Delaware?



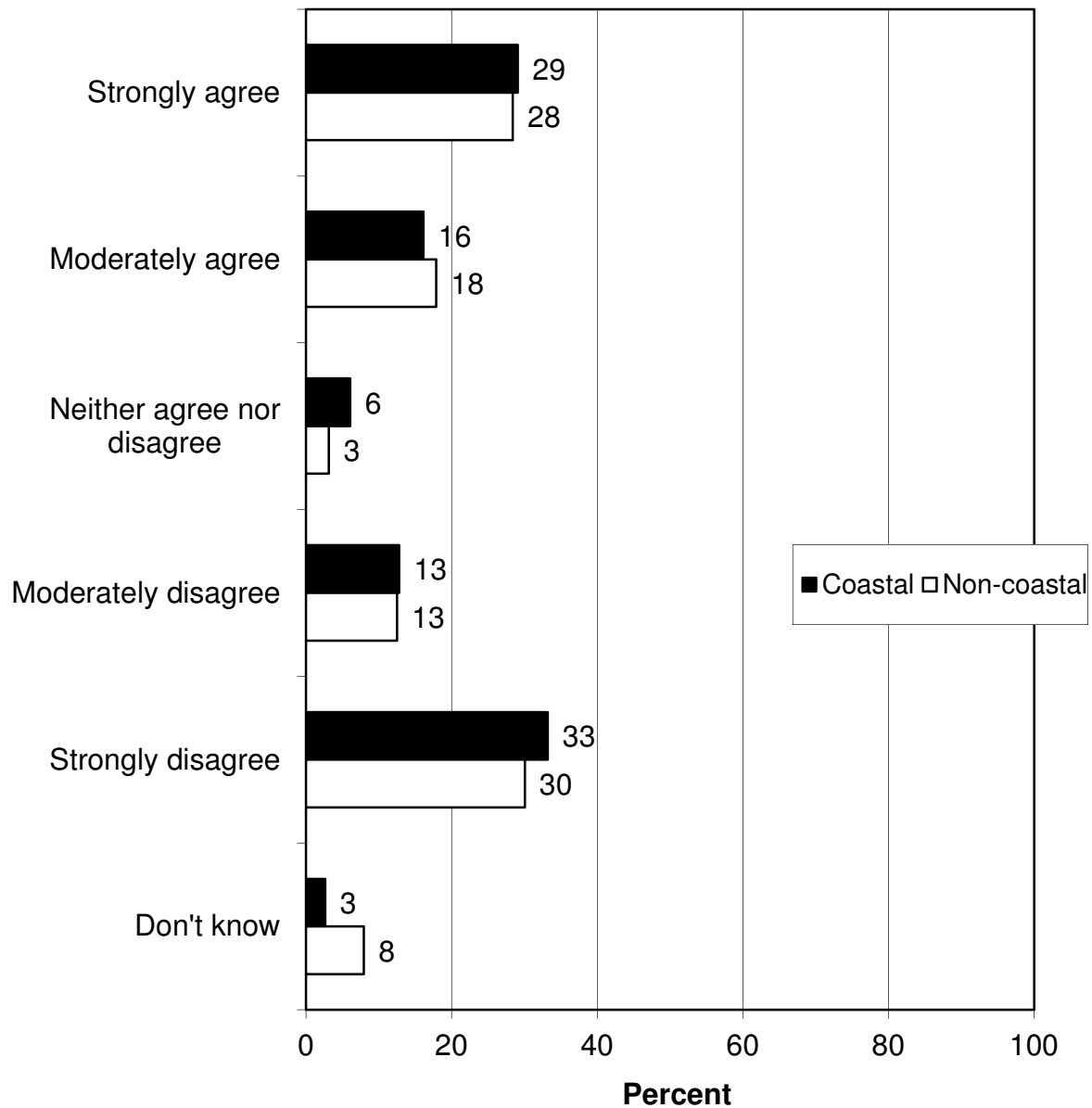
**Q136. Do you agree or disagree that there is enough available information about sea level rise?**



### Q136. Do you agree or disagree that there is enough available information about sea level rise?

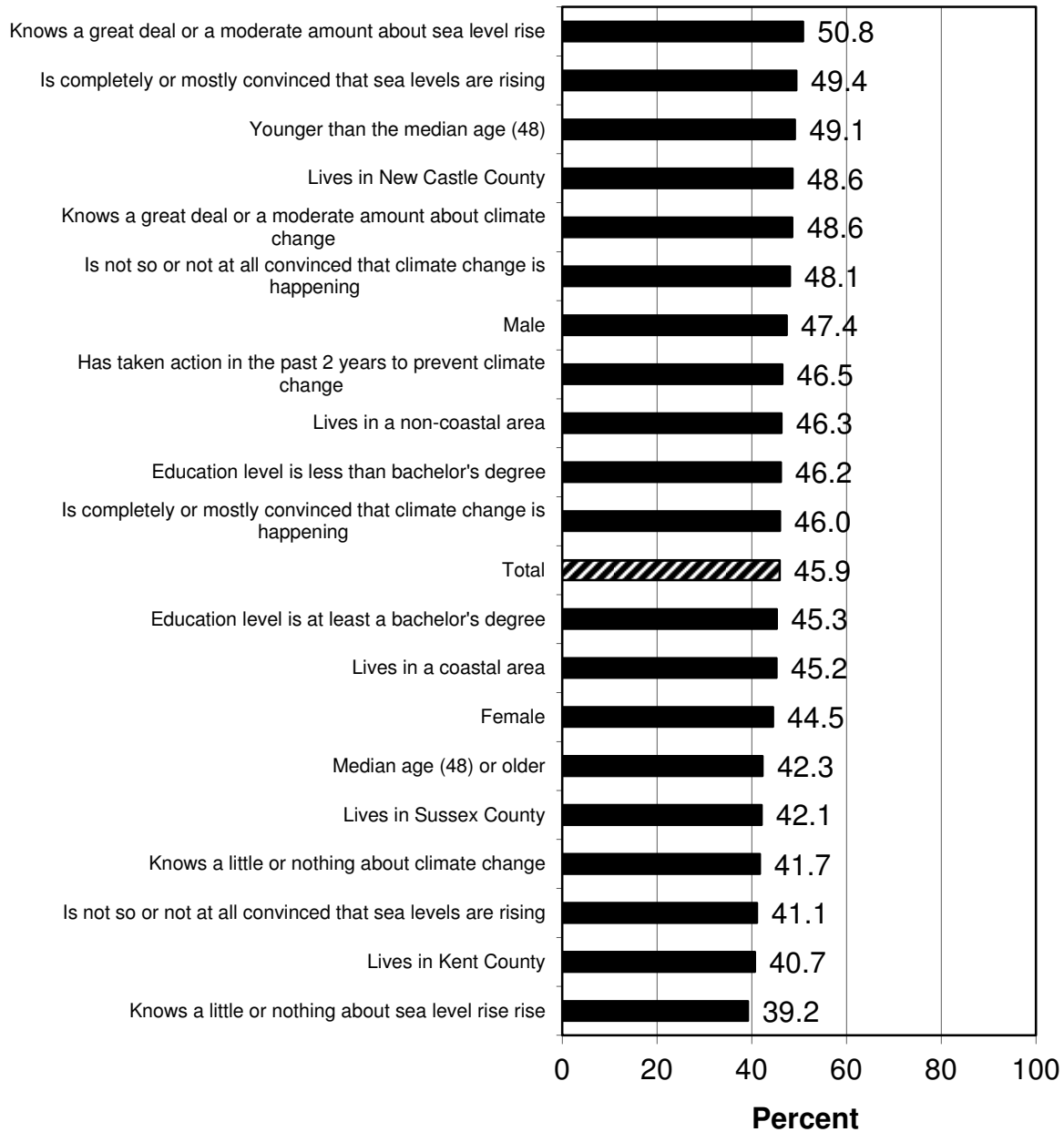


**Q136. Do you agree or disagree that there is enough available information about sea level rise?**





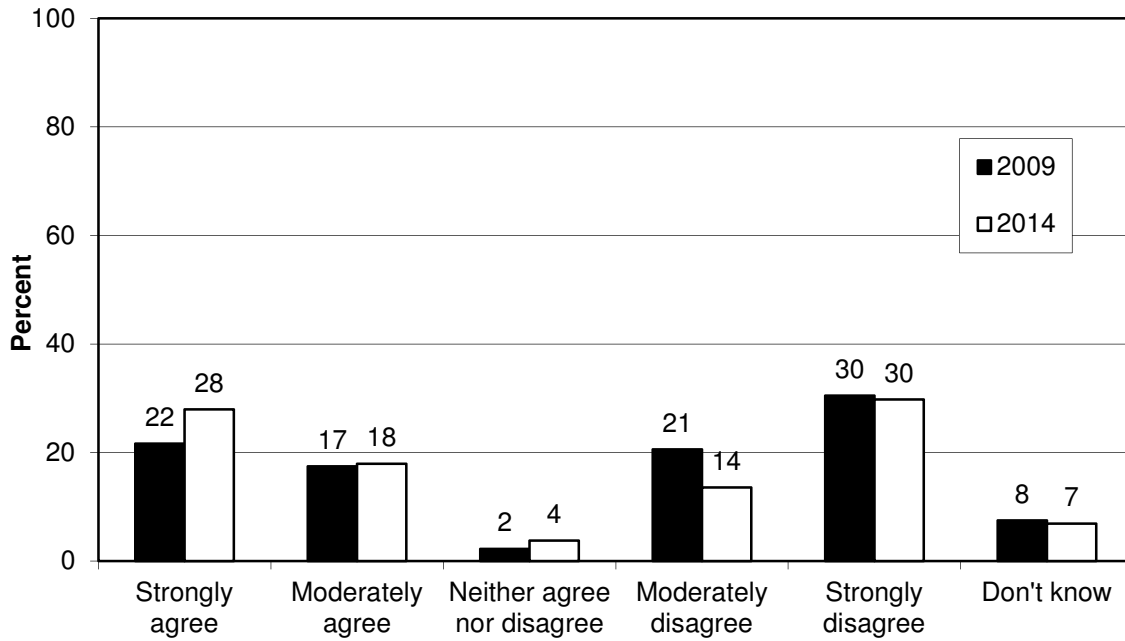
**Percent of each of the following groups who agree (strongly or moderately) that there is enough available information about sea level rise:**



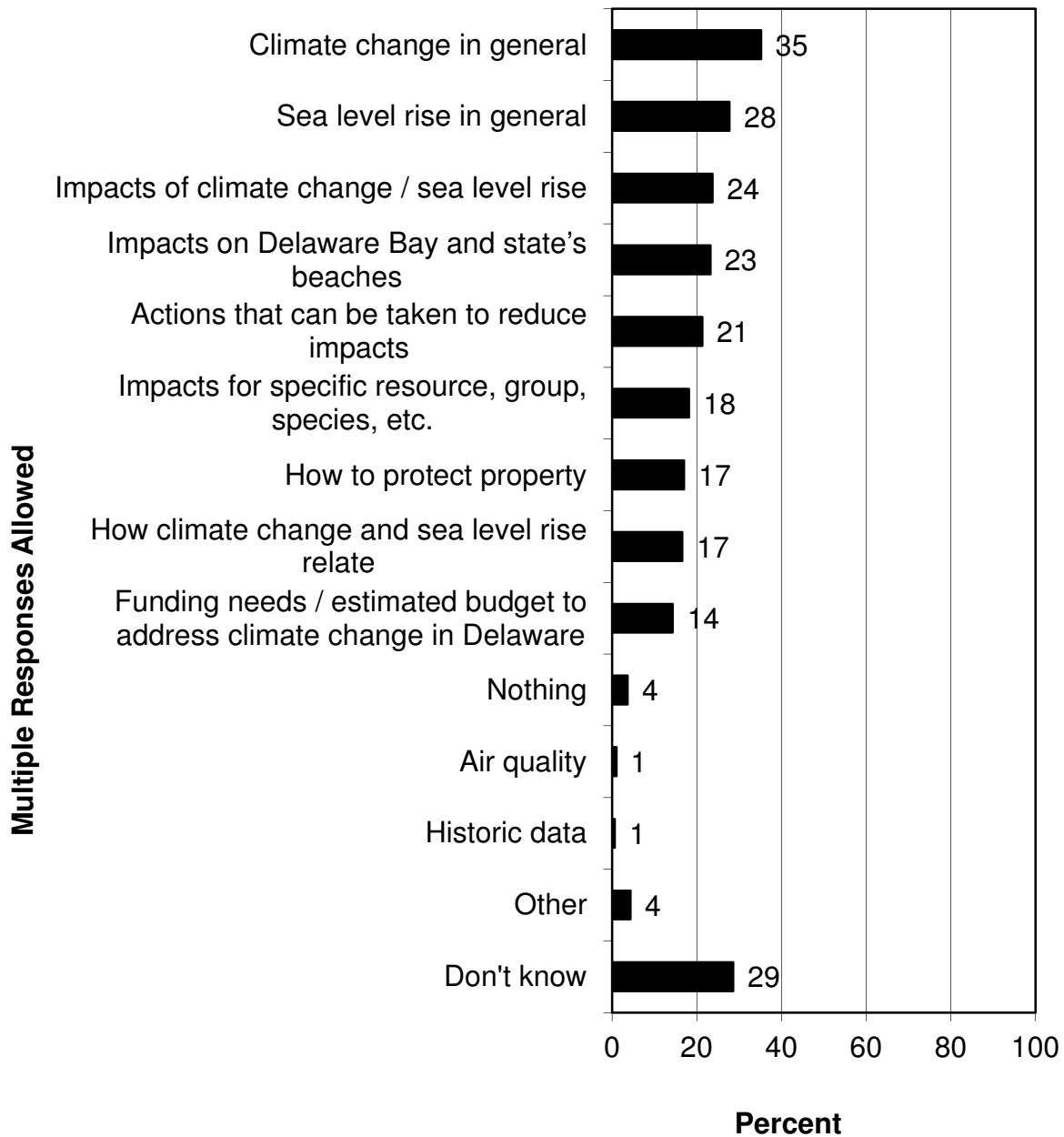
The graph on the previous page shows the demographic and attitudinal groups that are either more (above the striped bar) or less (below the striped bar) likely to agree that there is enough available information about sea level rise, relative to residents as a whole. Overall, 45.9% of Delaware residents agree with this (striped bar). Those groups more inclined to agree are above that bar (for instance, 48.6% of New Castle County residents agree); those groups less inclined to agree are below that bar (for instance, only 40.7% of Kent County residents agree).

Use caution when drawing conclusions from this graph. There are two opposing reasons to agree. Some people may agree because they think that sea level rise is happening but they think that enough information is available. Other people may agree because they do *not* think that sea level rise is happening and, therefore, think that no more information is needed.

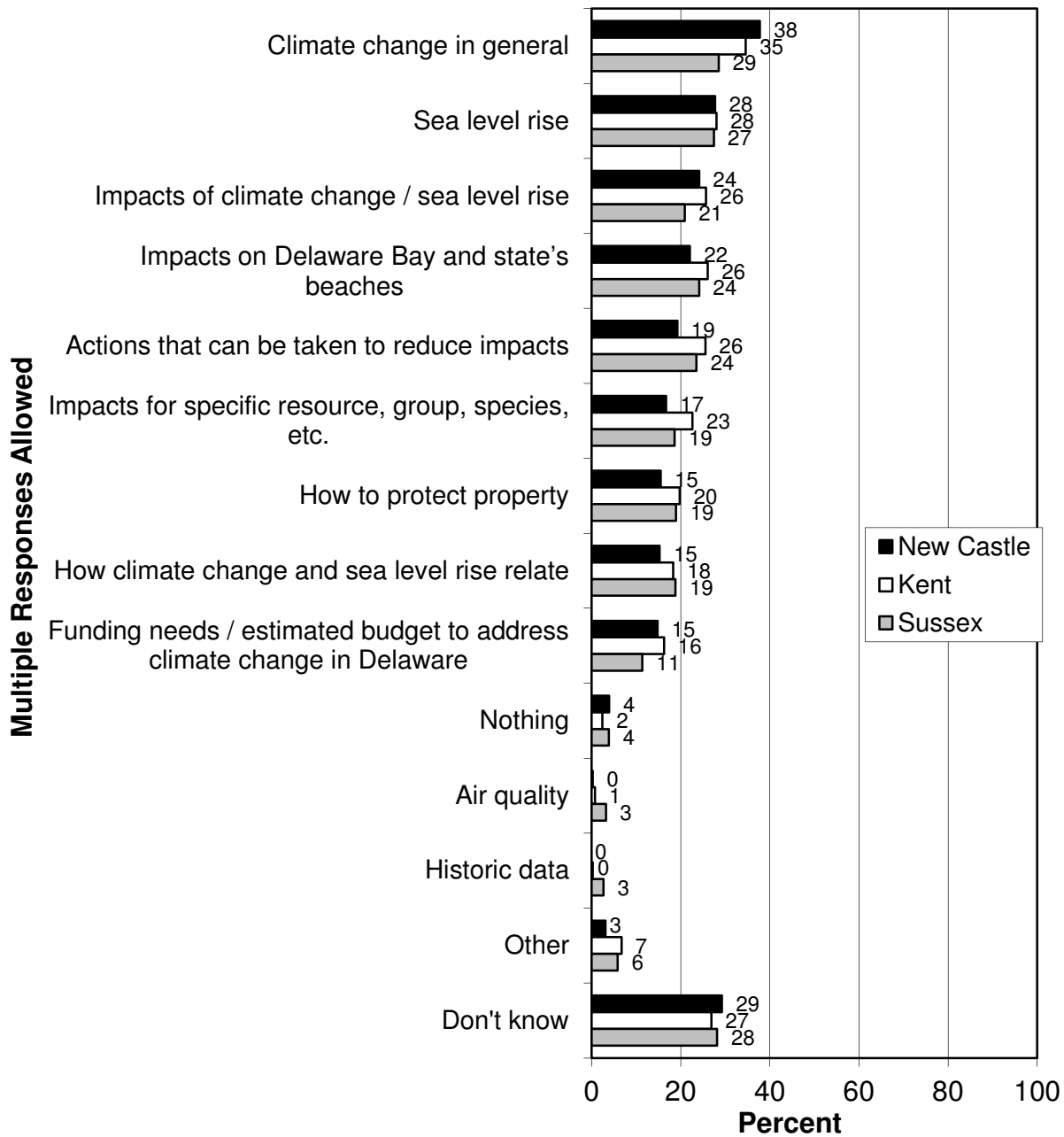
**Q136. Do you agree or disagree that there is enough available information about sea level rise?**



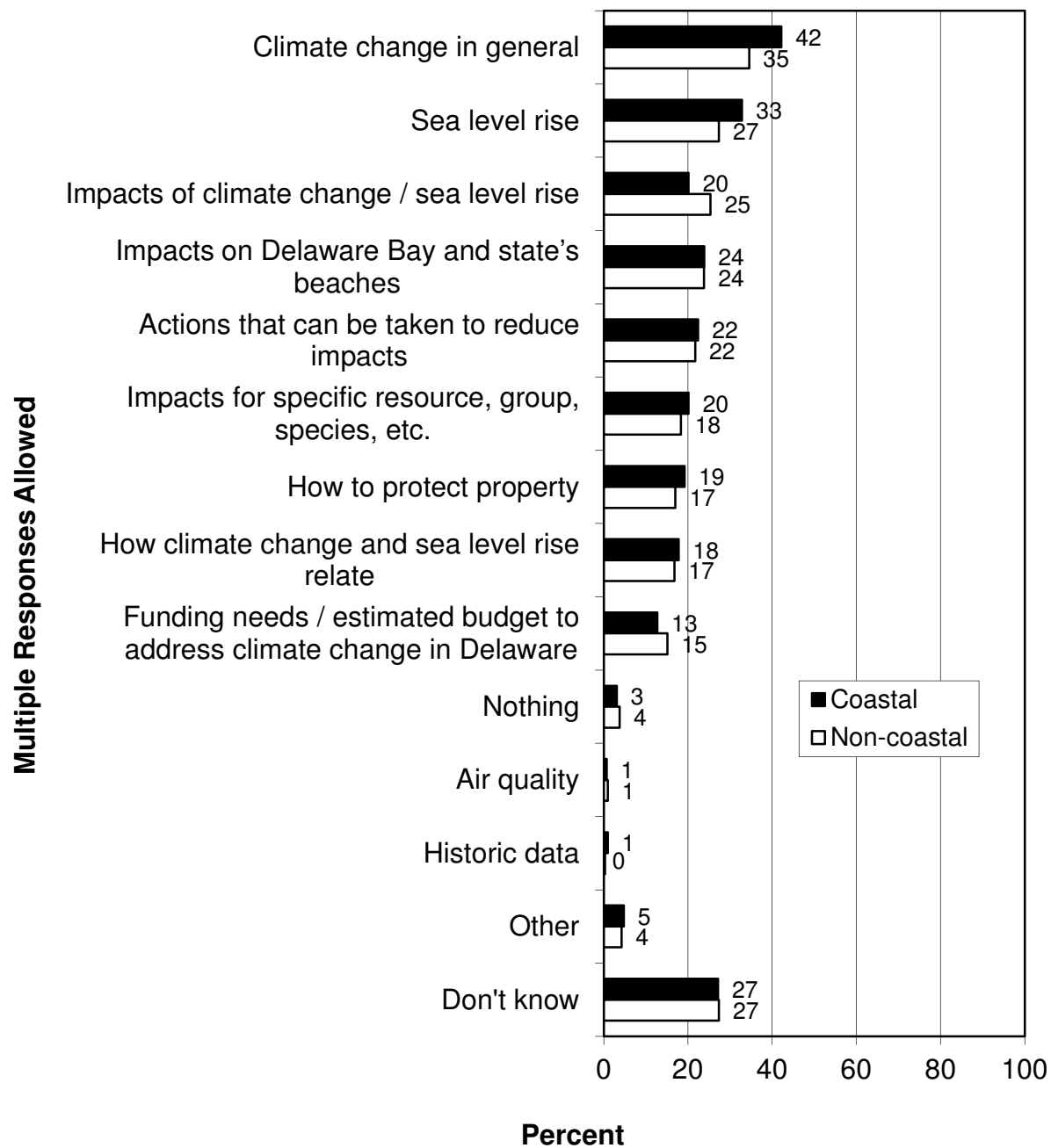
**Q140. What topics related to climate change would you most like to have more information on? We are not sending out information at this time; we are simply measuring interest.**



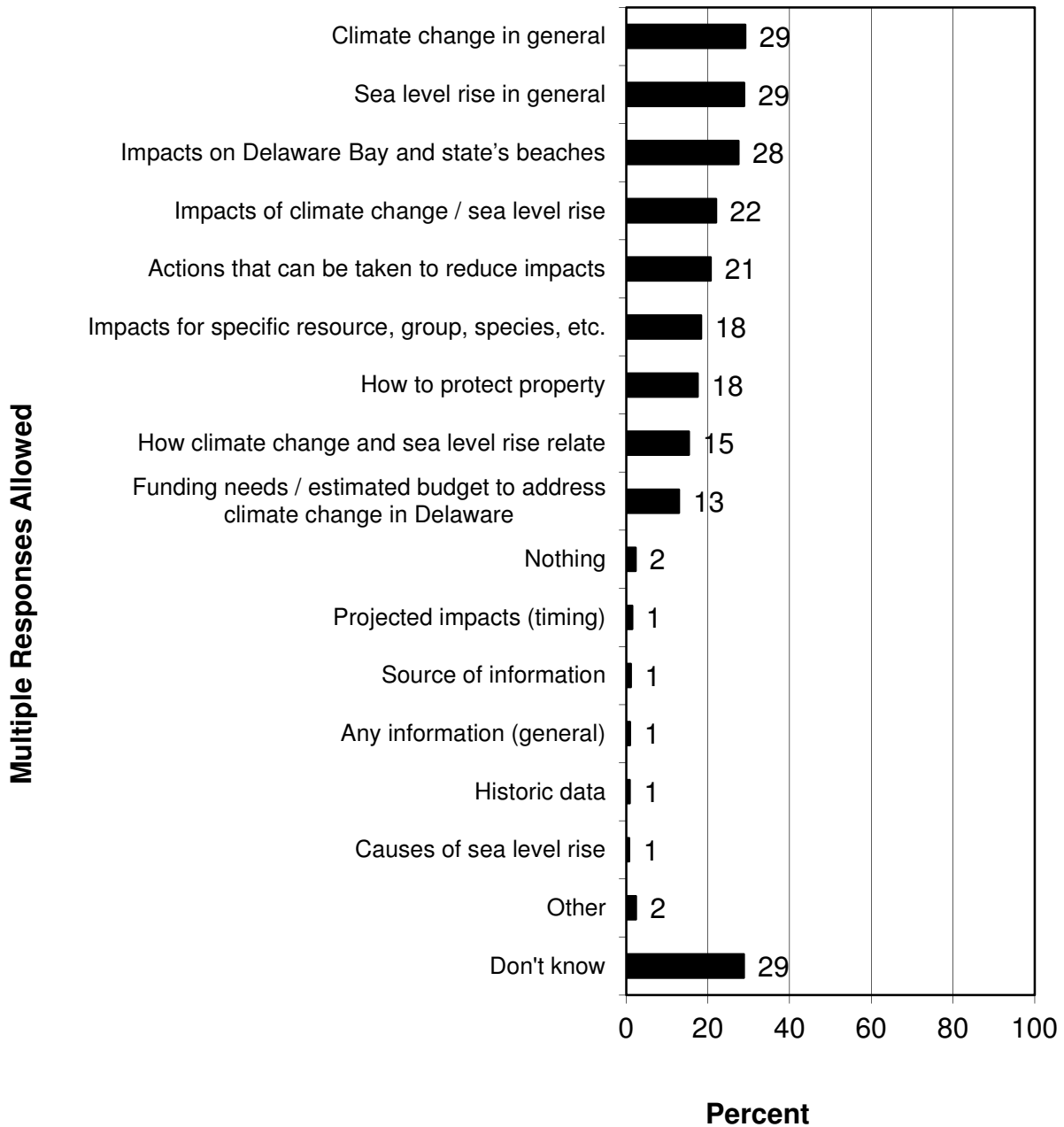
**Q140. What topics related to climate change would you most like to have more information on? We are not sending out information at this time; we are simply measuring interest.**



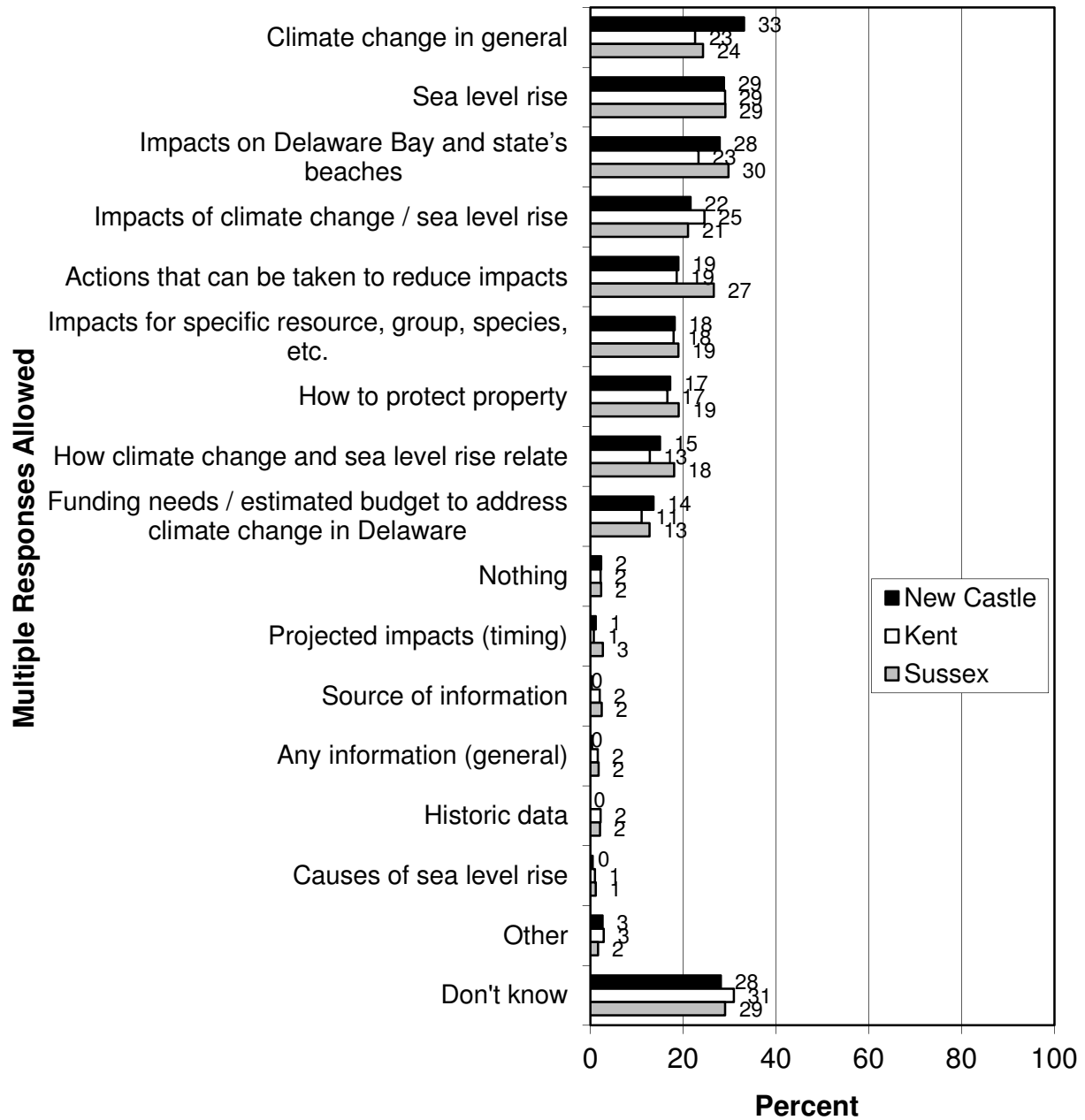
**Q140. What topics related to climate change would you most like to have more information on? We are not sending out information at this time; we are simply measuring interest.**



**Q144. What topics related to sea level rise would you most like to have more information on? We are not sending out information at this time; we are simply measuring interest.**

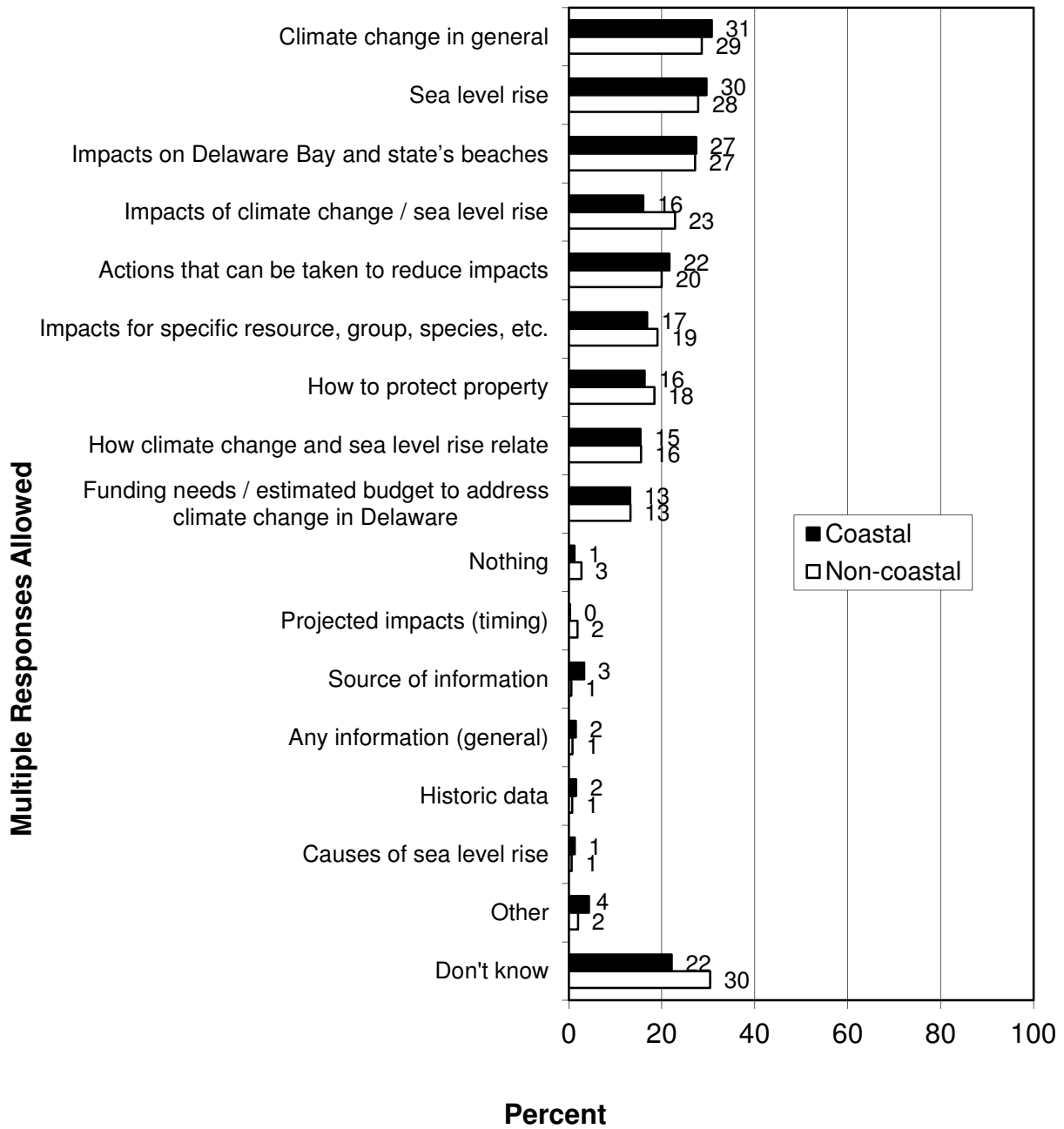


**Q144. What topics related to sea level rise would you most like to have more information on? We are not sending out information at this time; we are simply measuring interest.**





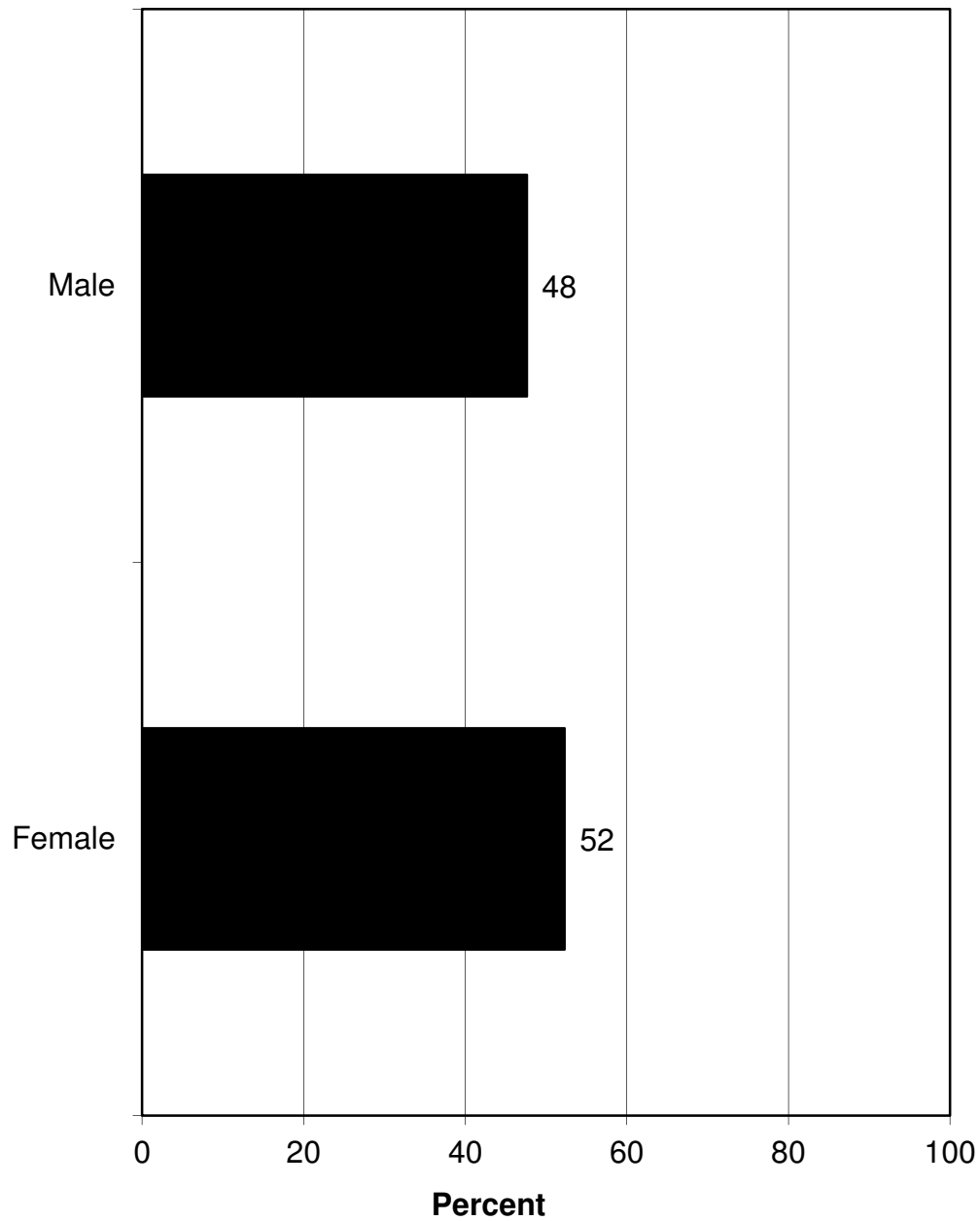
**Q144. What topics related to sea level rise would you most like to have more information on? We are not sending out information at this time; we are simply measuring interest.**



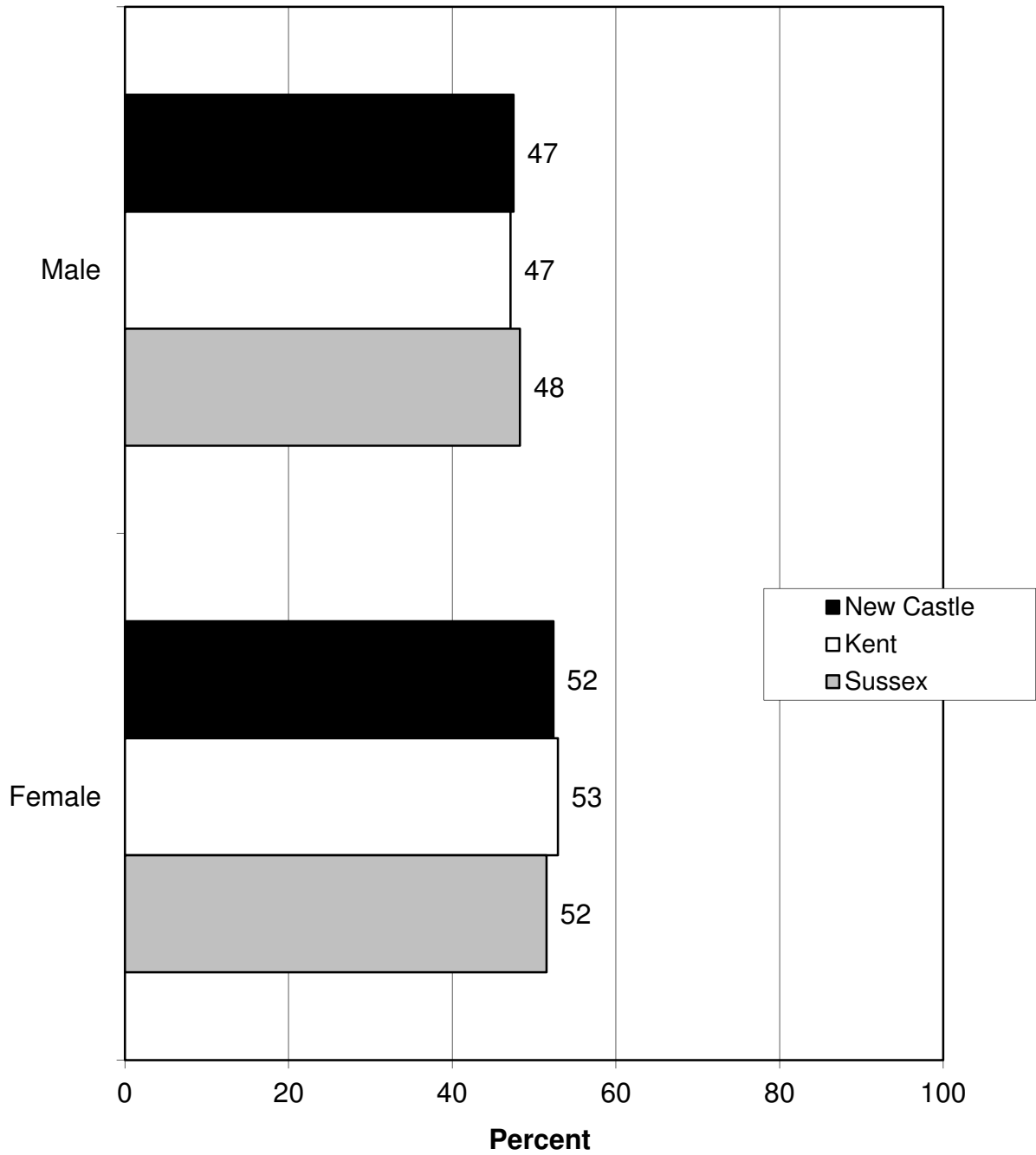
## DEMOGRAPHIC DATA

- The demographic data, primarily used in crosstabulations, that were gathered include:
  - Gender.
  - Age.
  - Whether the respondent has children living at home.
  - Ethnicity.
  - Education level.
  - Years lived in Delaware.
  - County of residence.
  - Whether they consider their residence to be coastal or non-coastal.
  - Whether they rent or own their property.
  - Whether they have flood insurance or not.
    - Graphs are included showing the opinions and attitudes of various demographic groups.
    - The trends analysis shows very little variation in the demographics of Delaware residents from 2009 to 2014.

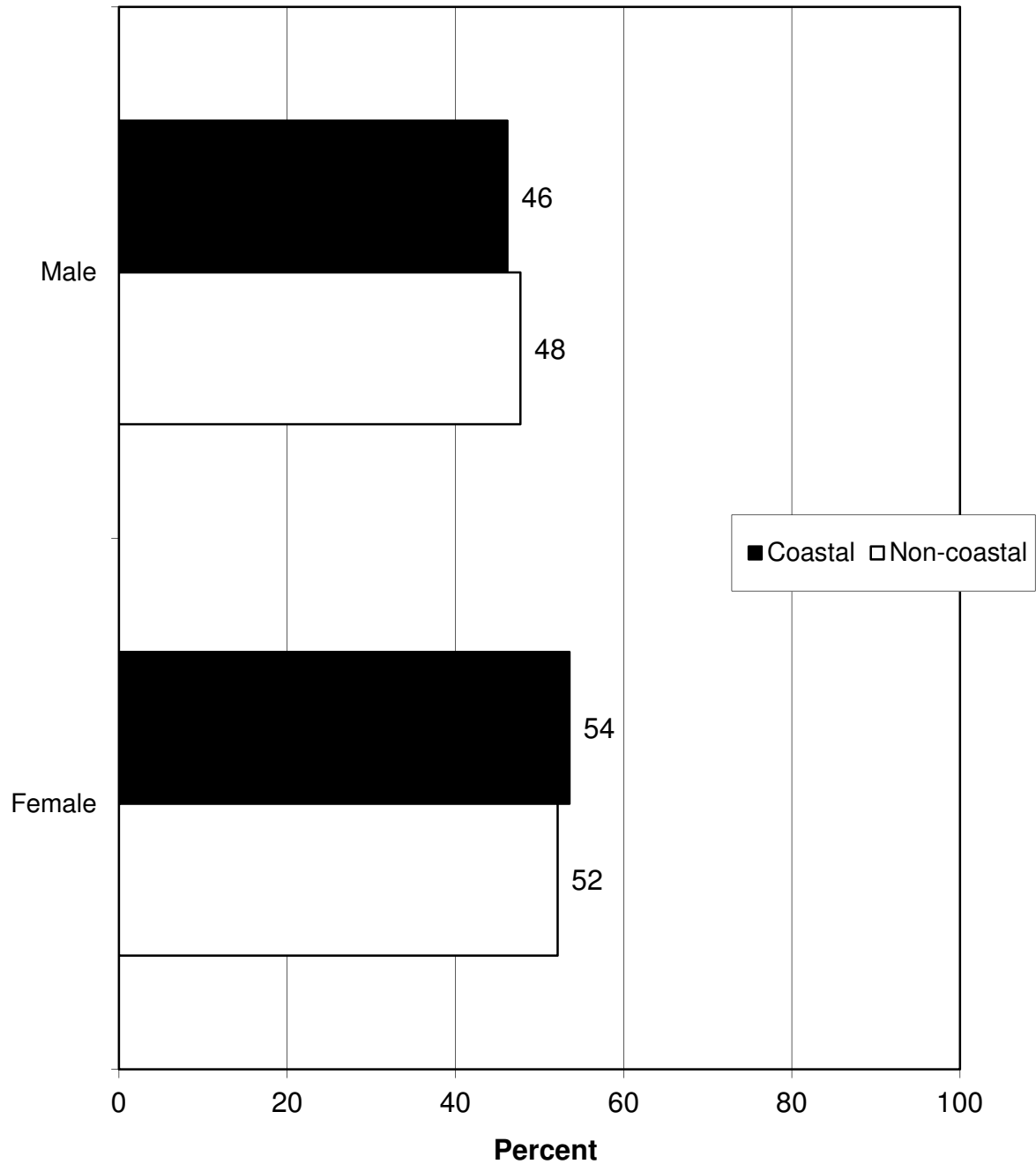
**Q167. Respondent's gender (observed by interviewer; not asked).**



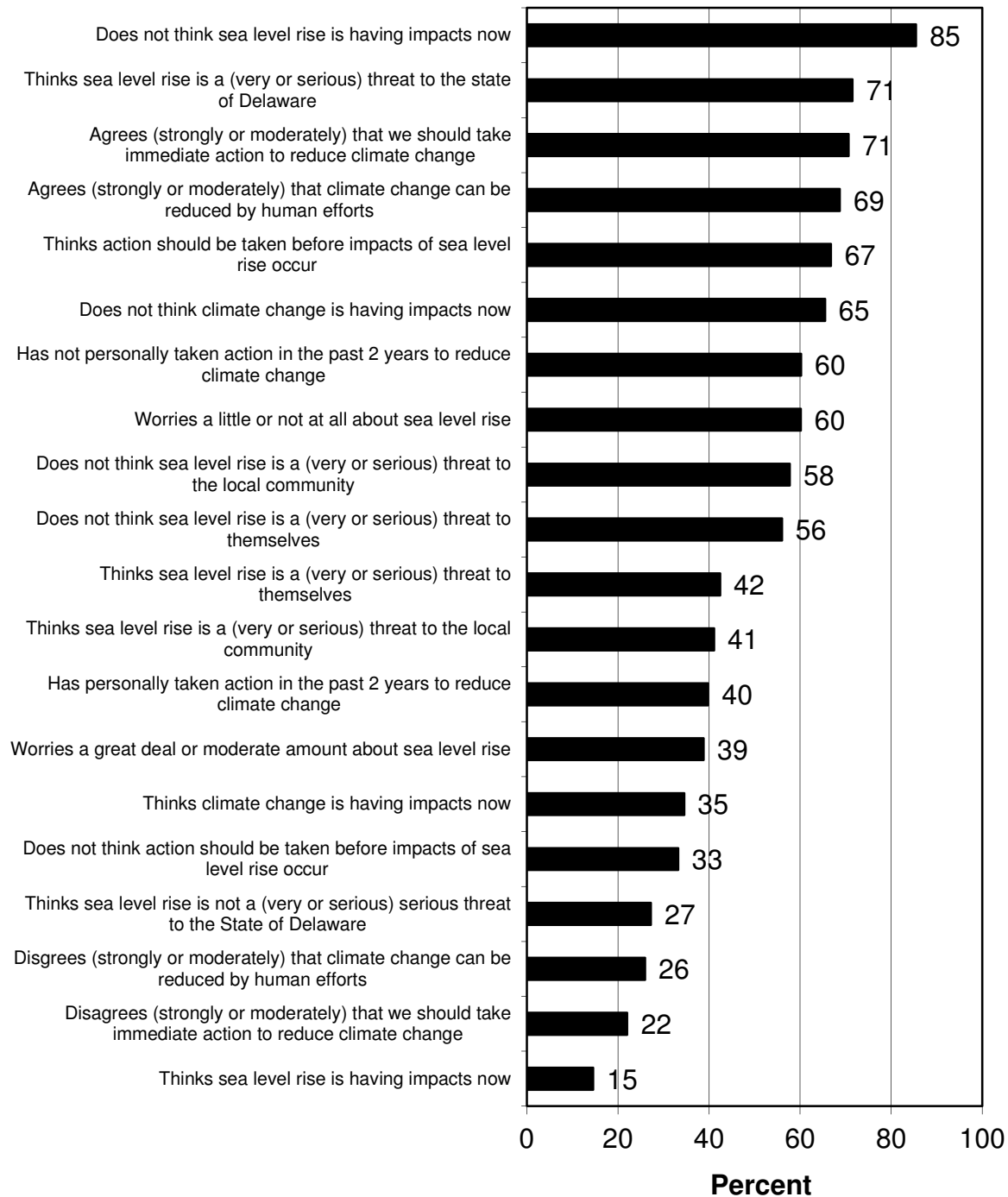
**Q167. Respondent's gender (observed by interviewer; not asked).**



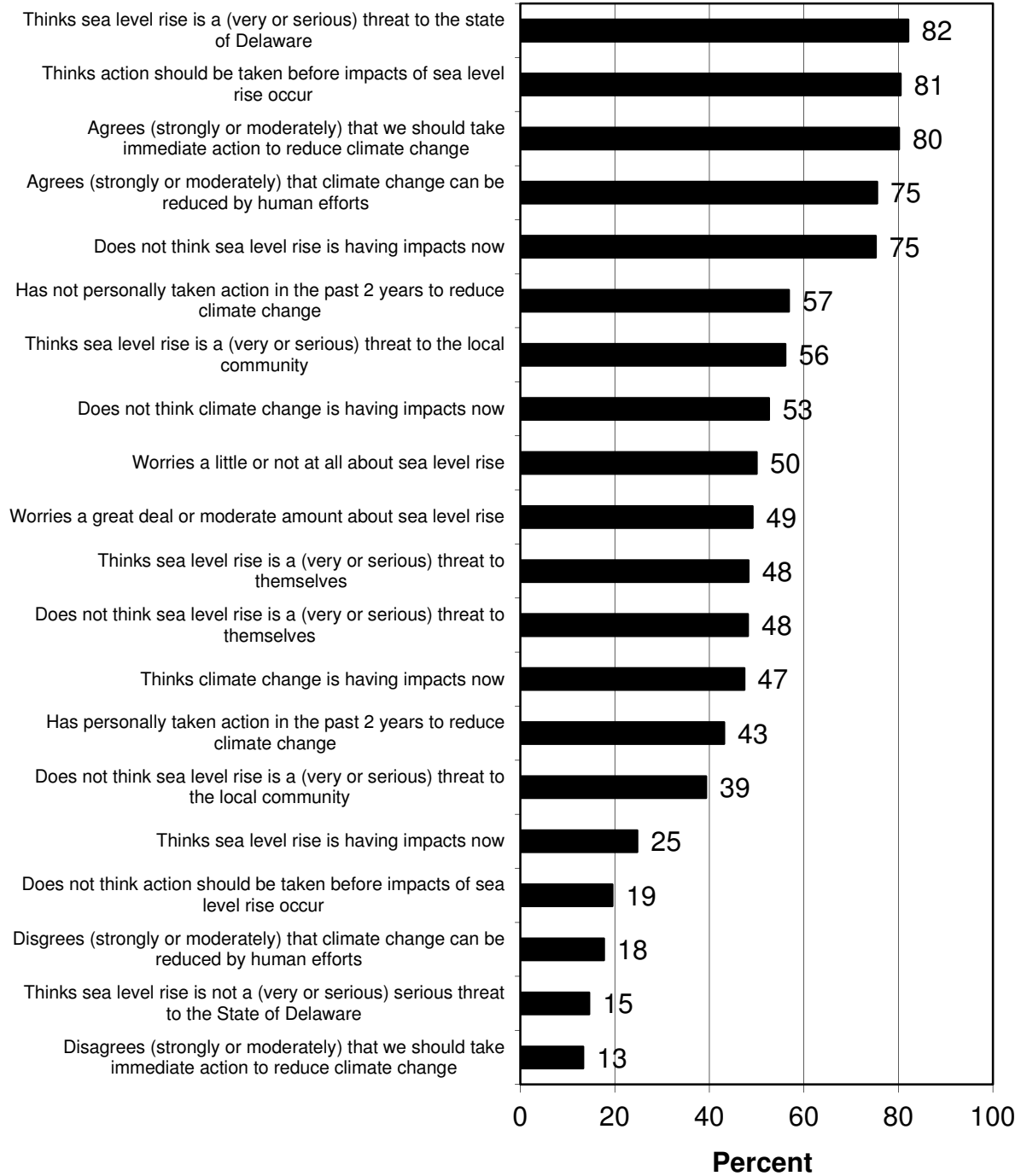
**Q167. Respondent's gender (observed by interviewer; not asked).**



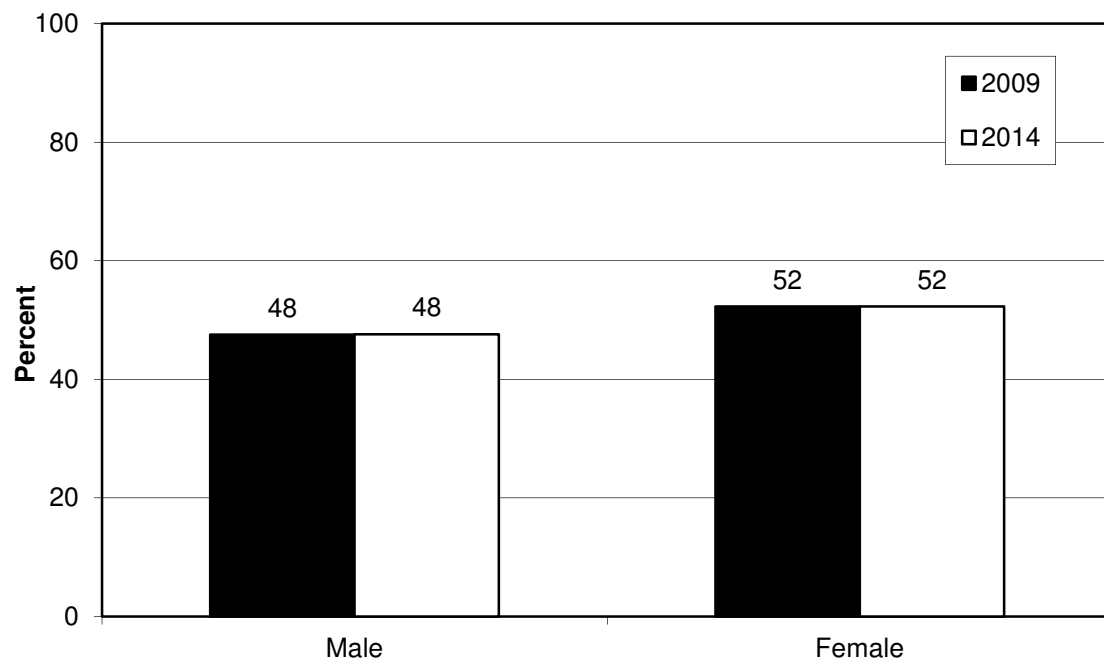
## Percent of males who...



### Percent of females who...

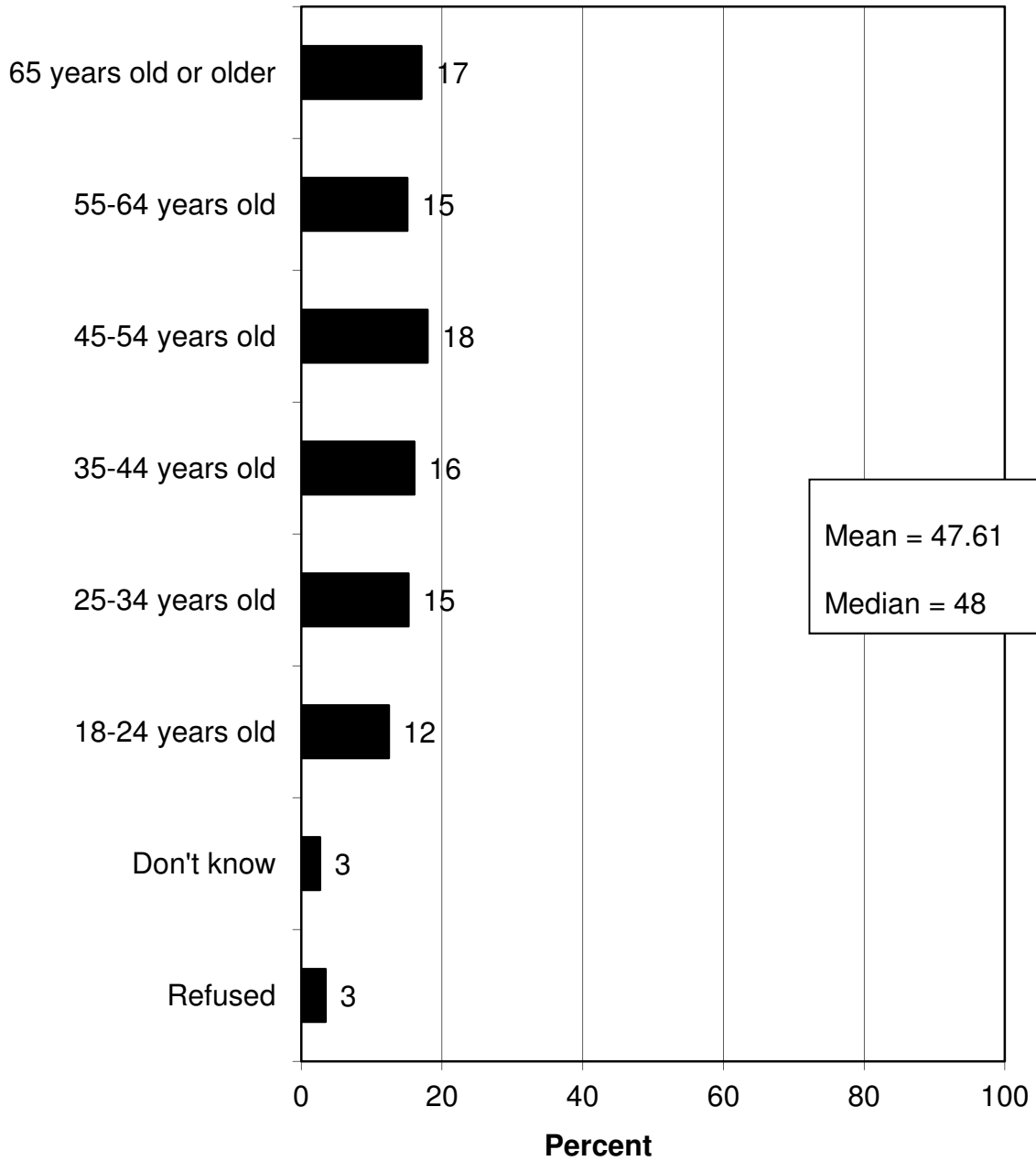


**Q167. Respondent's gender (observed, not asked, by interviewer).**

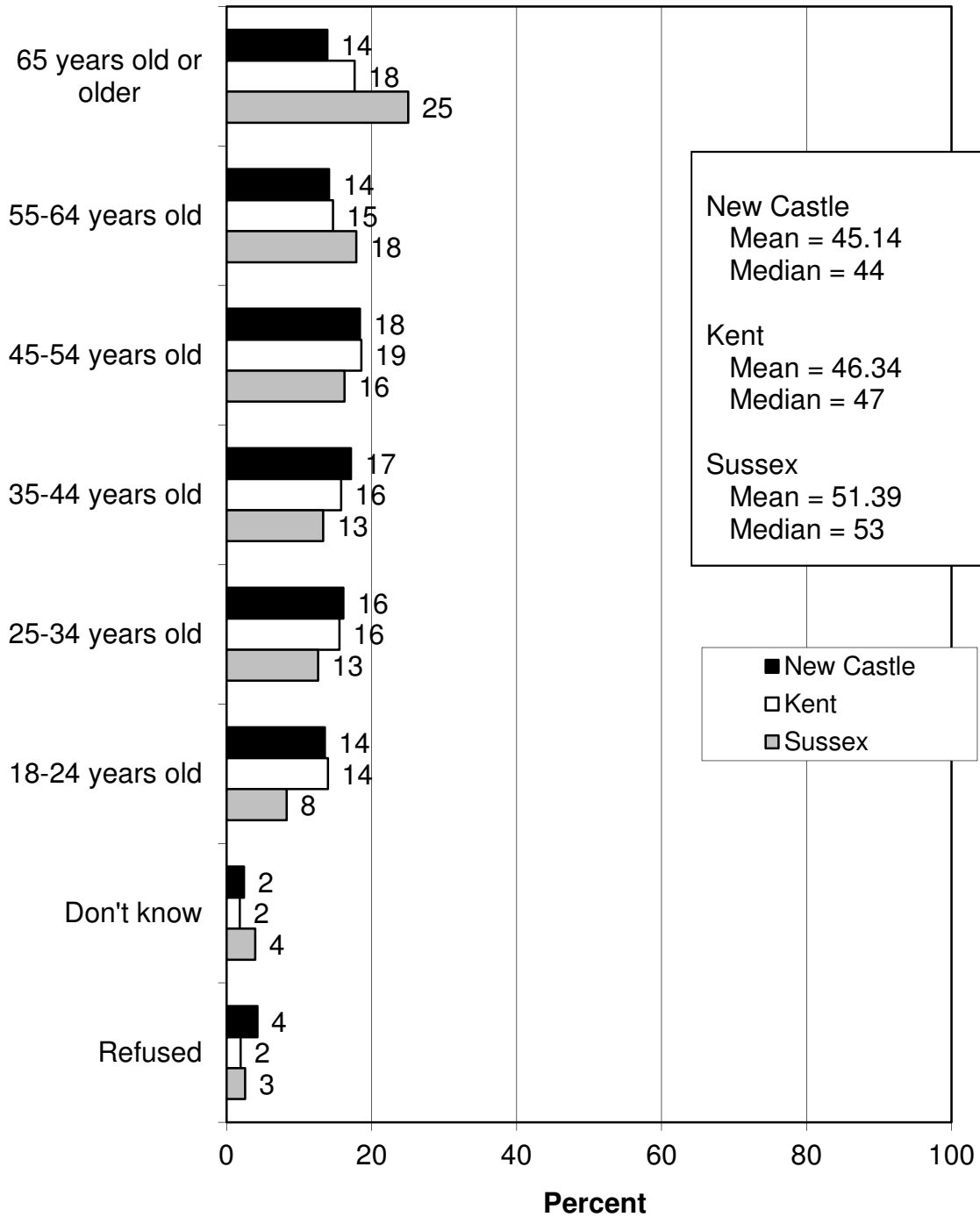




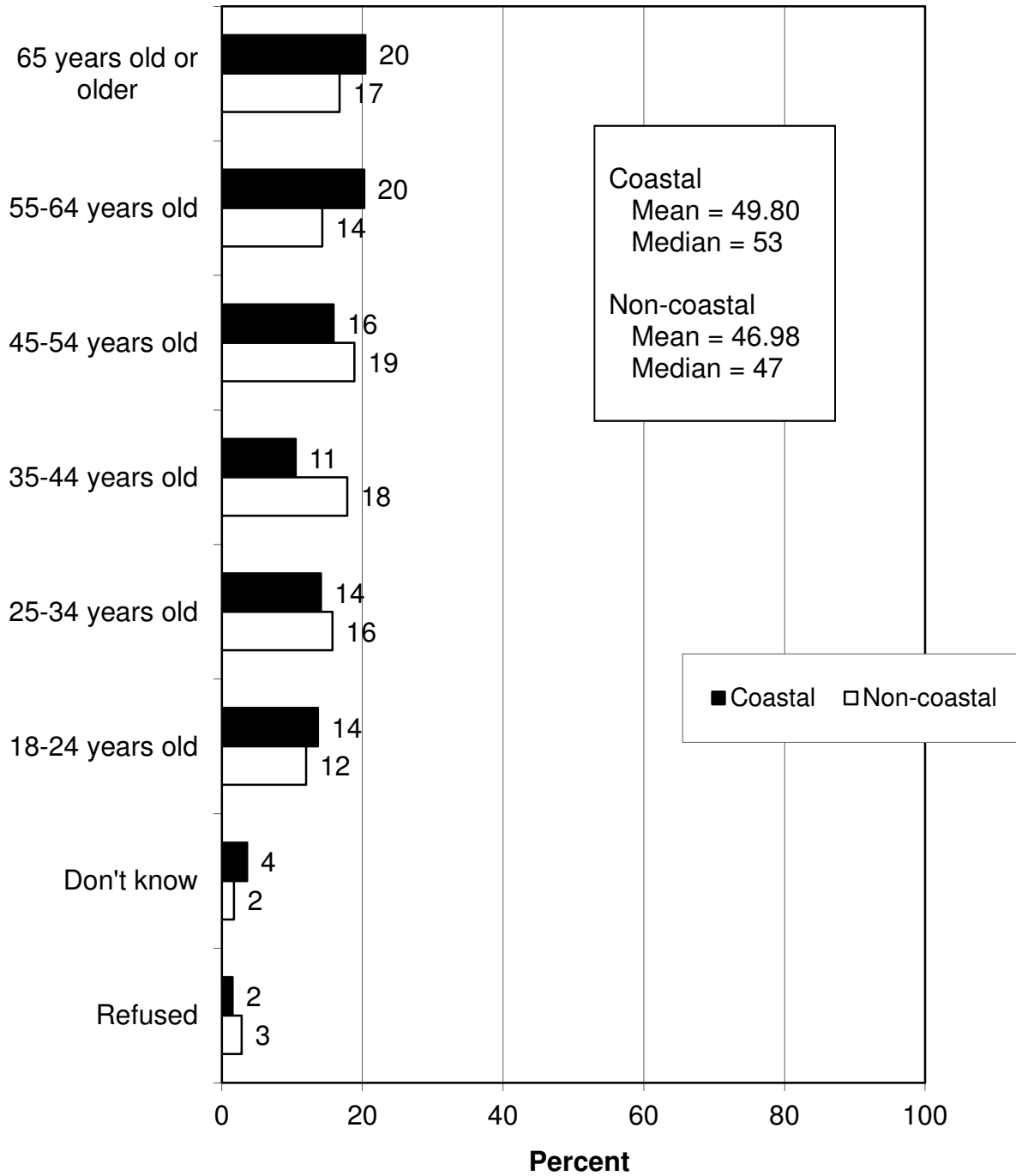
### Q161. Respondent's age.



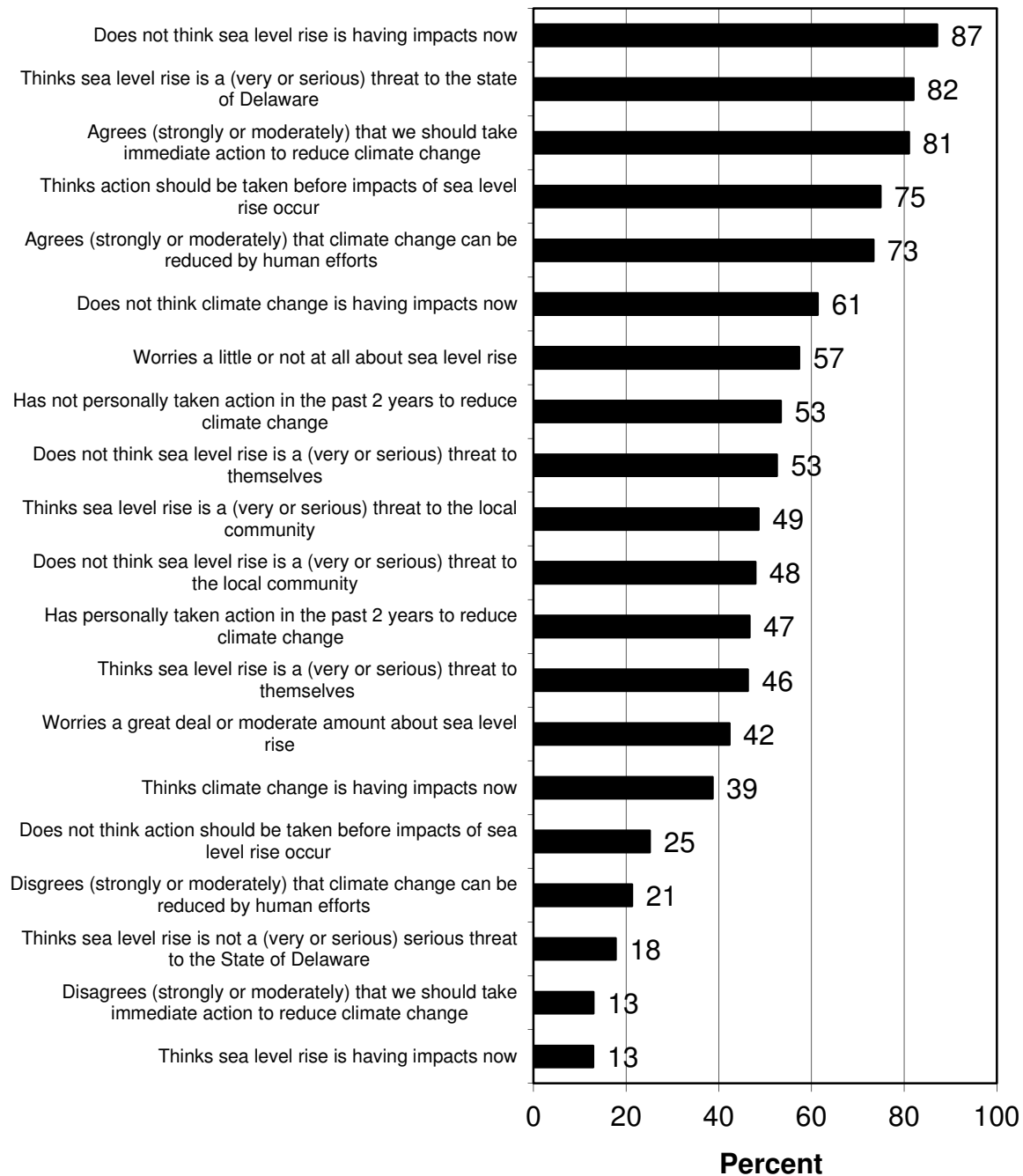
### Q161. Respondent's age.



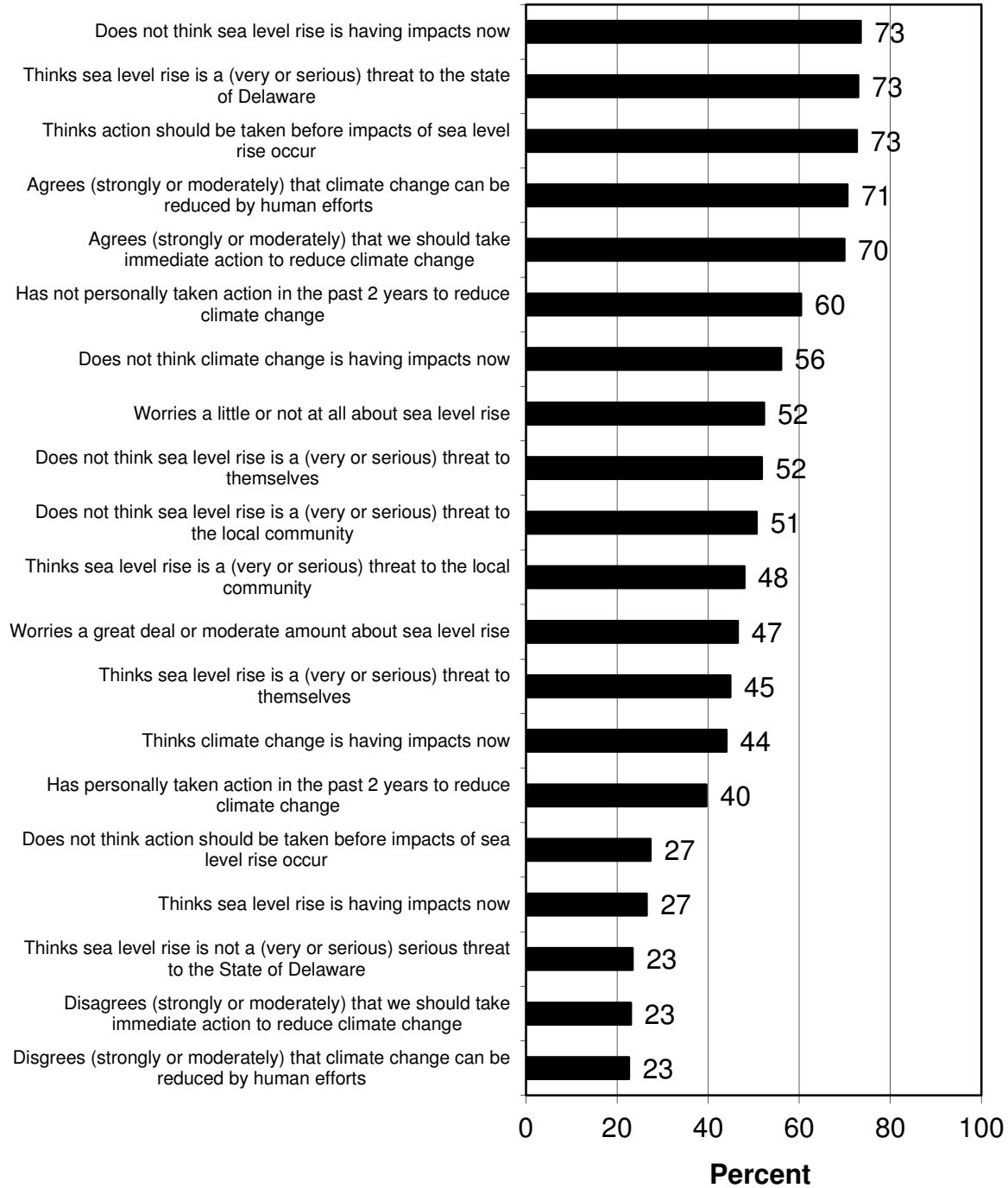
**Q161. Respondent's age.**

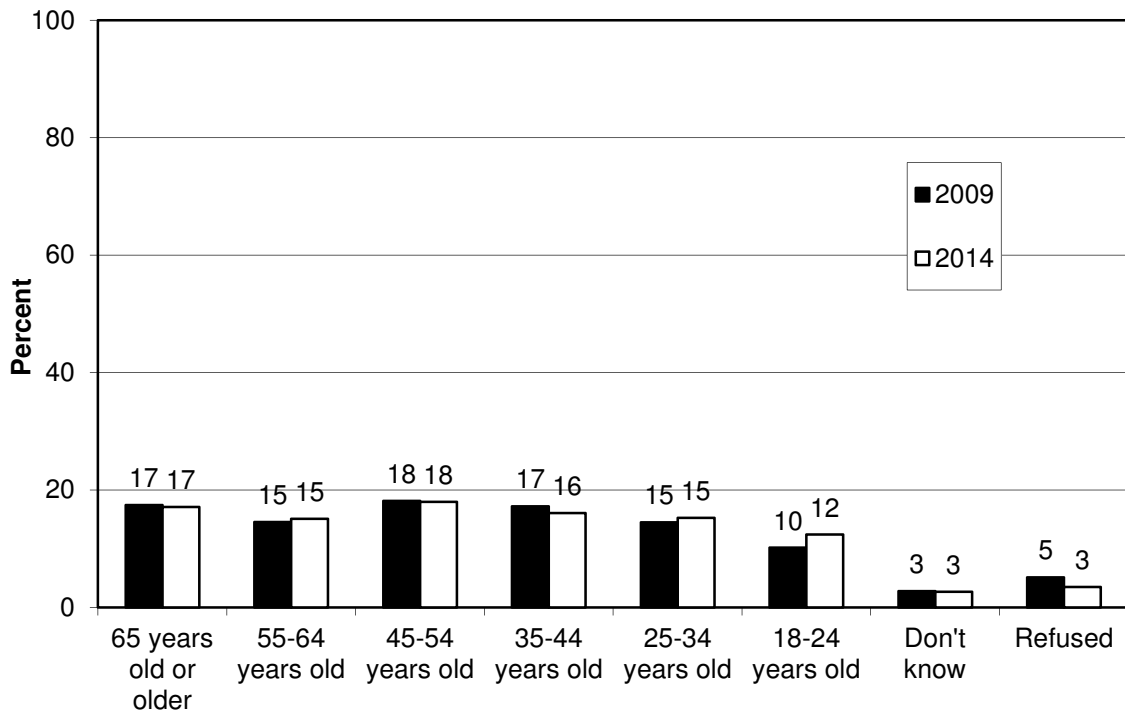


## Percent of those younger than the median age who...

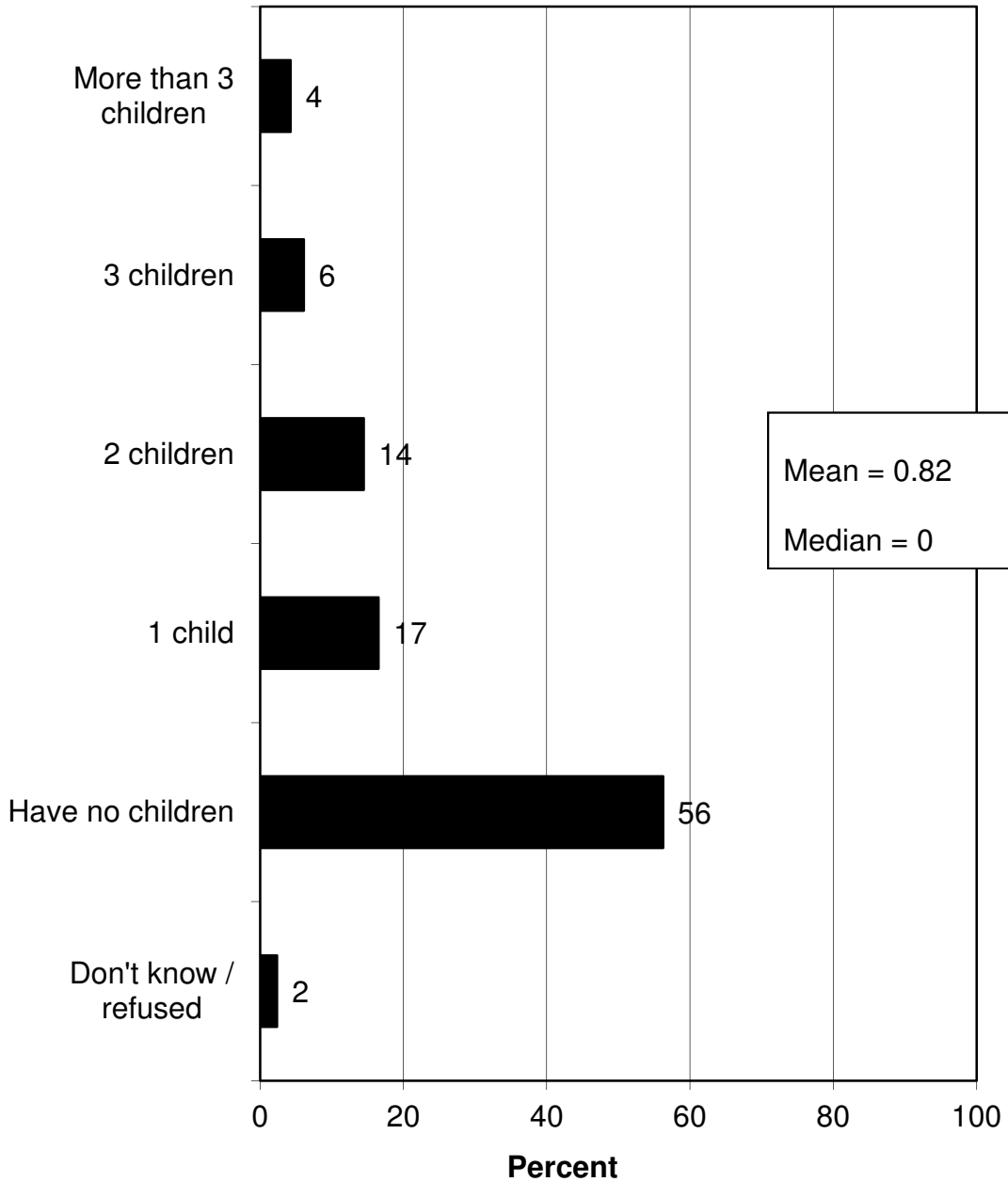


### Percent of those the median age or older who...

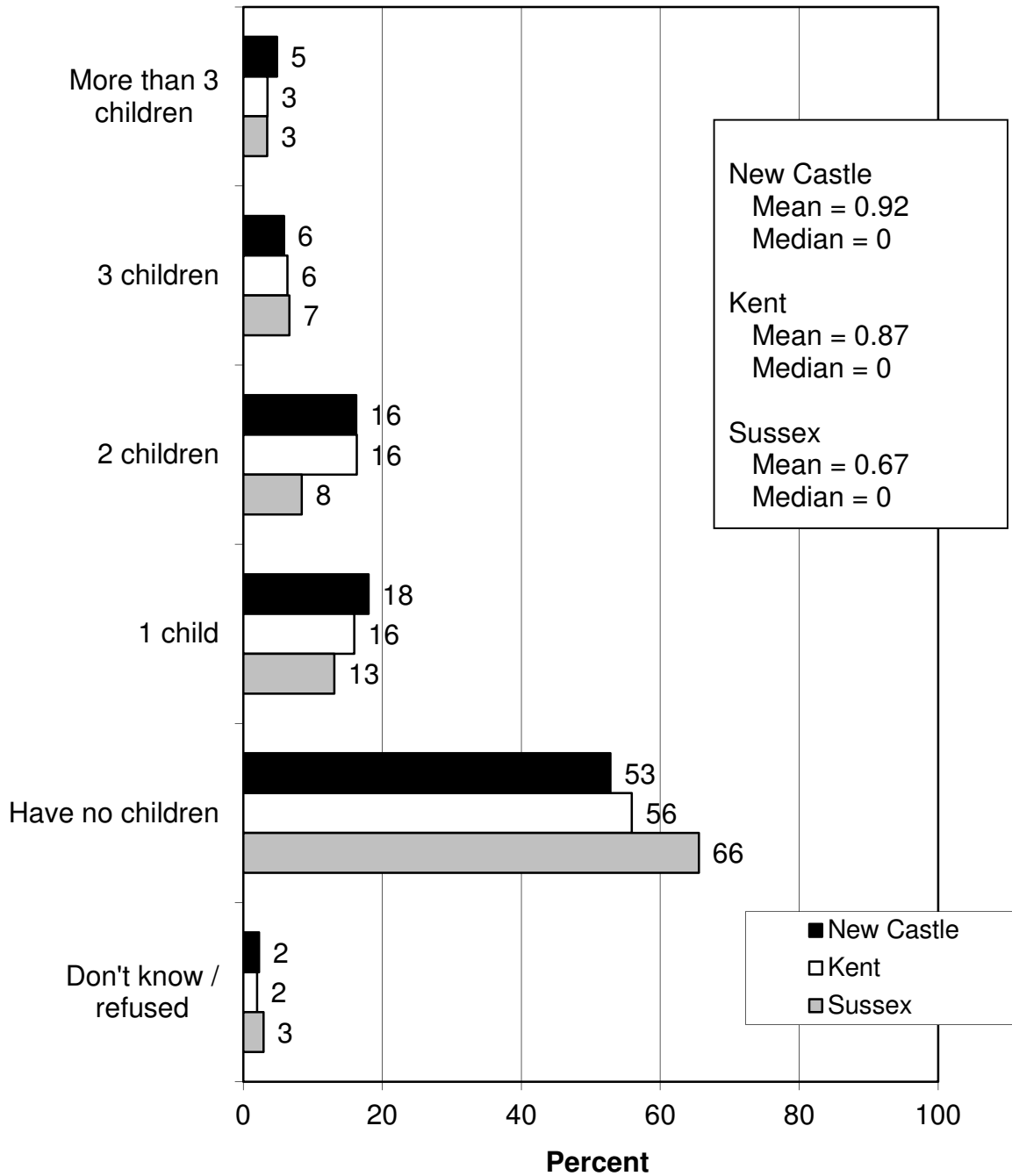


**Q161. Respondent's age.**

**Q154. How many children, age 17 or younger, do you have living in your household?**

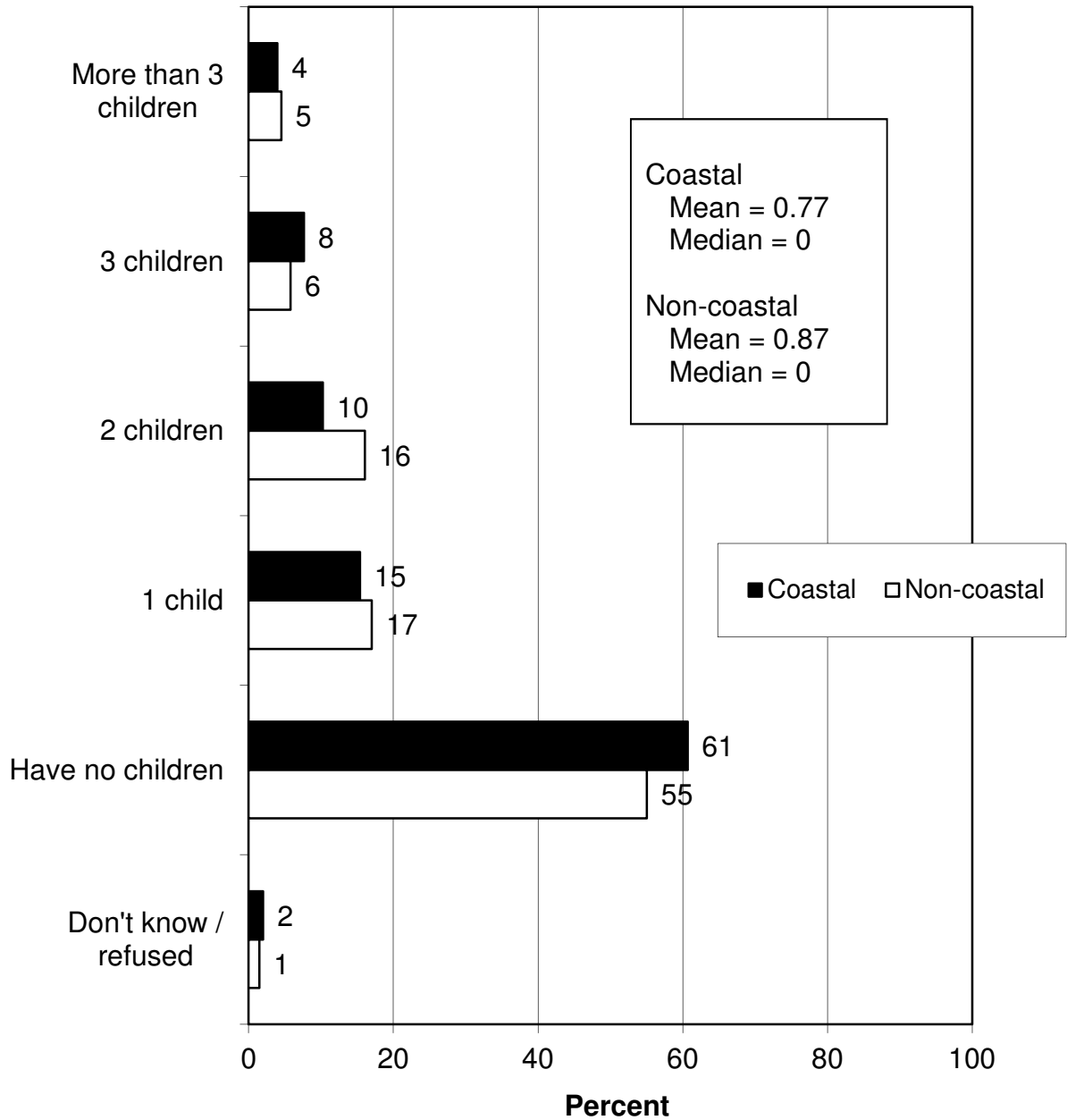


**Q154. How many children, age 17 or younger, do you have living in your household?**

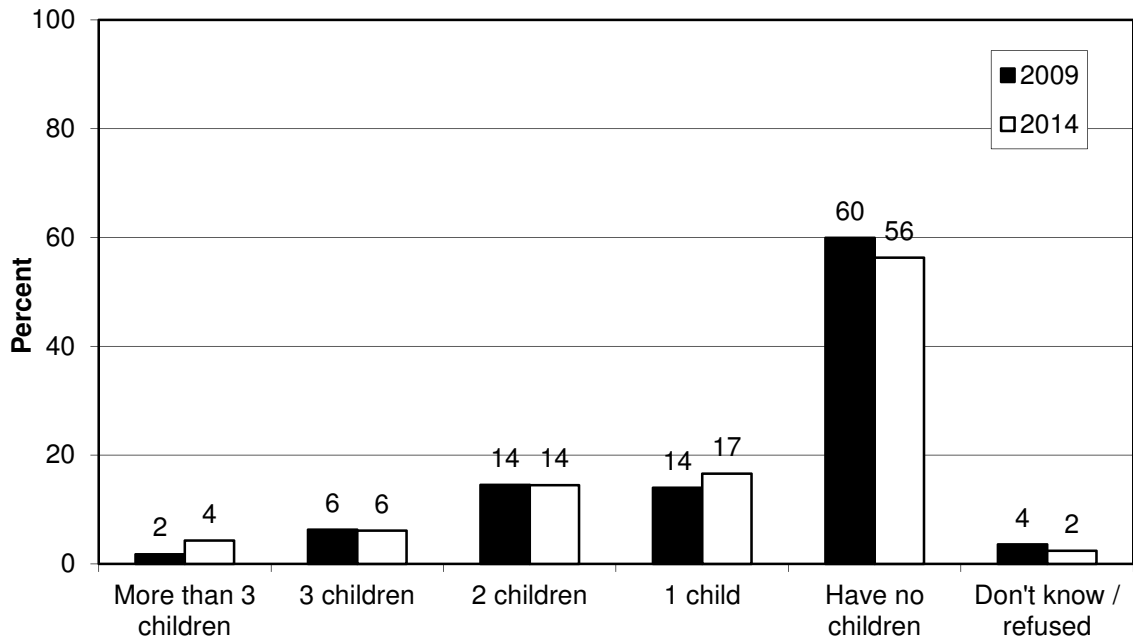




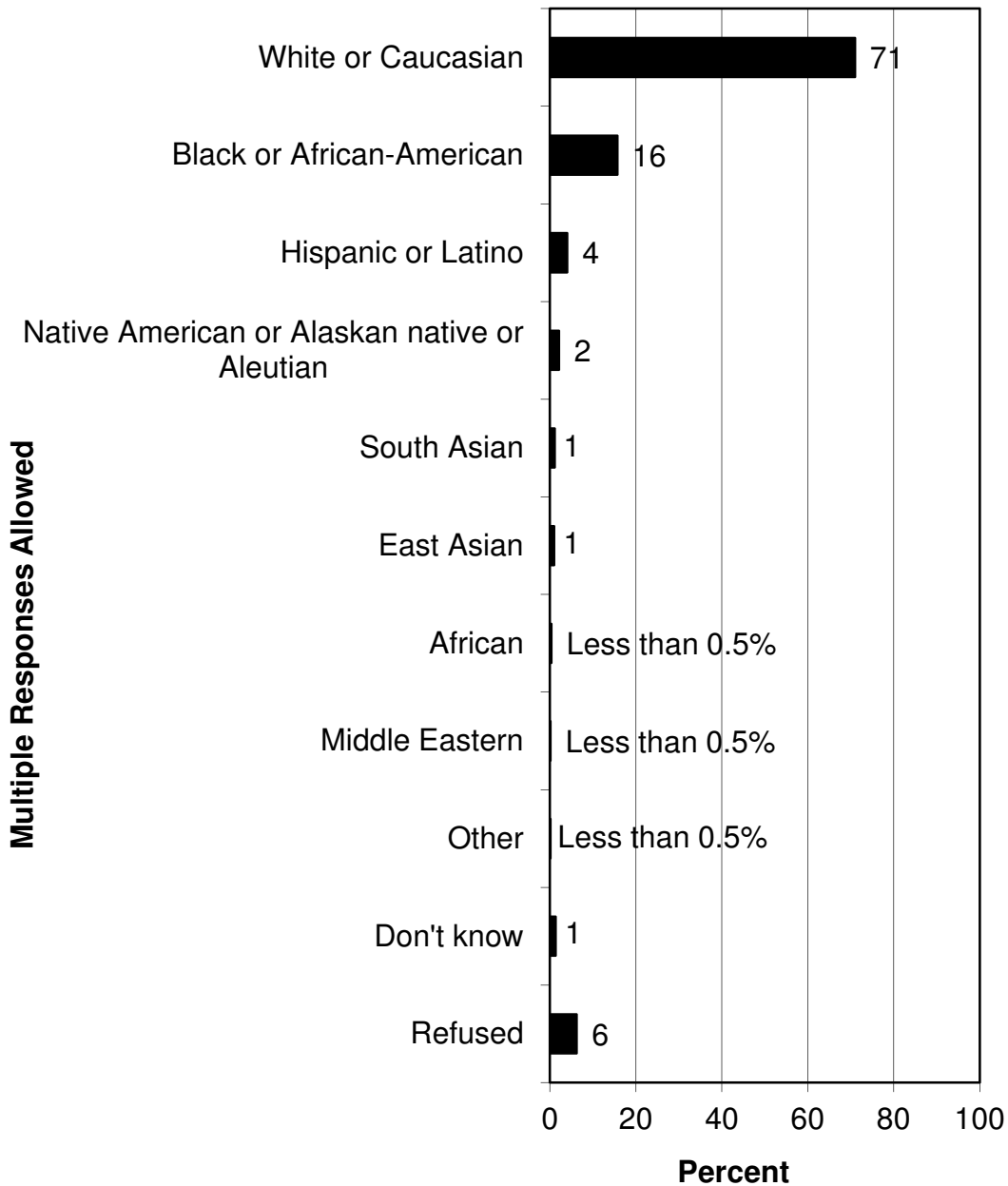
**Q154. How many children, age 17 or younger, do you have living in your household?**



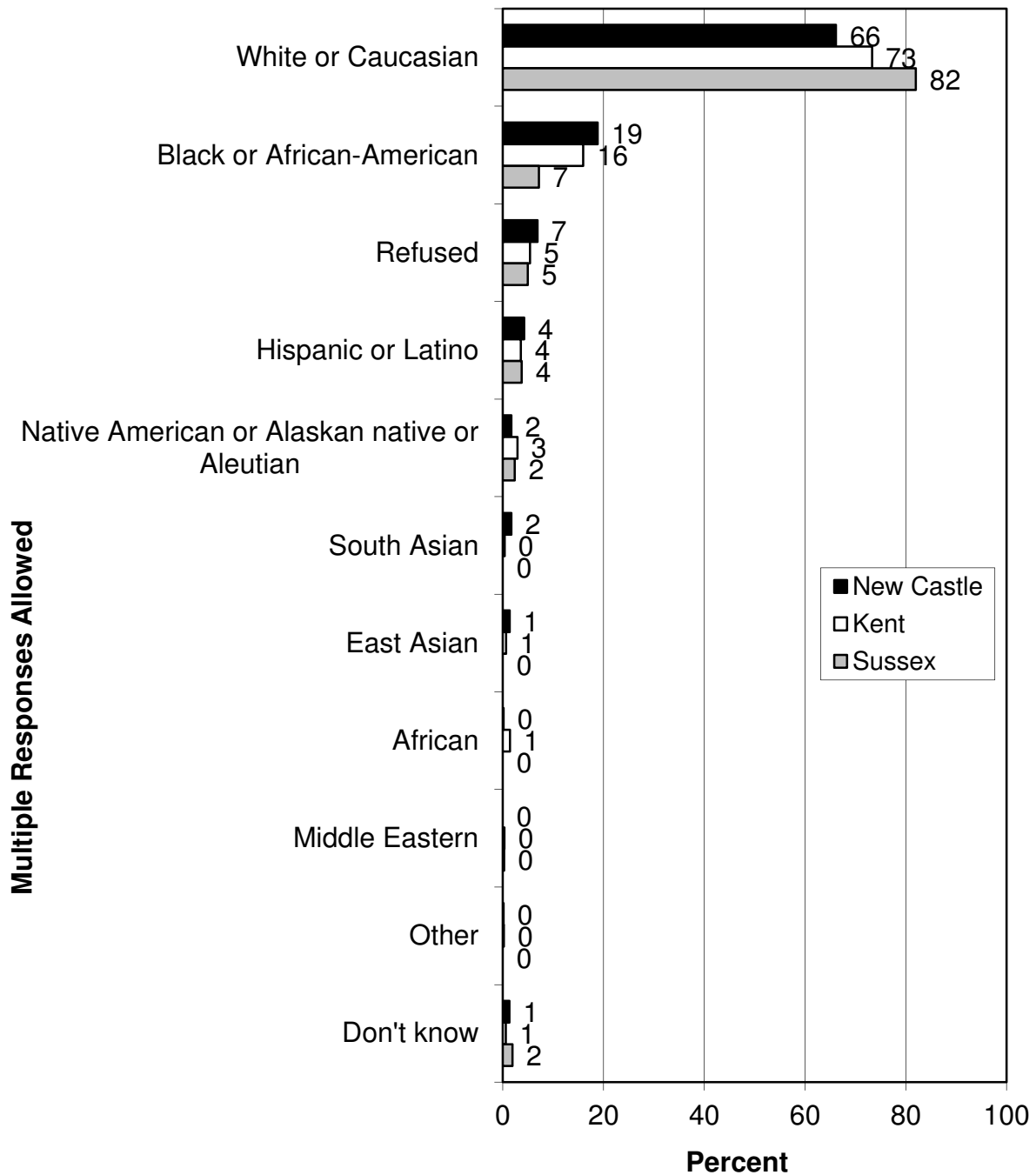
**Q154. How many children, age 17 or younger, do you have living in your household?**



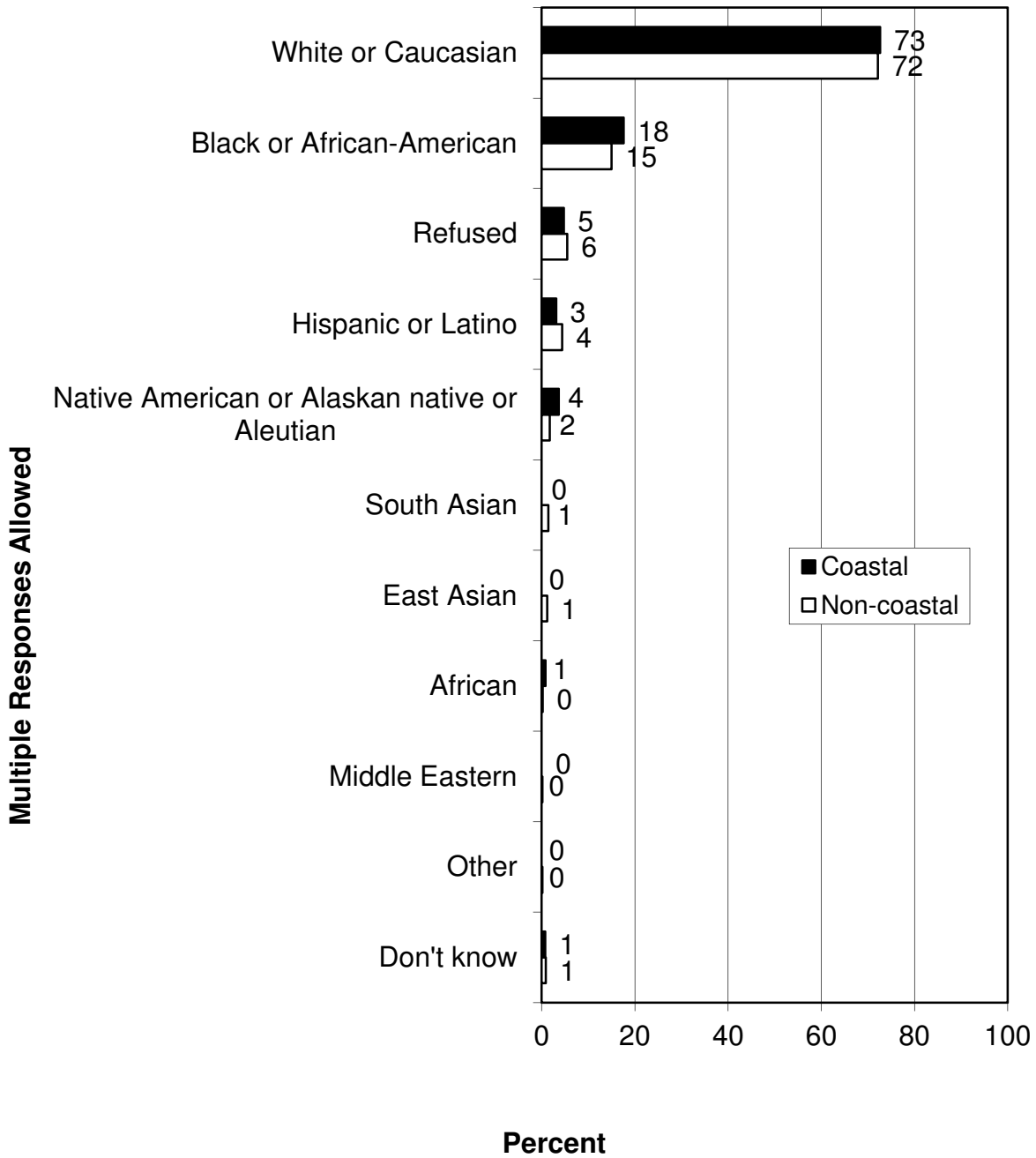
**Q159. What races or ethnic backgrounds do you consider yourself, and please mention all that apply?**



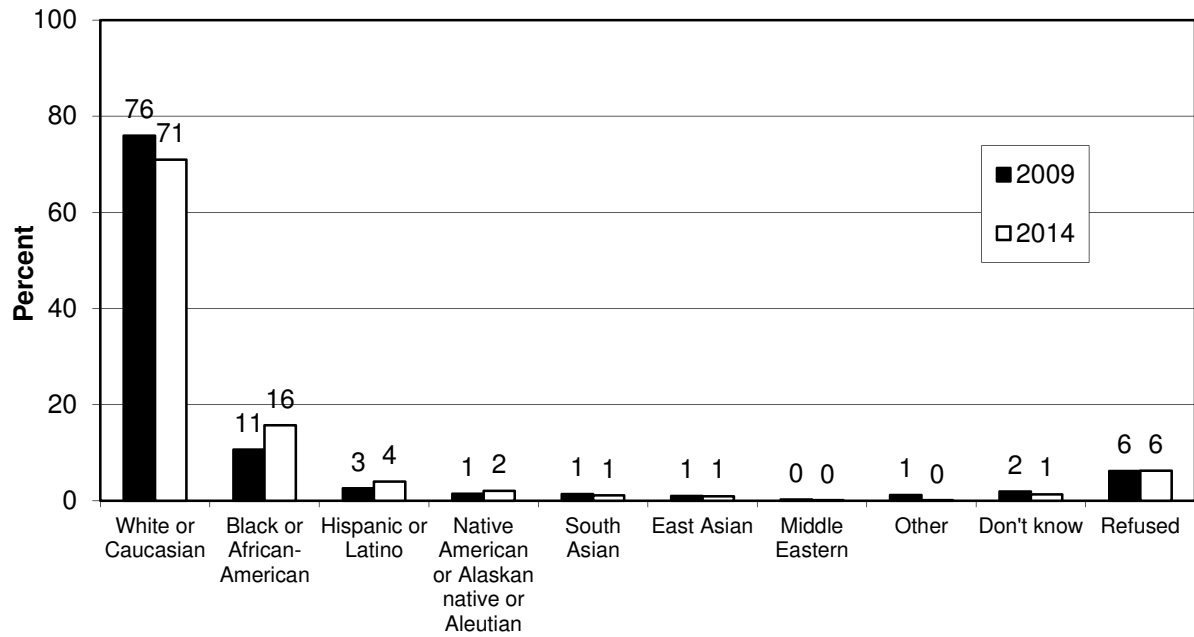
**Q159. What races or ethnic backgrounds do you consider yourself, and please mention all that apply?**



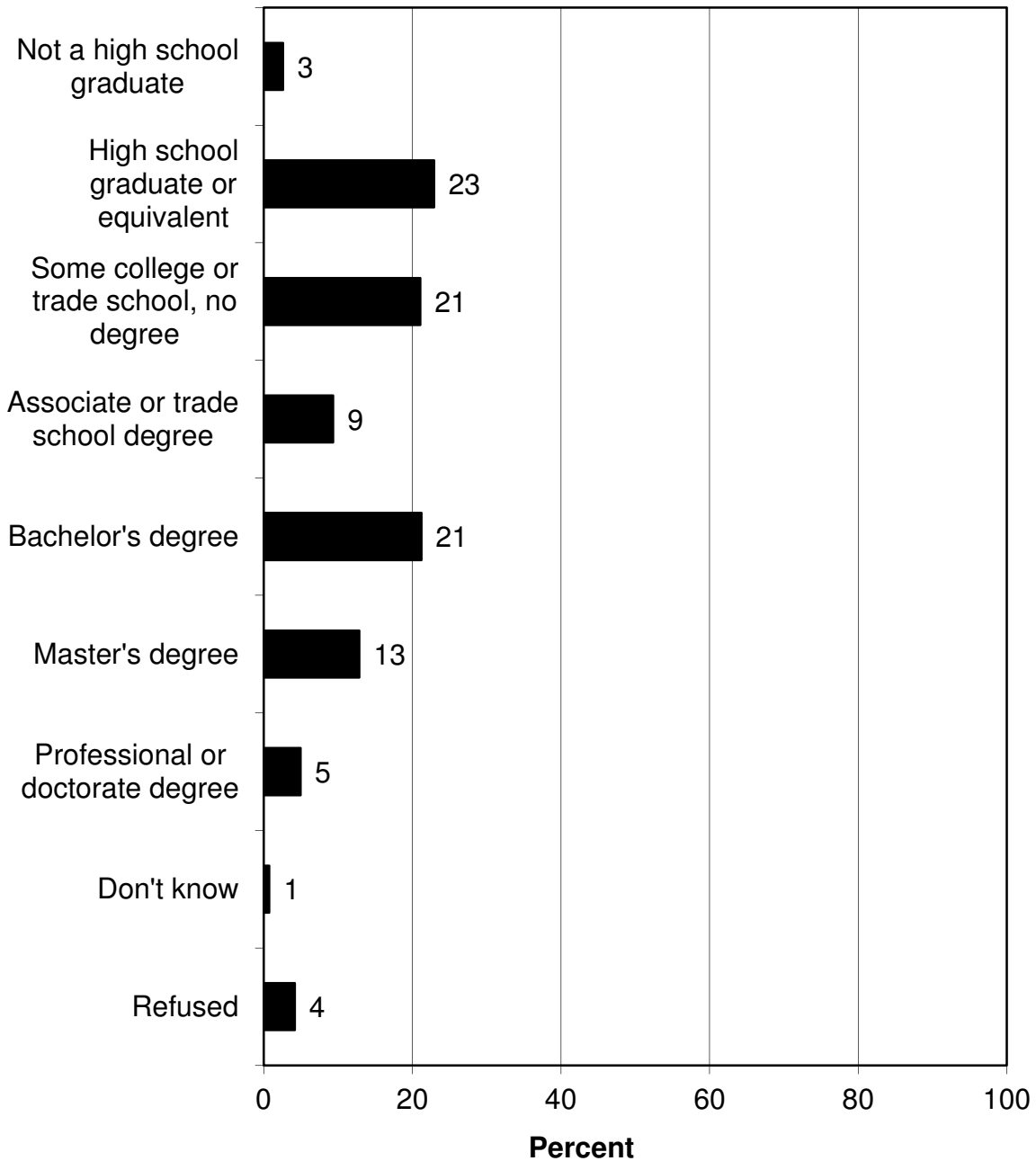
**Q159. What races or ethnic backgrounds do you consider yourself, and please mention all that apply?**



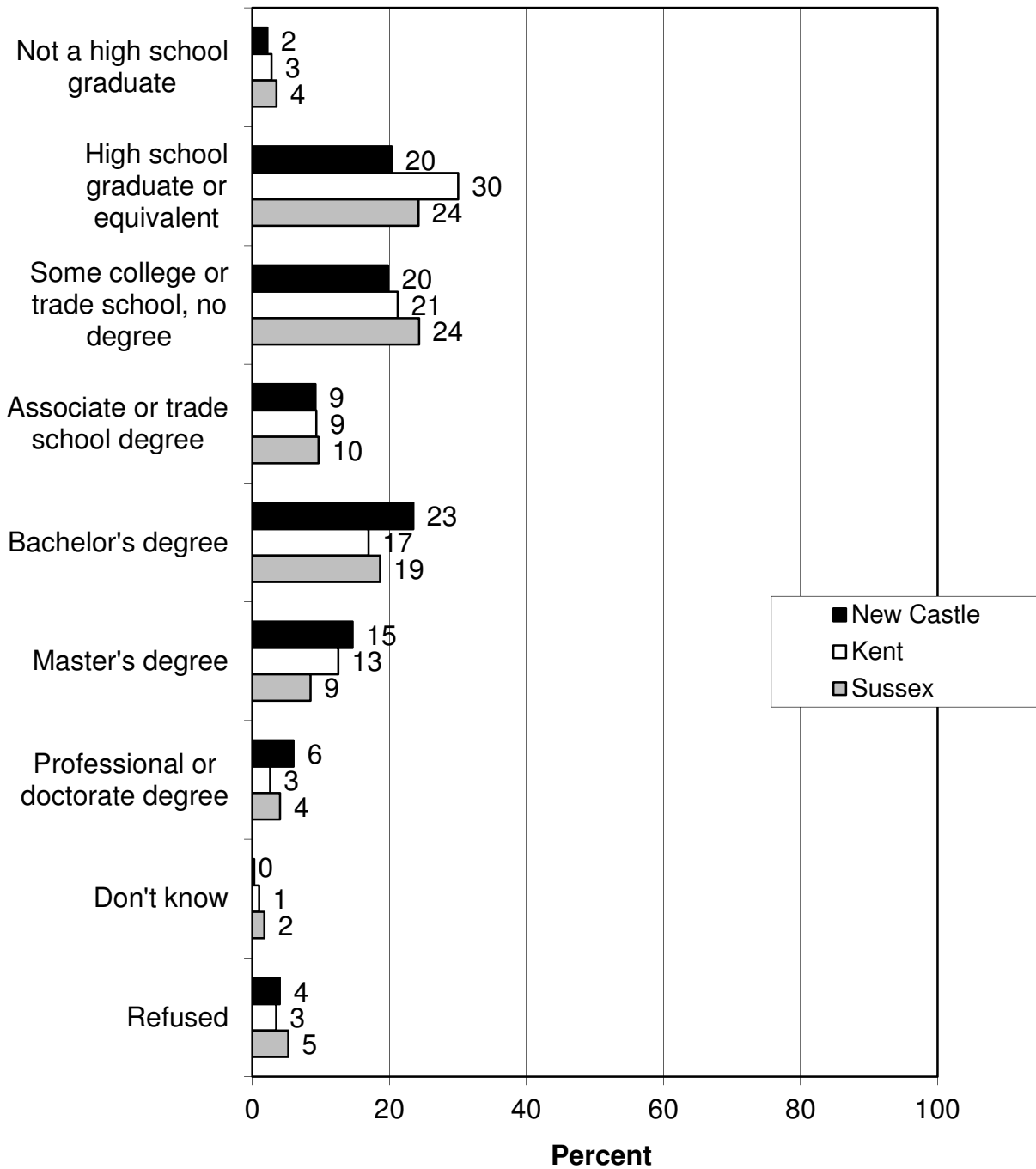
**Q159. What races or ethnic backgrounds do you consider yourself, and please mention all that apply?**



### Q156. What is the highest level of education you have completed?

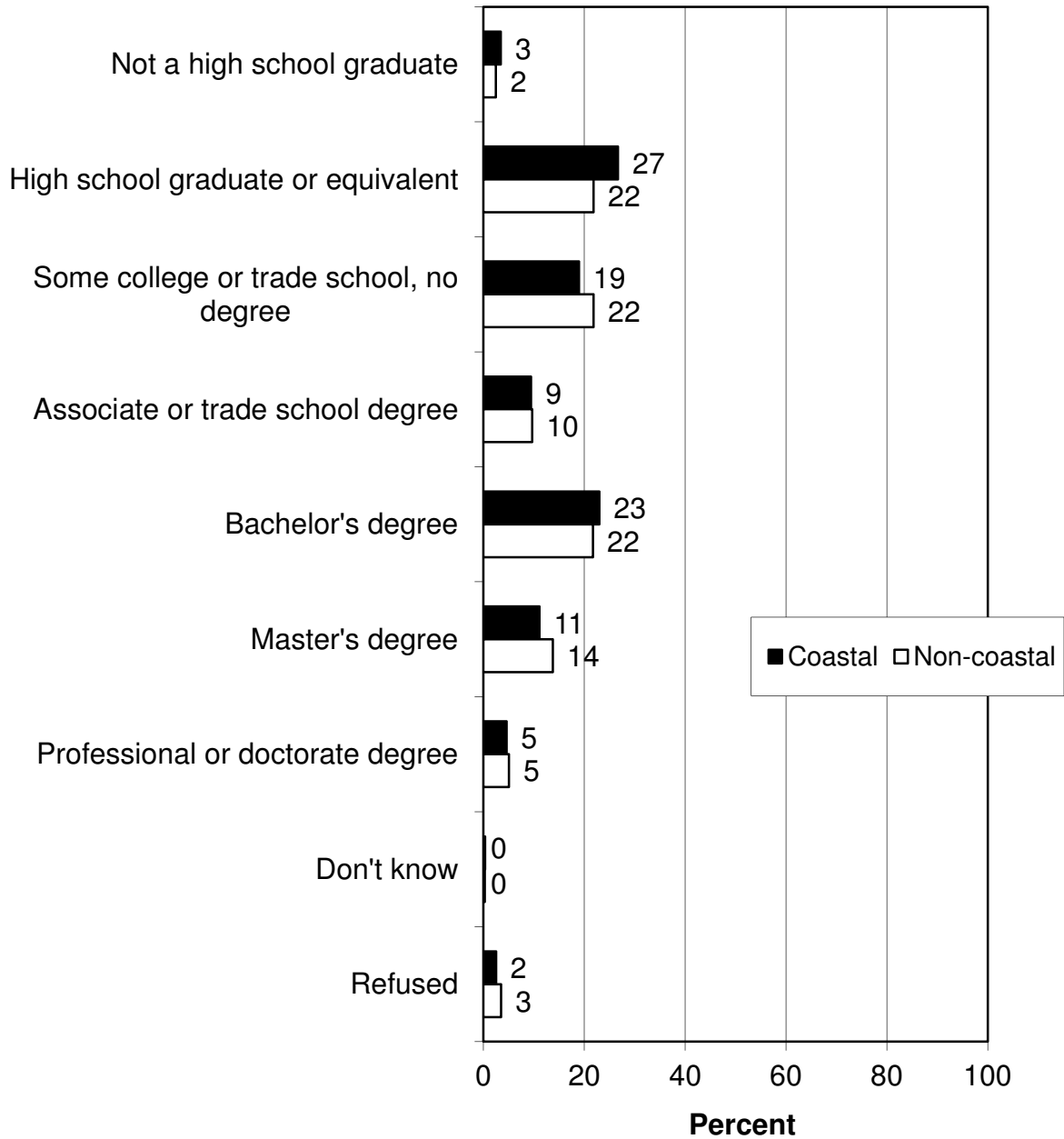


### Q156. What is the highest level of education you have completed?

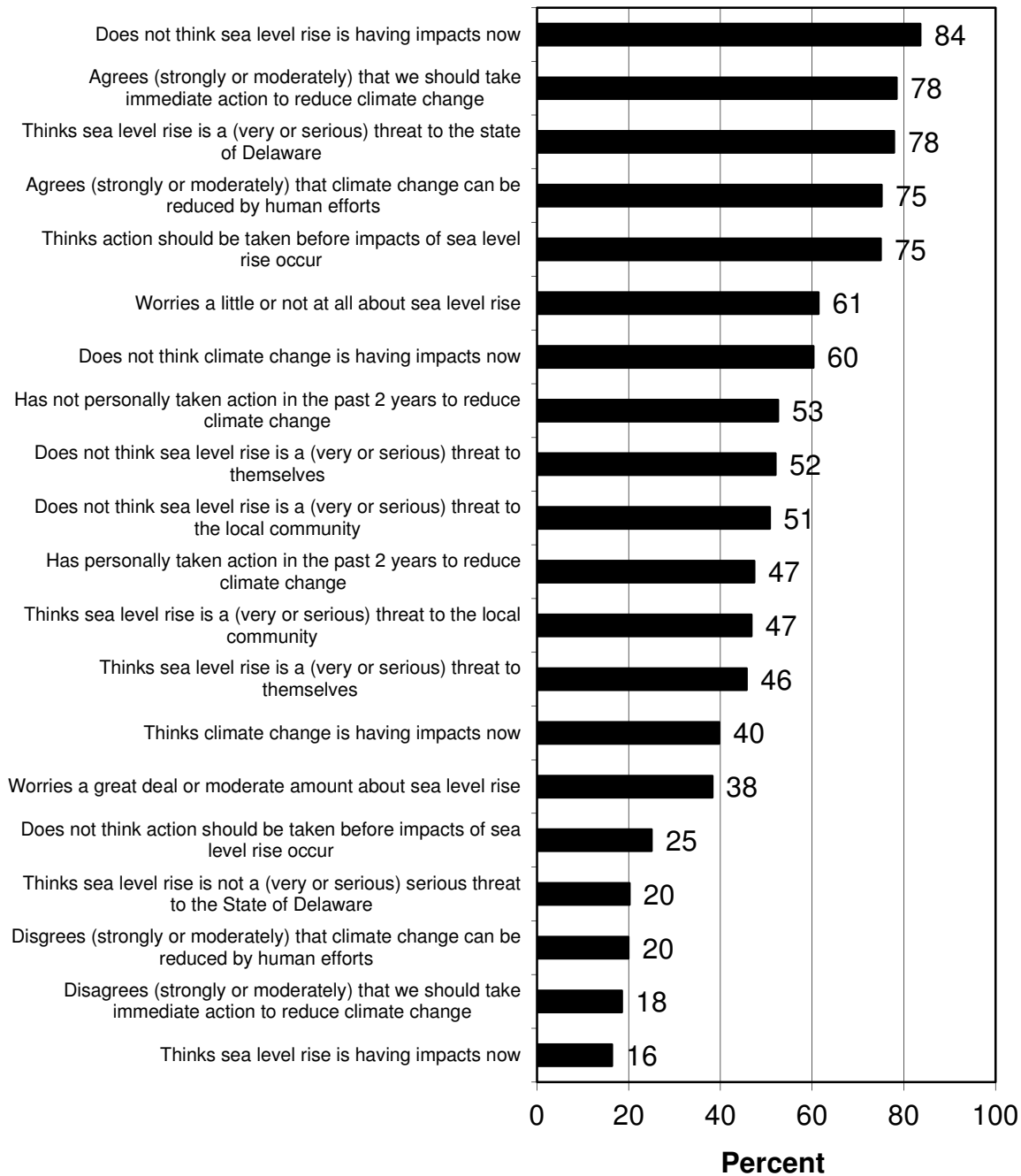




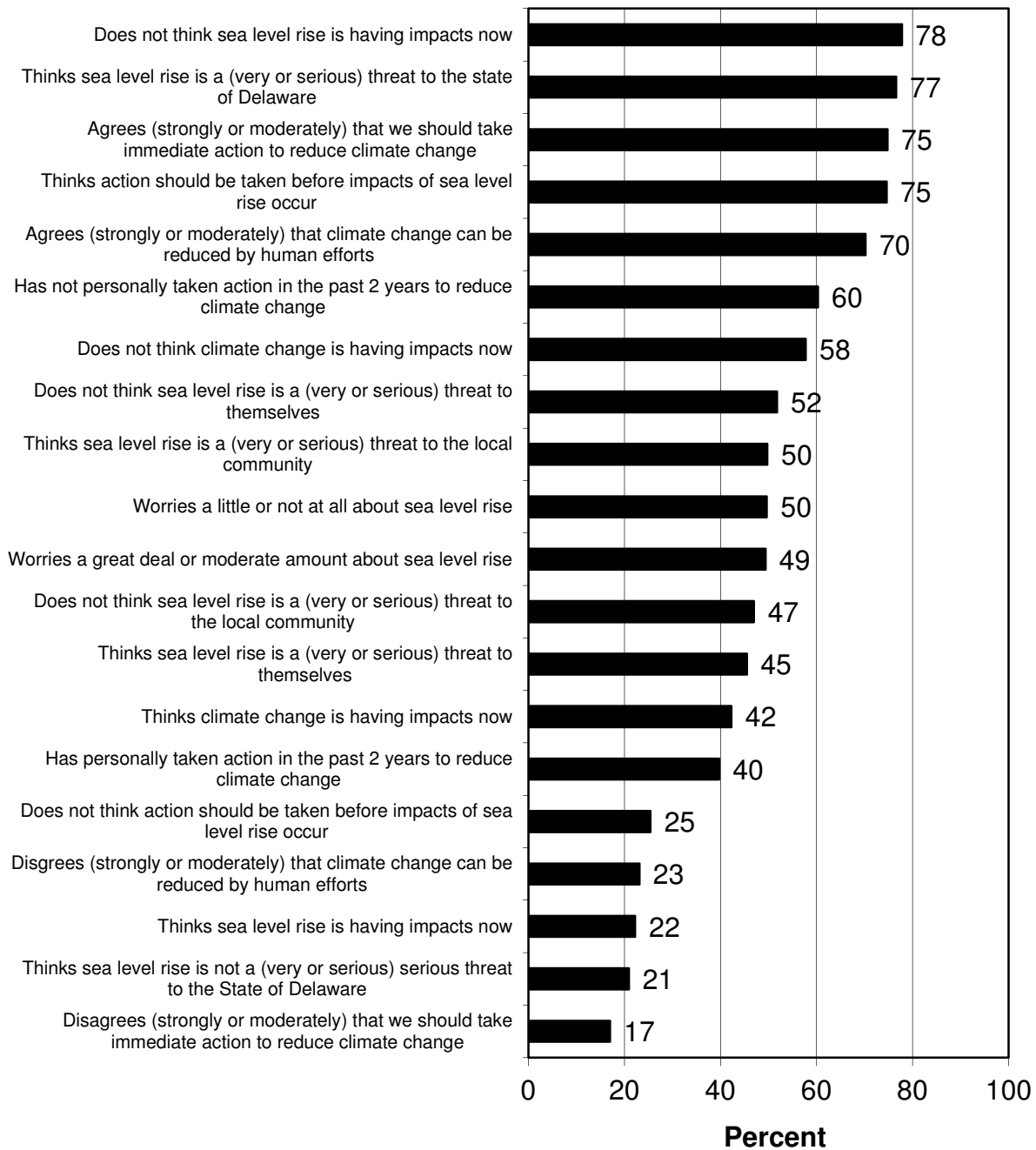
### Q156. What is the highest level of education you have completed?



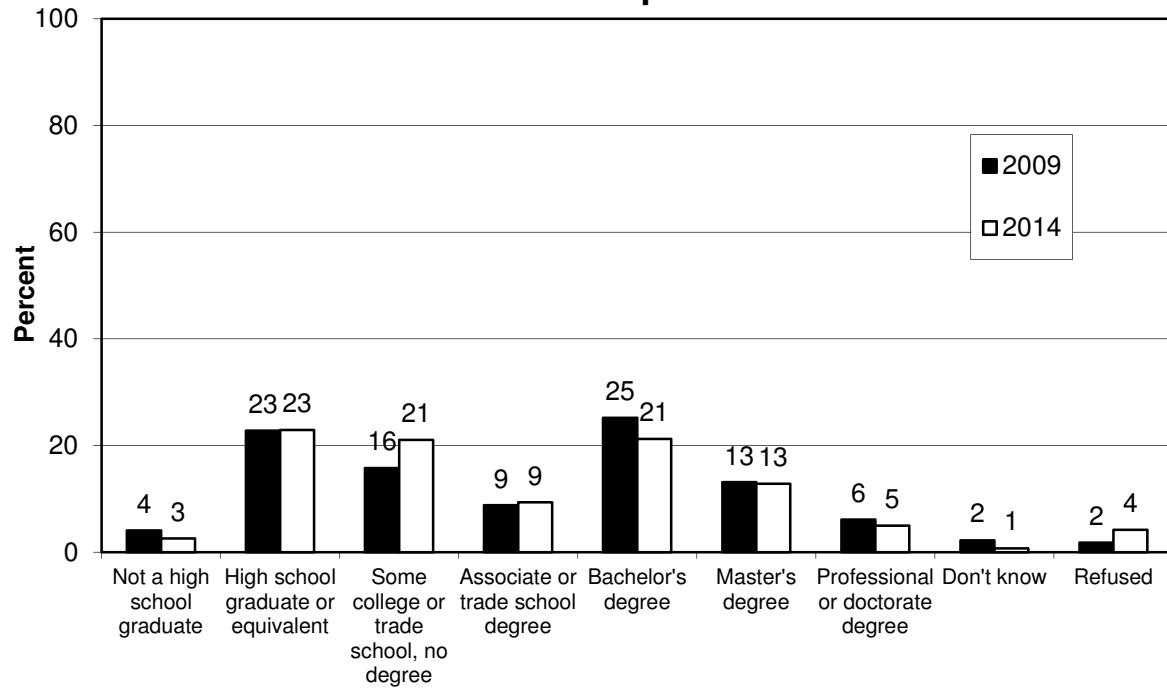
## Percent of those with at least a bachelor's degree who...



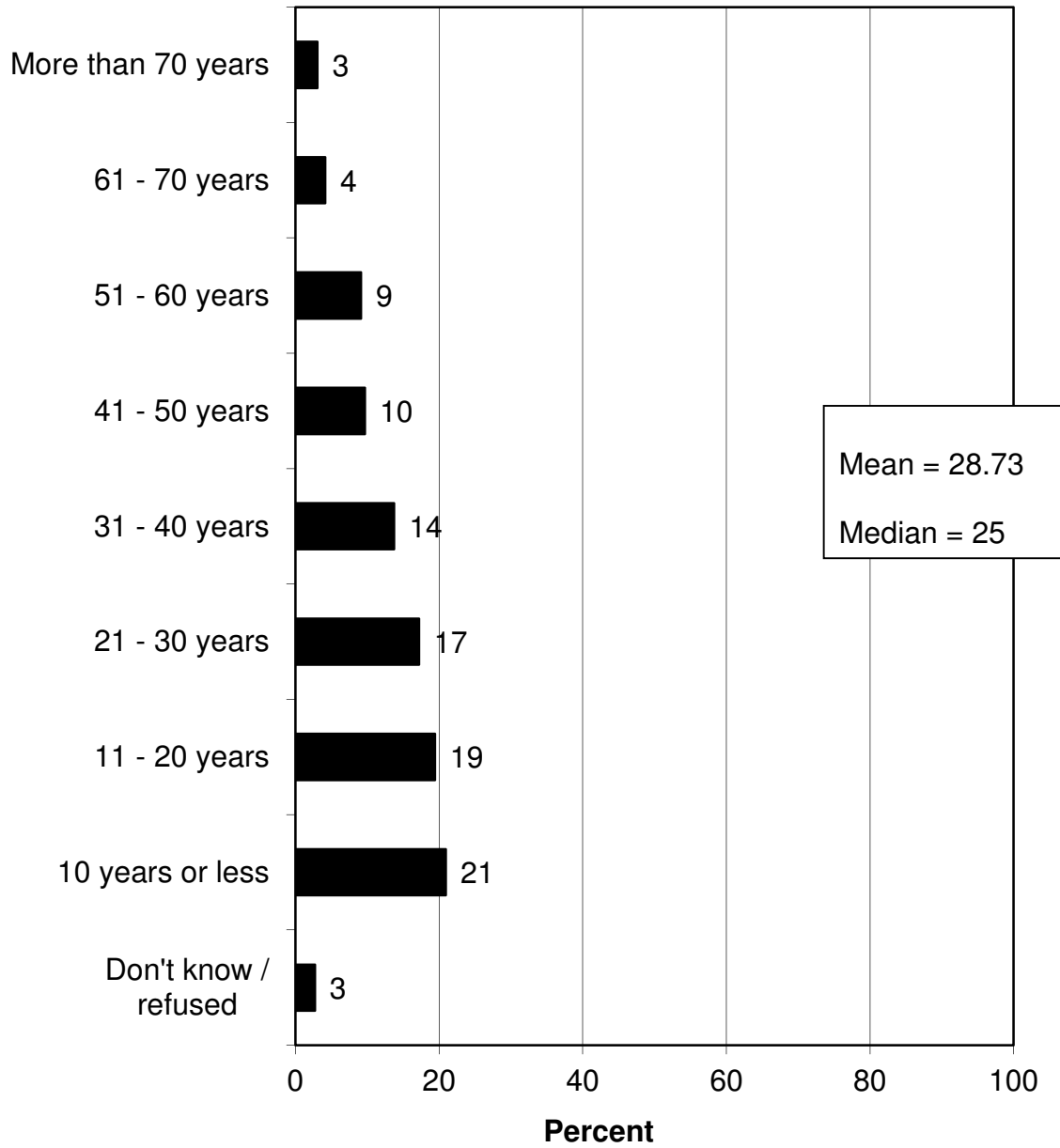
### Percent of those with less than a bachelor's degree who...



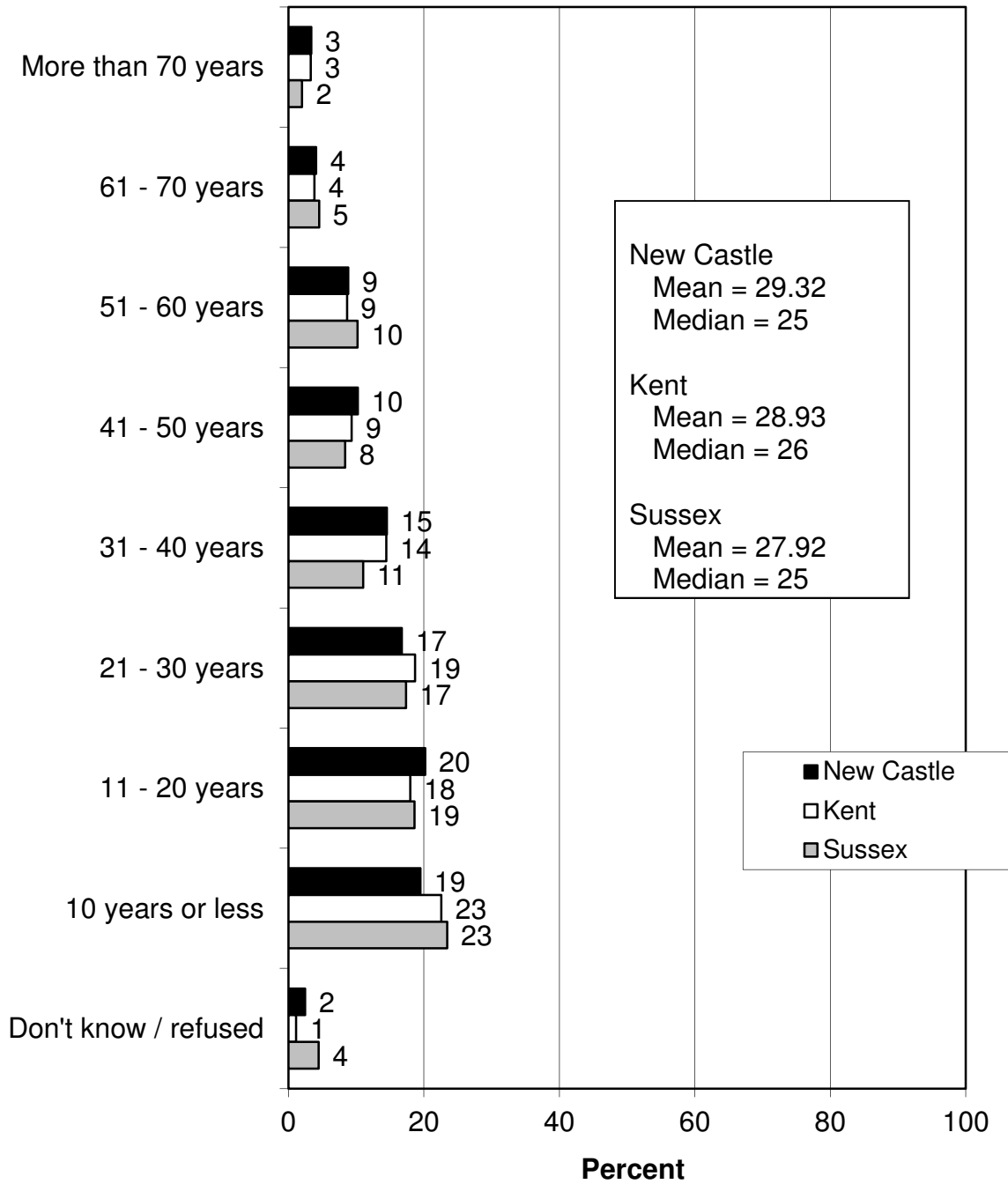
### Q156. What is the highest level of education you have completed?



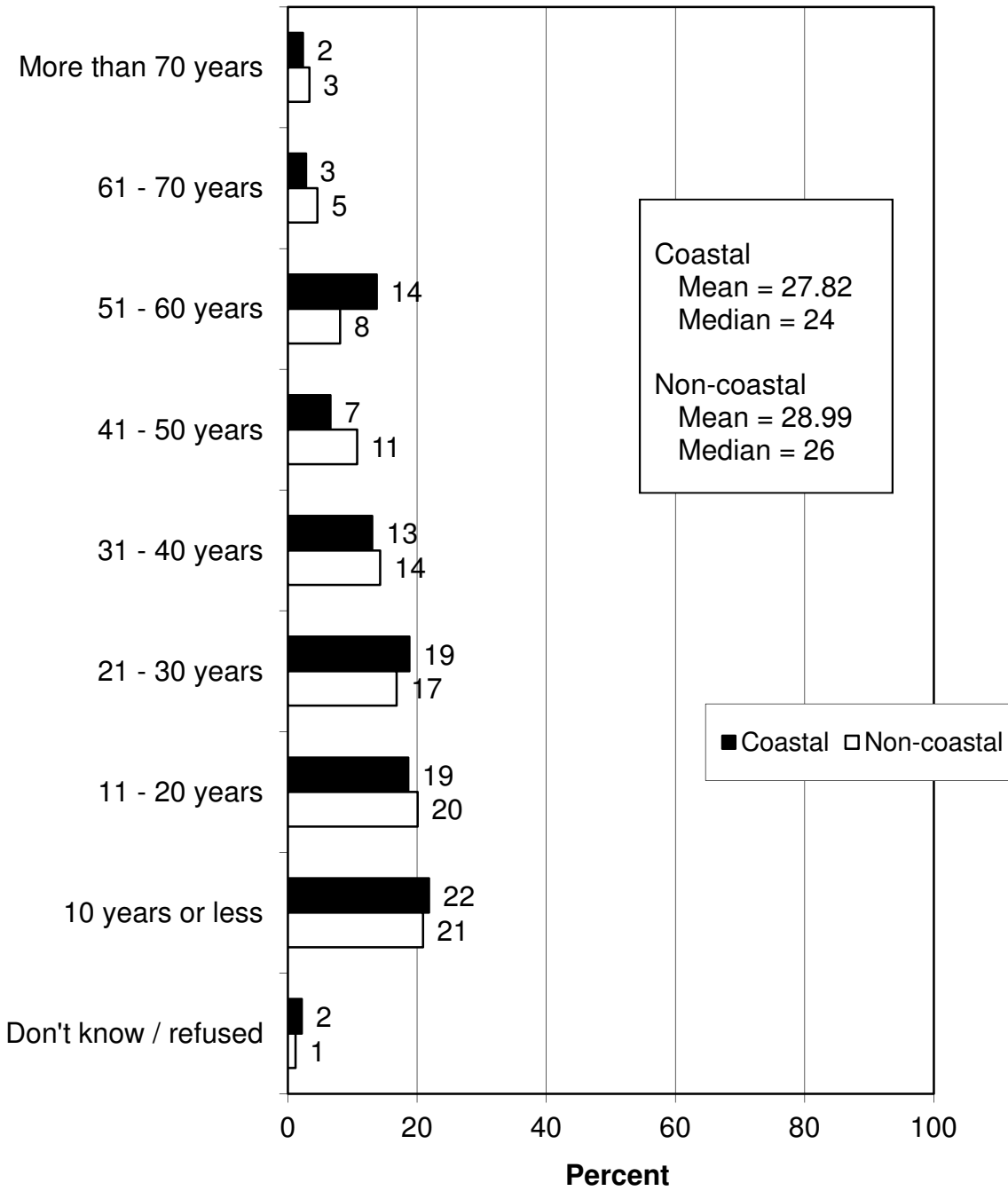
### Q148. How many years have you lived in Delaware?

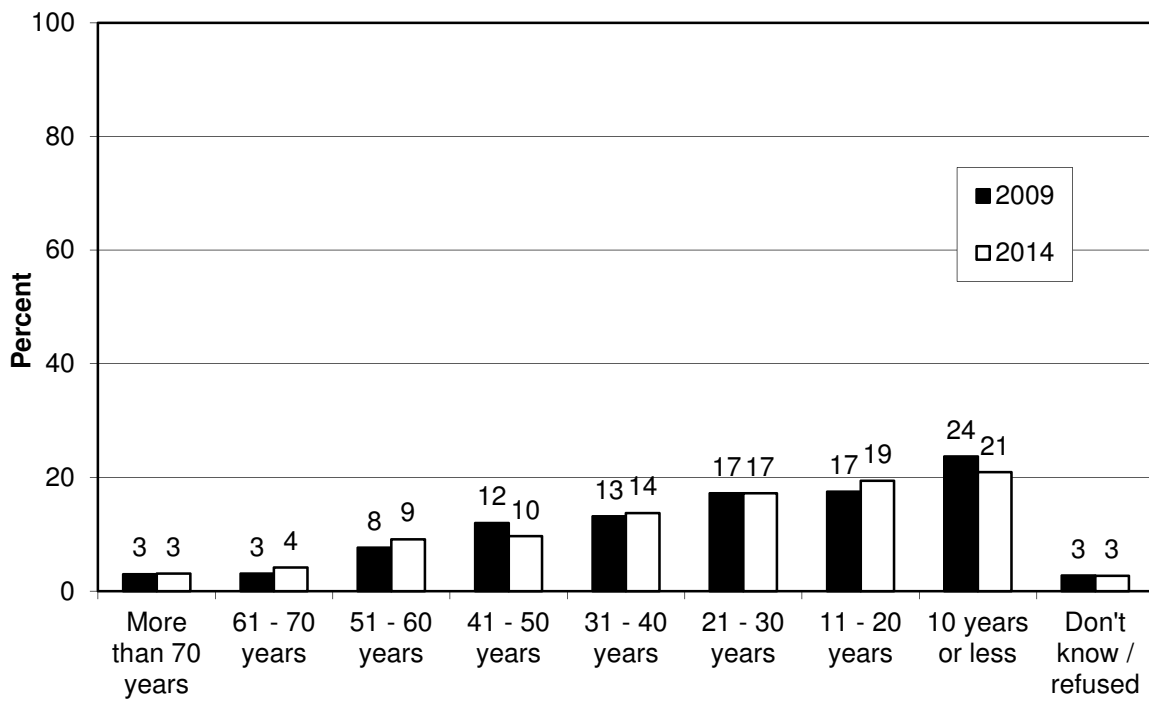


### Q148. How many years have you lived in Delaware?



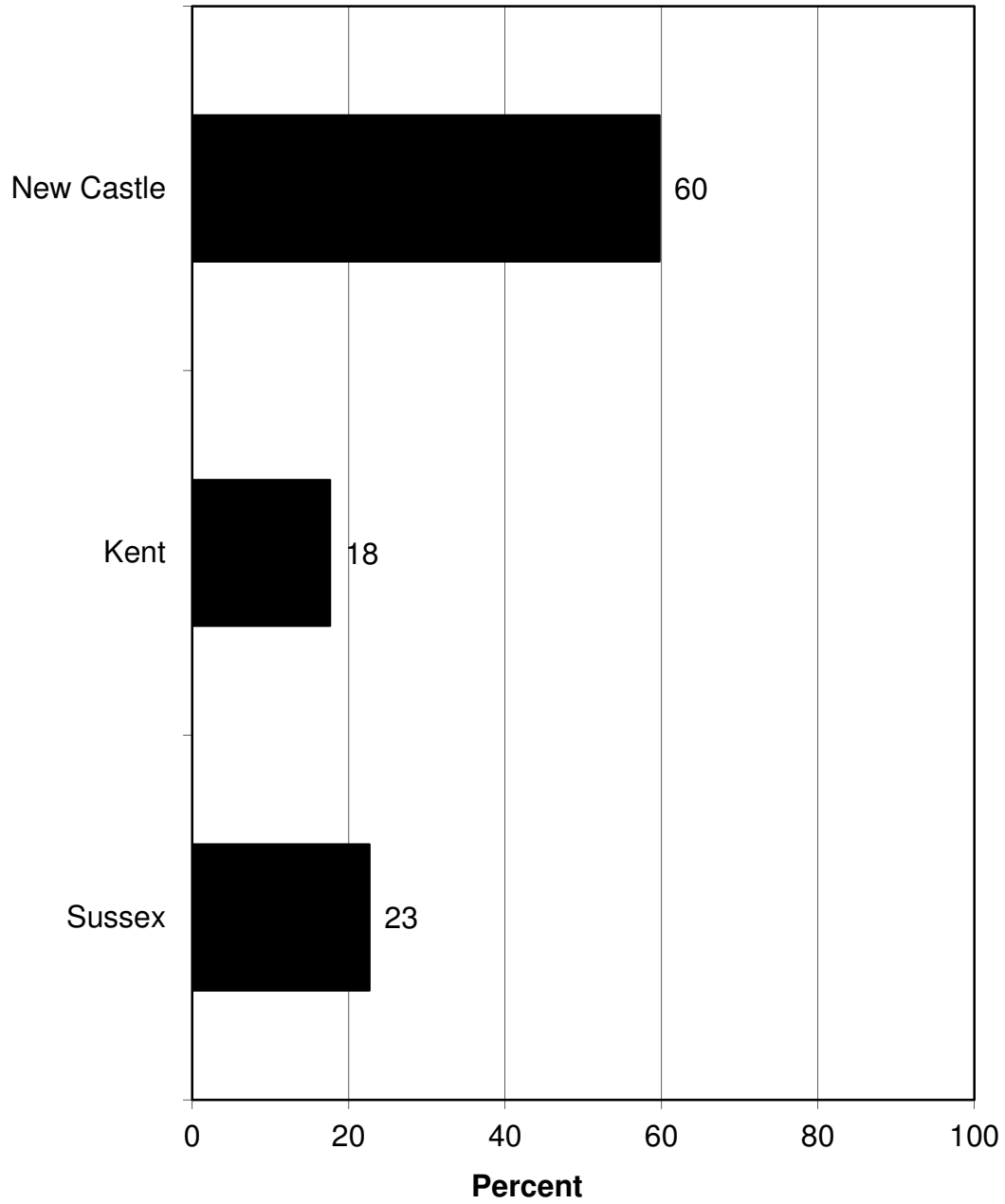
### Q148. How many years have you lived in Delaware?

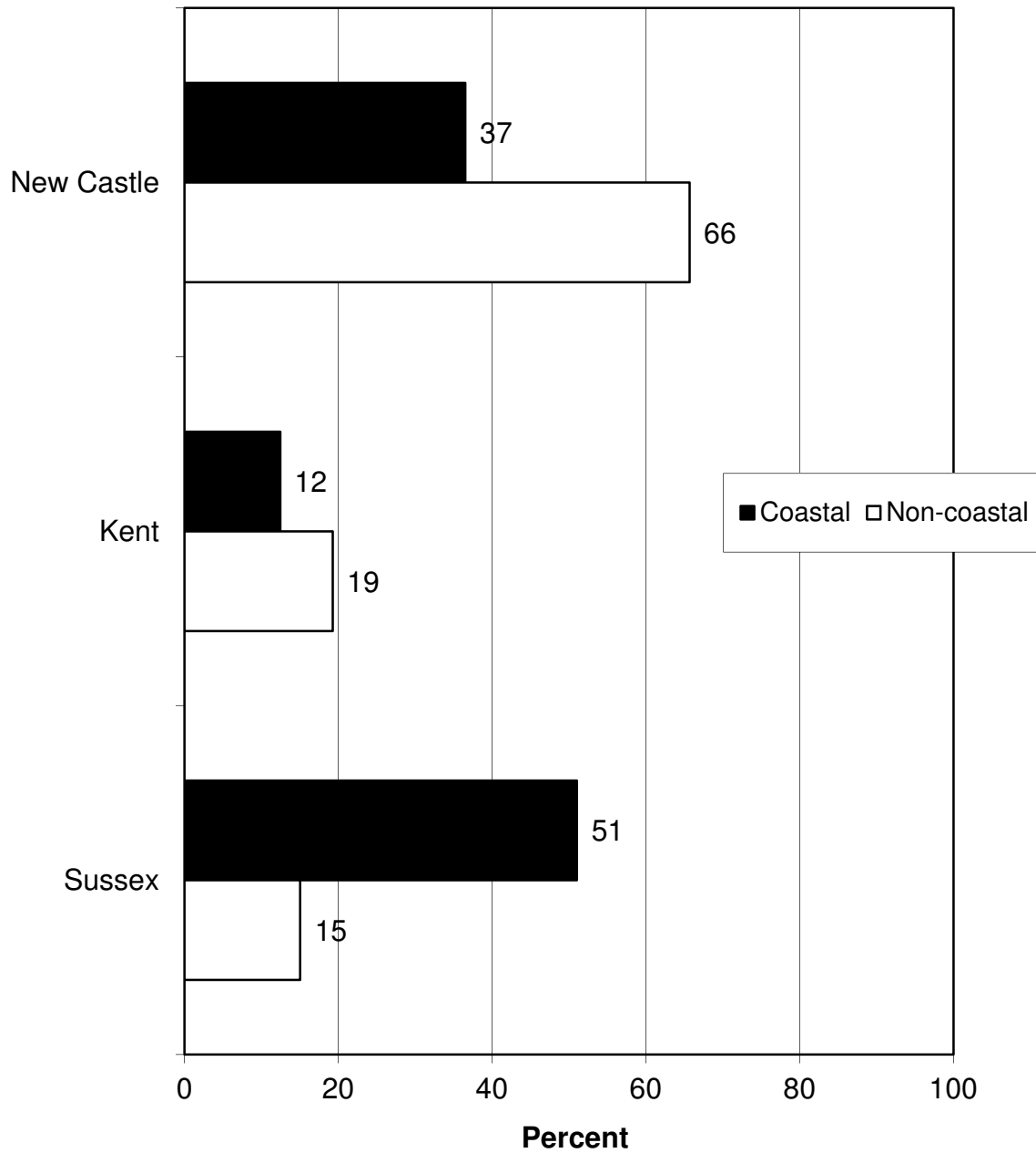


**Q148. How many years have you lived in Delaware?**

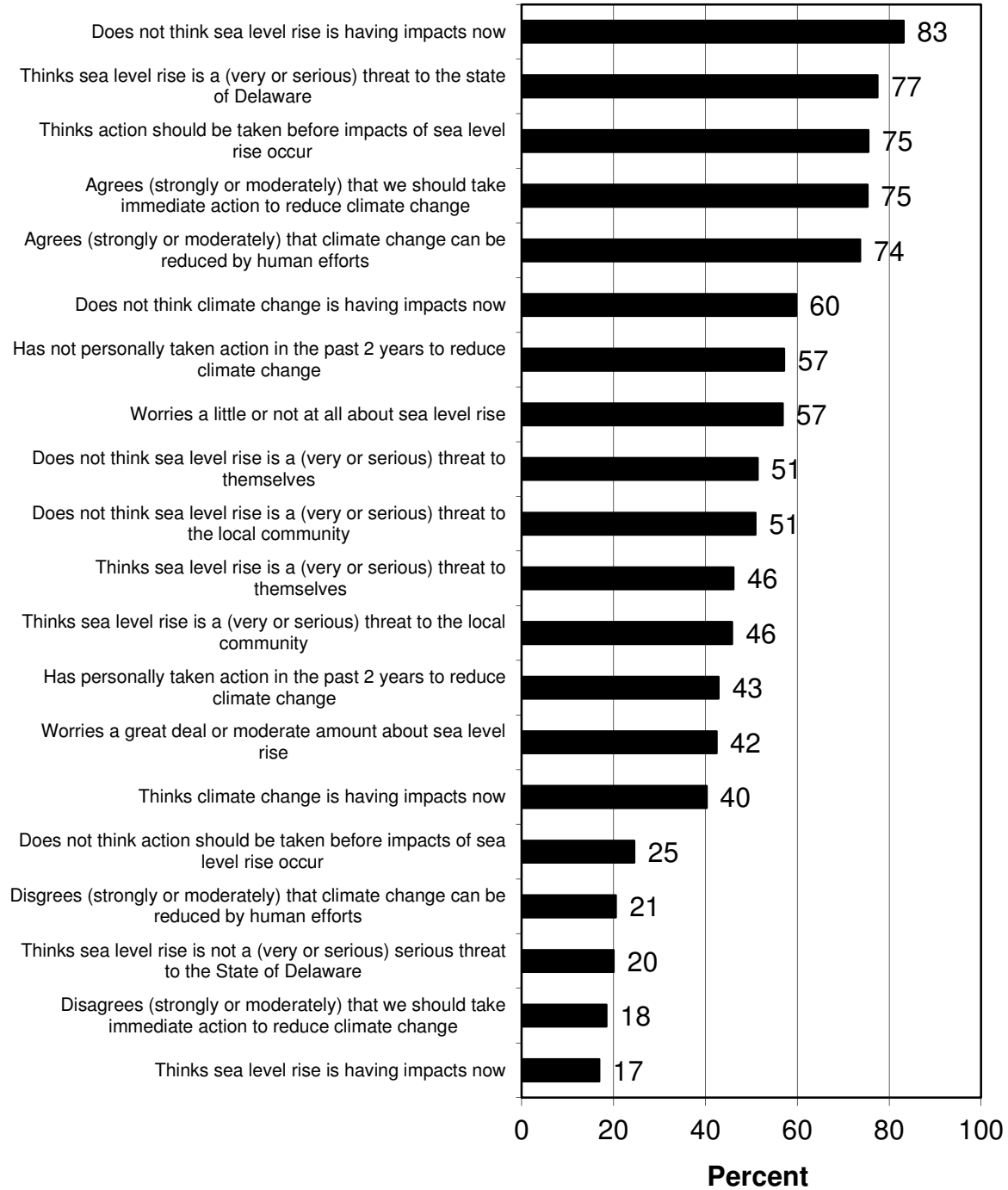


### Q149. What county do you live in?

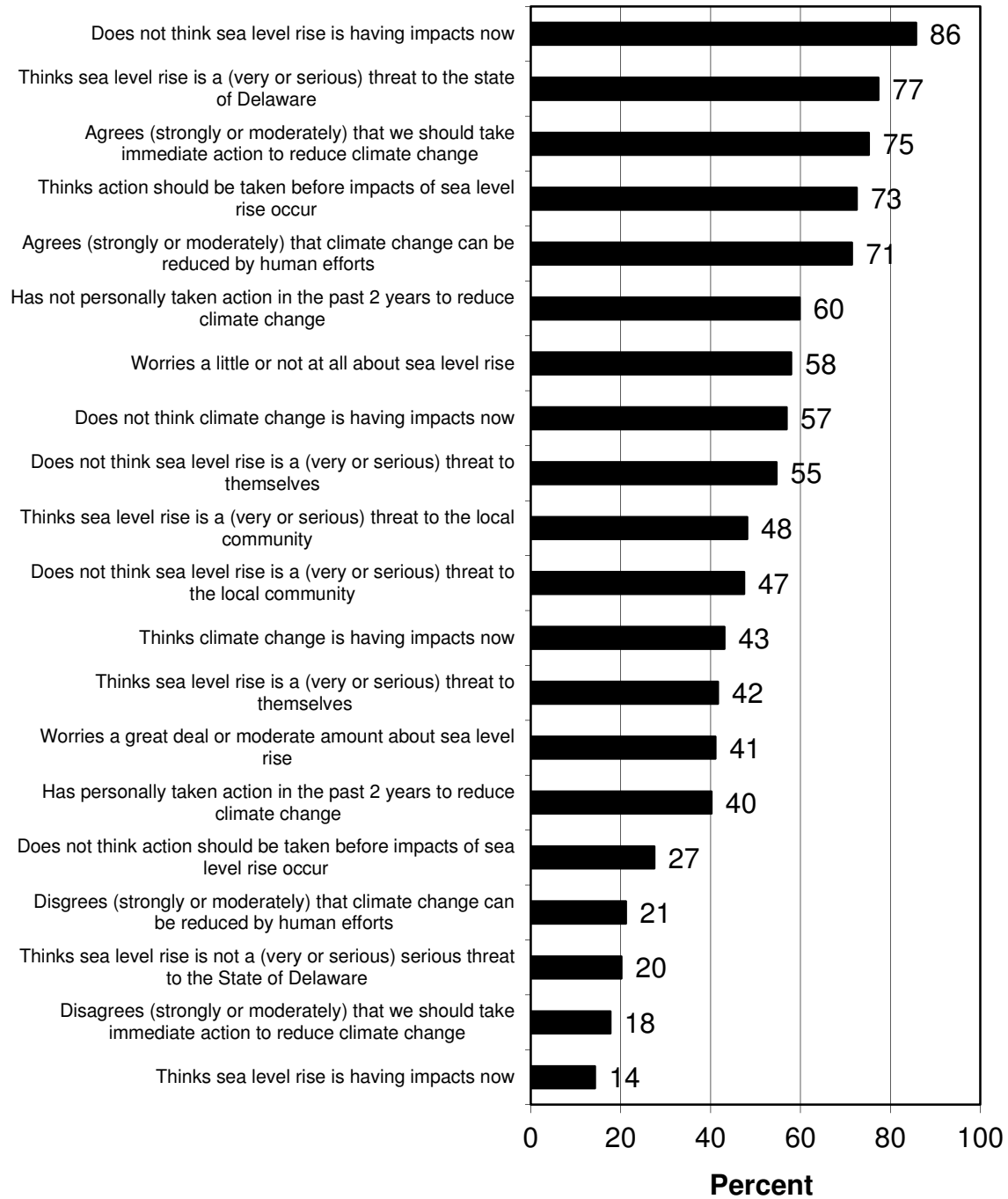


**Q149. What county do you live in?**

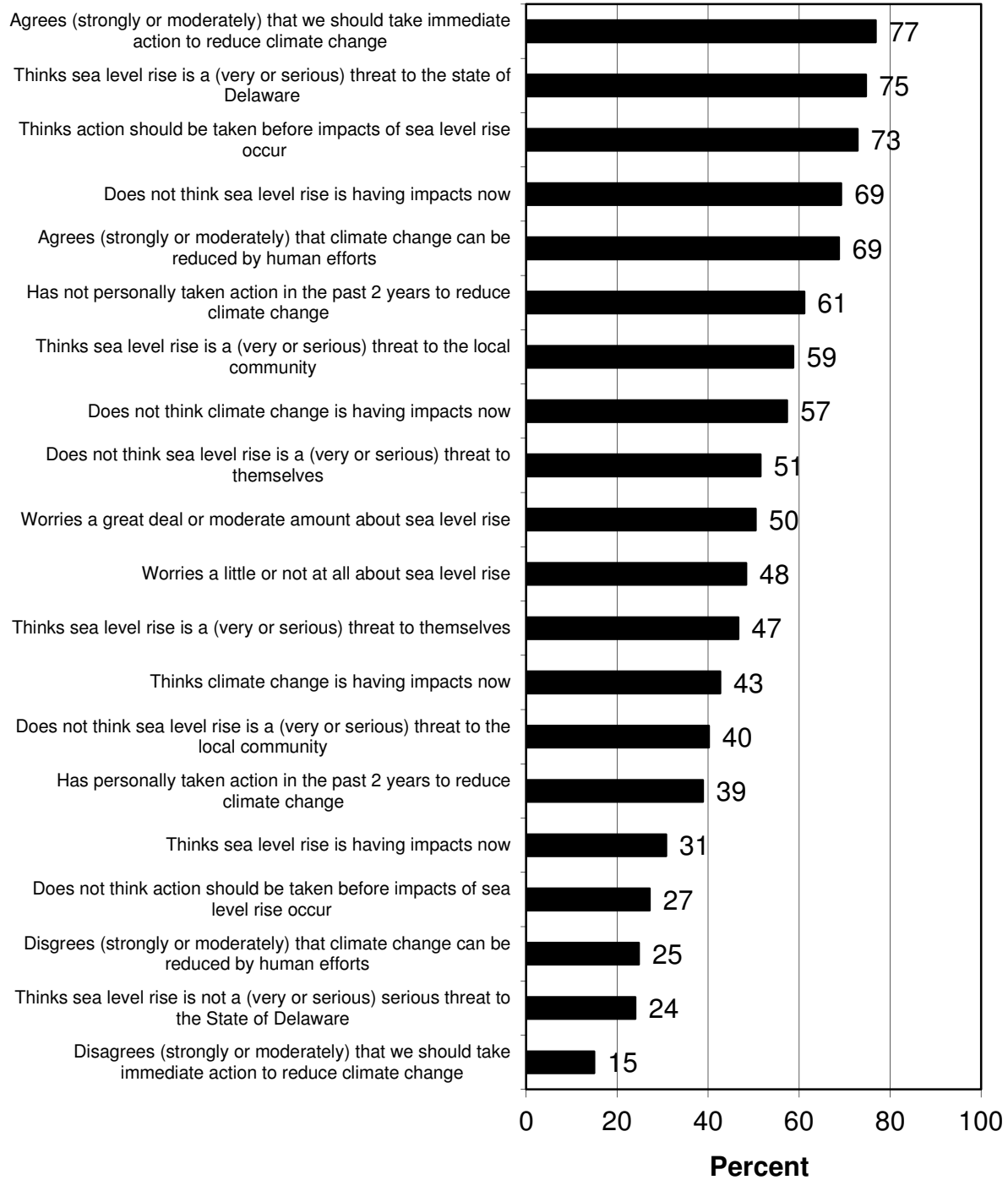
### Percent New Castle County residents who...



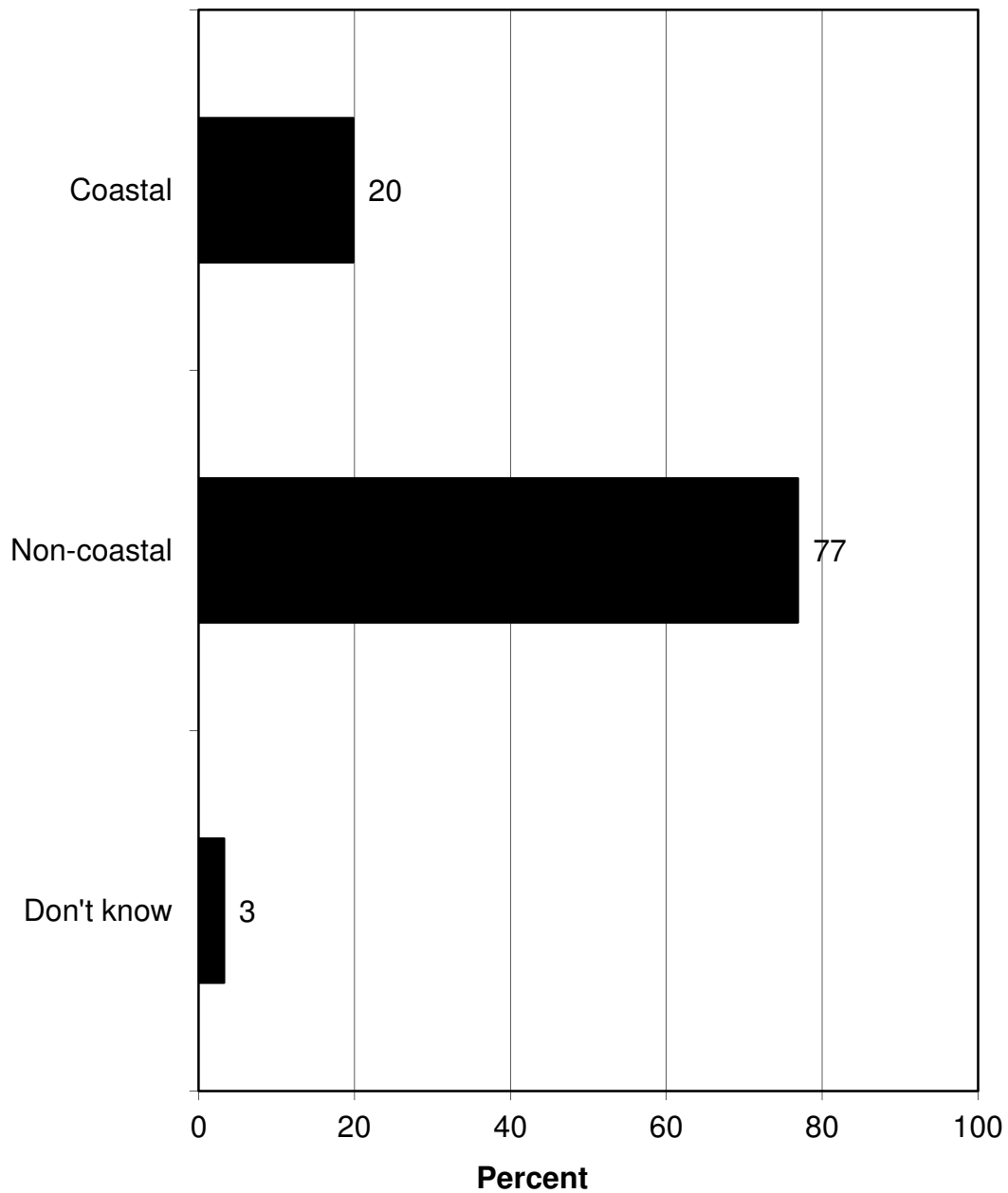
## Percent of Kent County residents who...



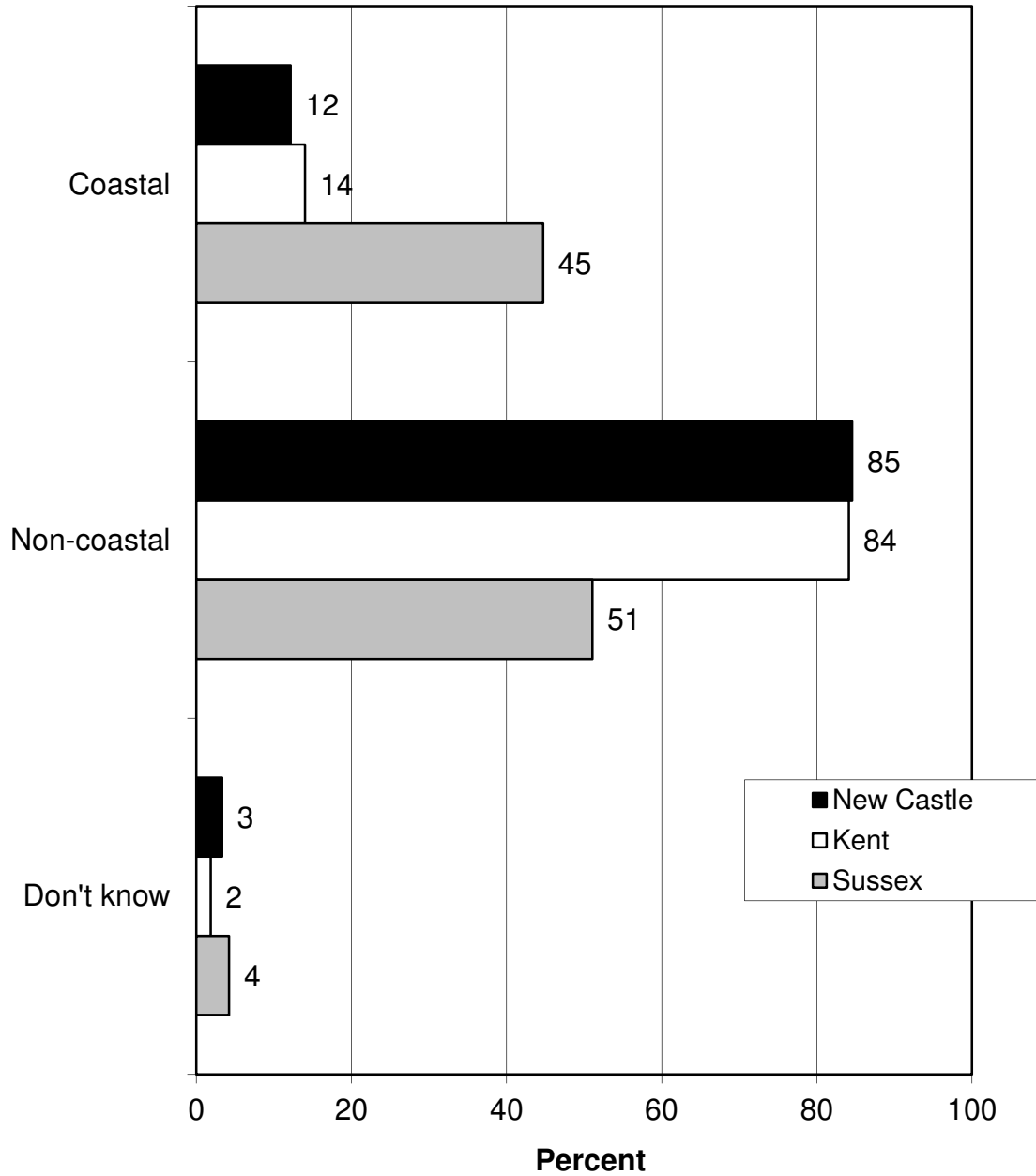
### Percent of Sussex County residents who...



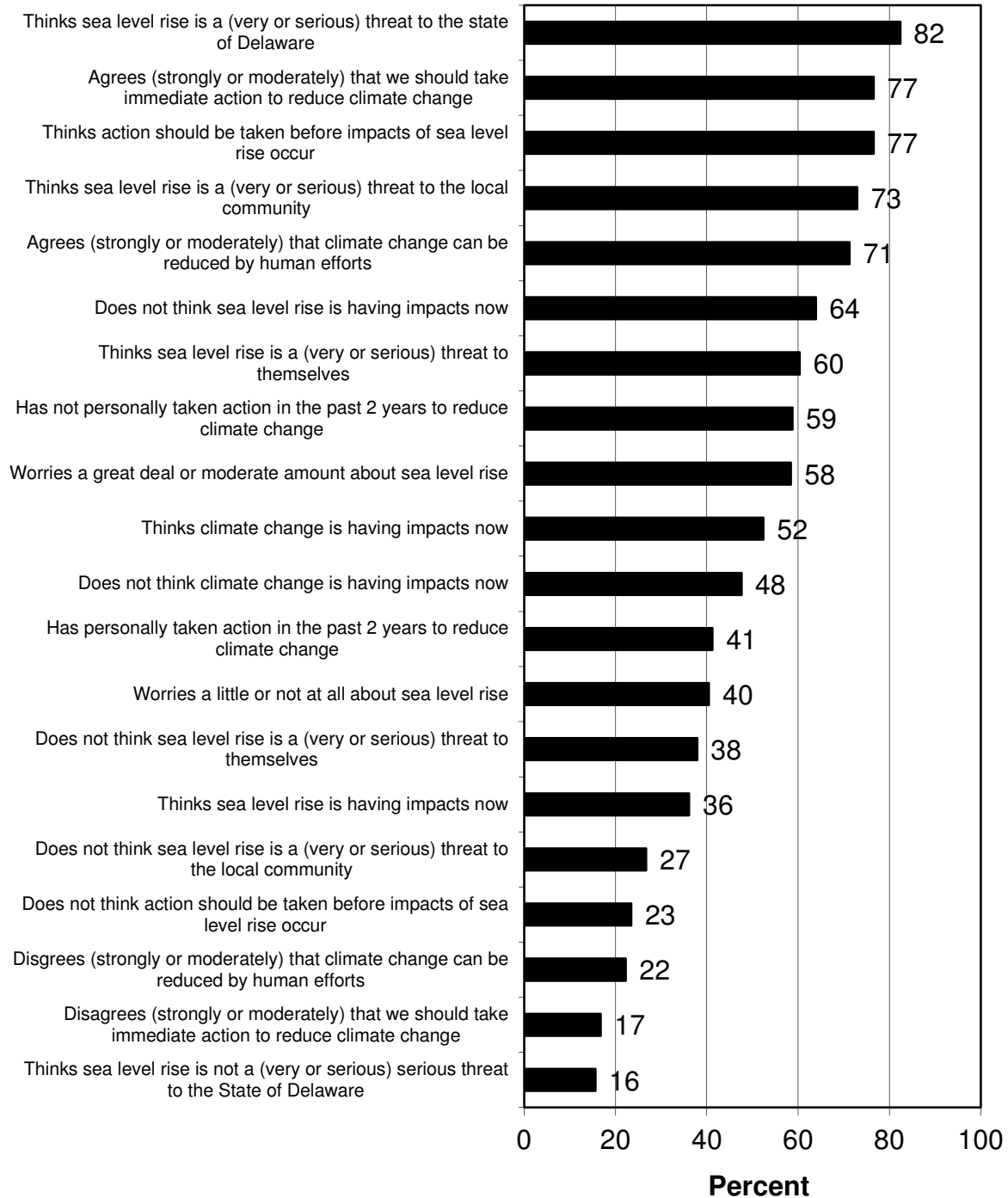
**Q151. Do you consider your place of residence to be in a coastal or non-coastal area?**



**Q151. Do you consider your place of residence to be in a coastal or non-coastal area?**

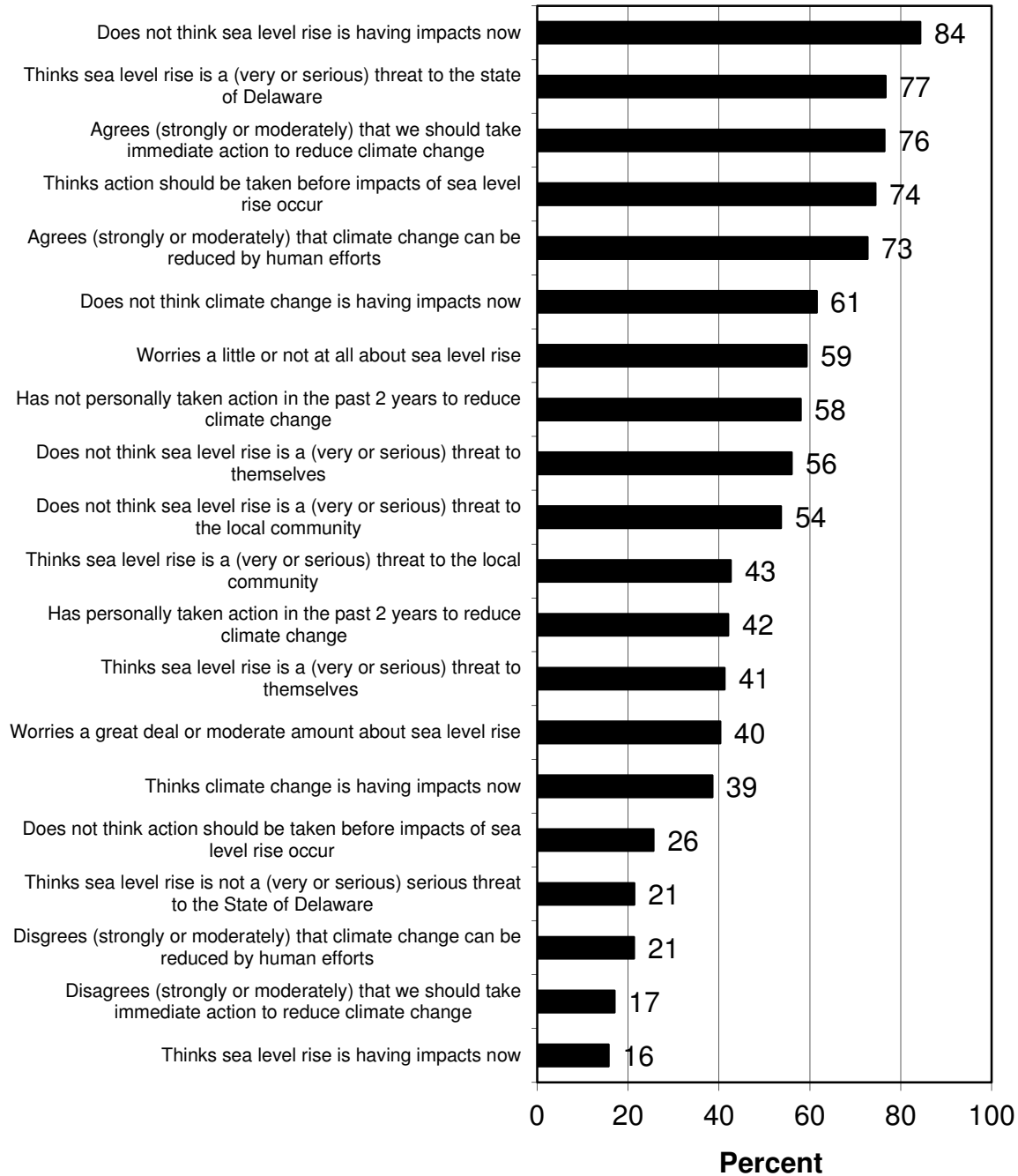


## Percent of those who live in a coastal area who...

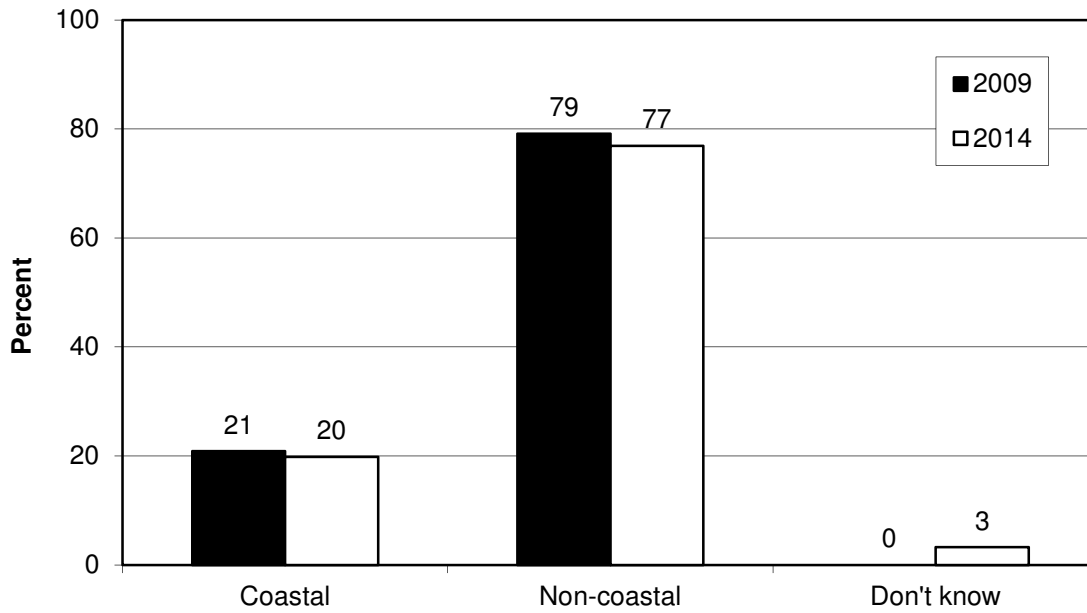




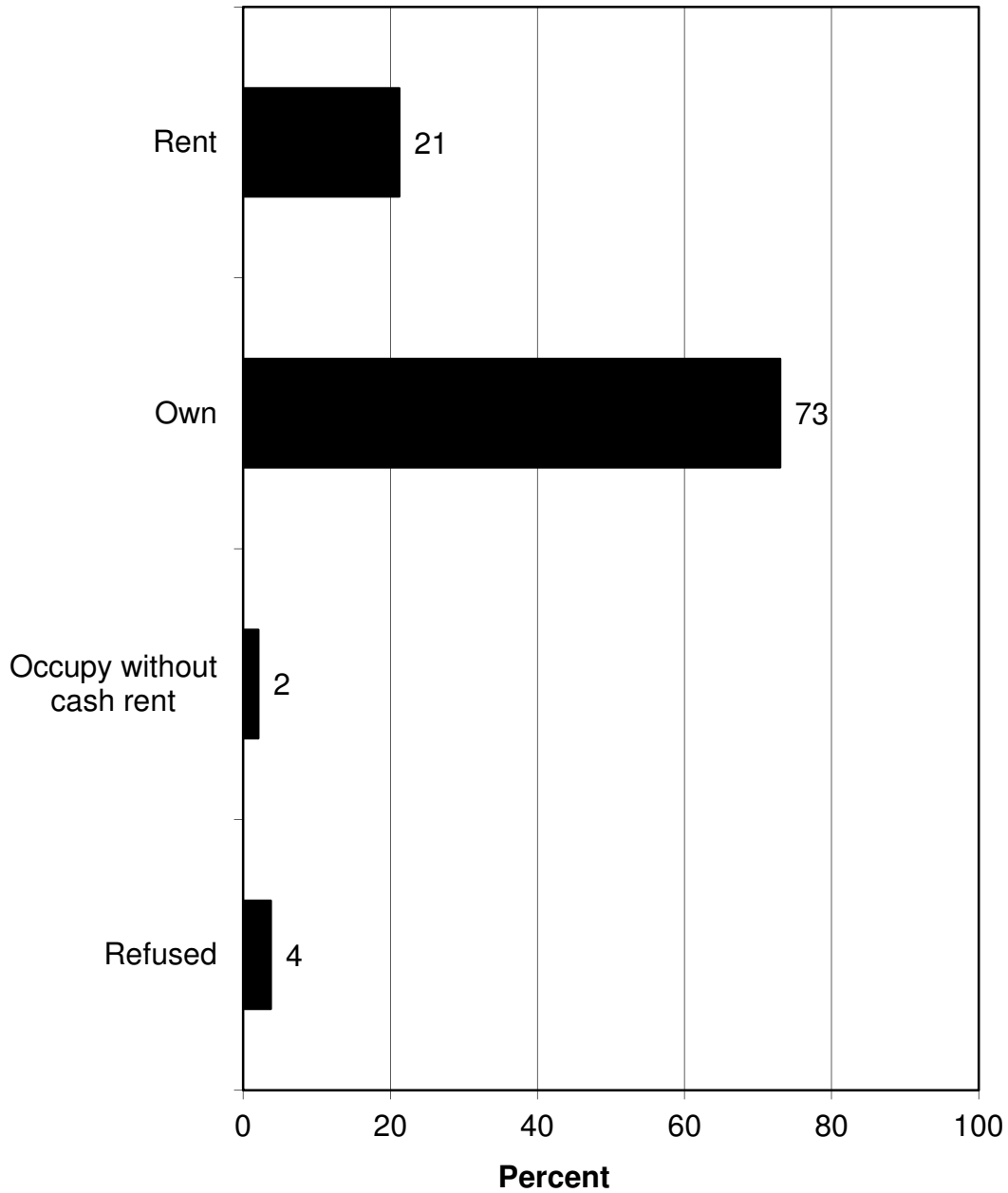
### Percent of those who live in a non-coastal area who...



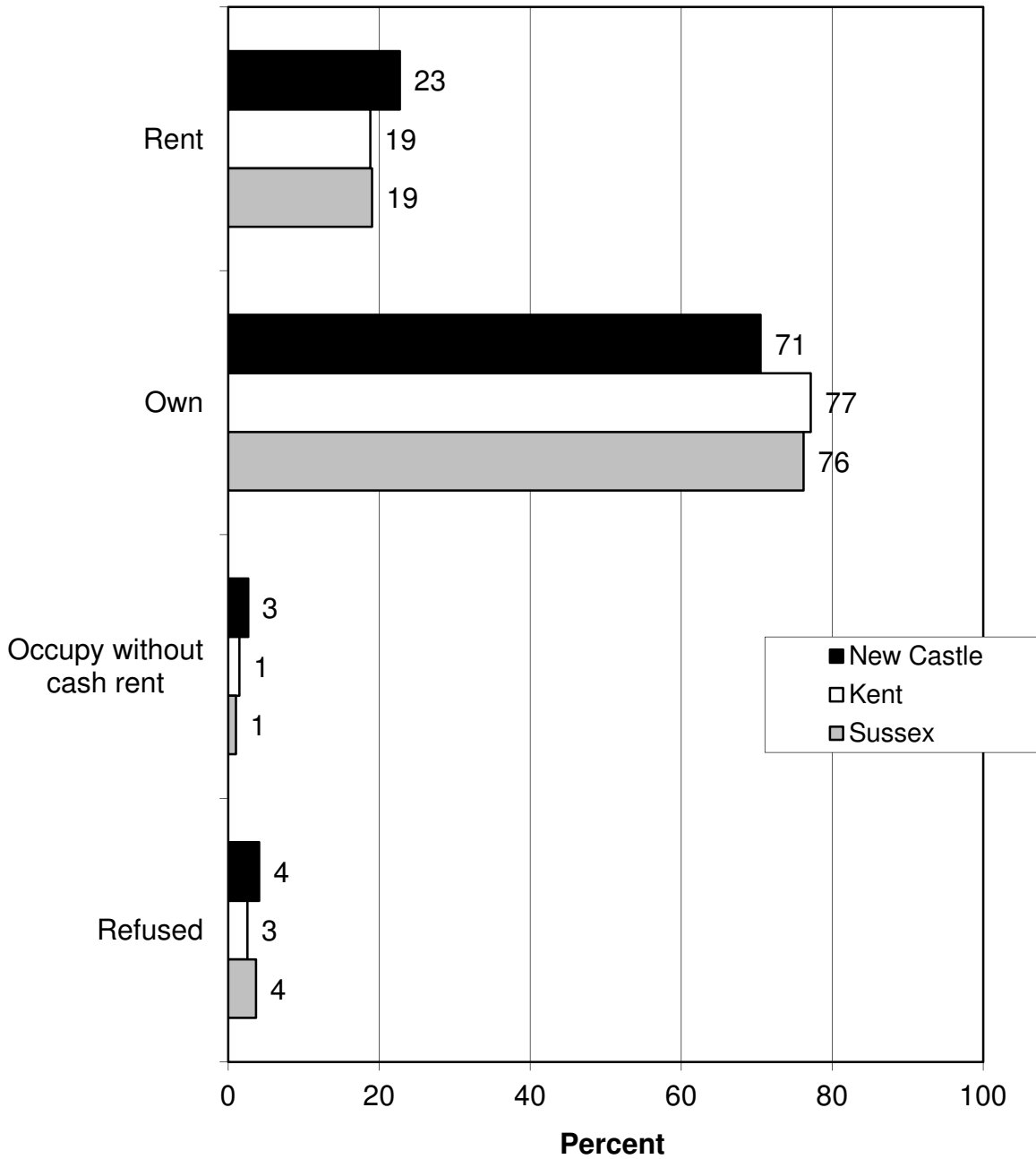
**Q151. Do you consider your place of residence to be in a coastal or non-coastal area?**



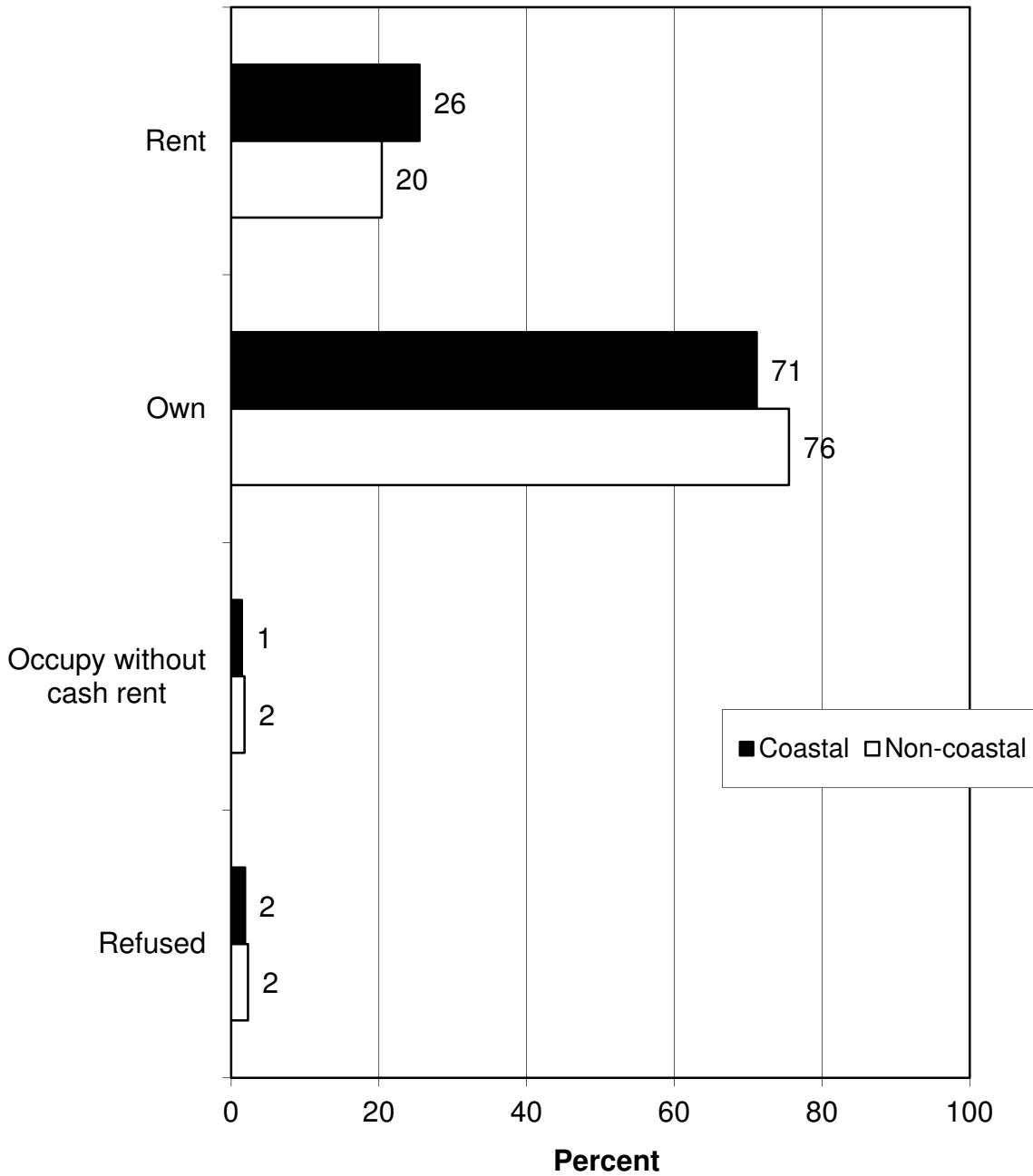
**Q152. Do you rent or own your current place of residence?**



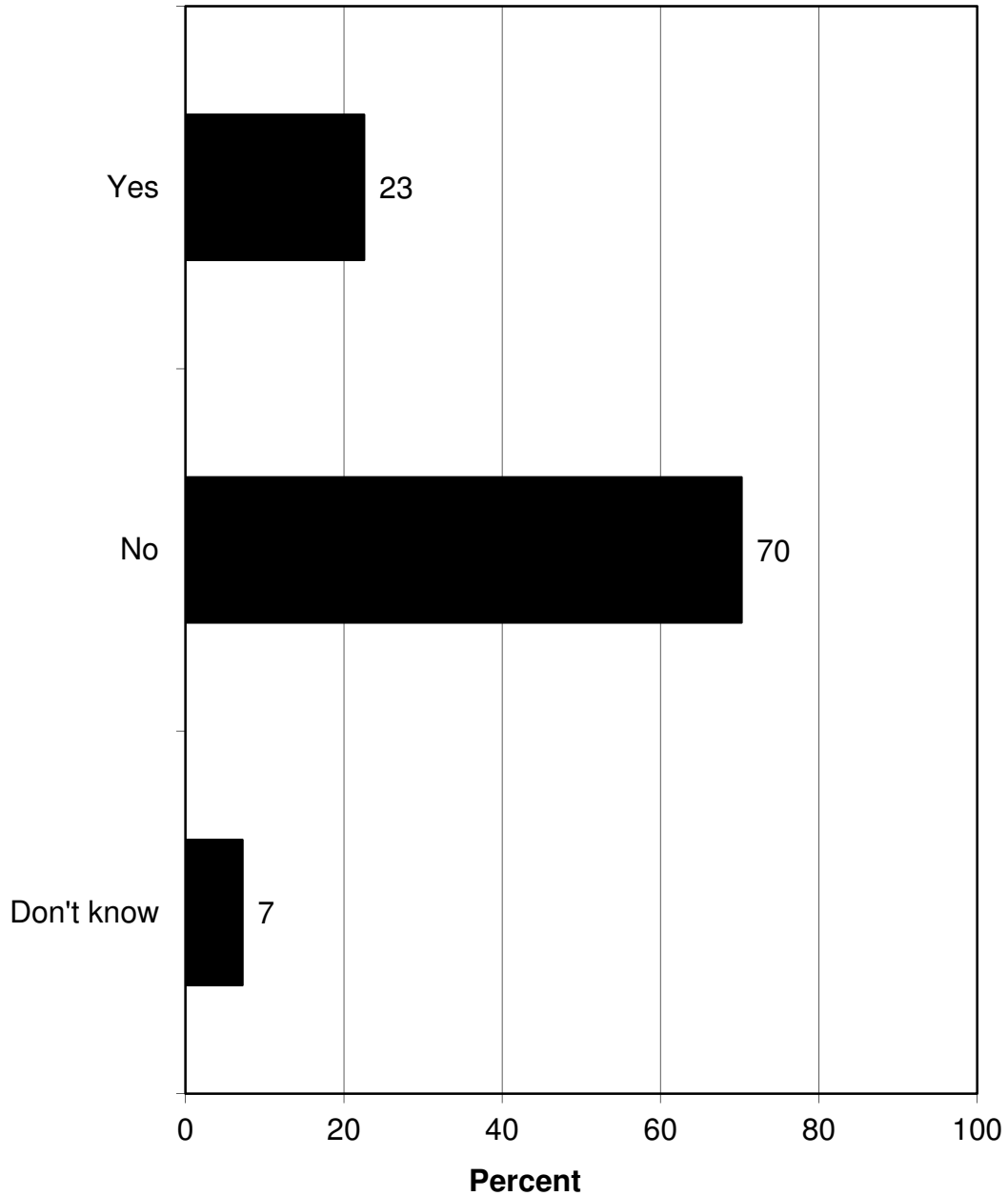
### Q152. Do you rent or own your current place of residence?



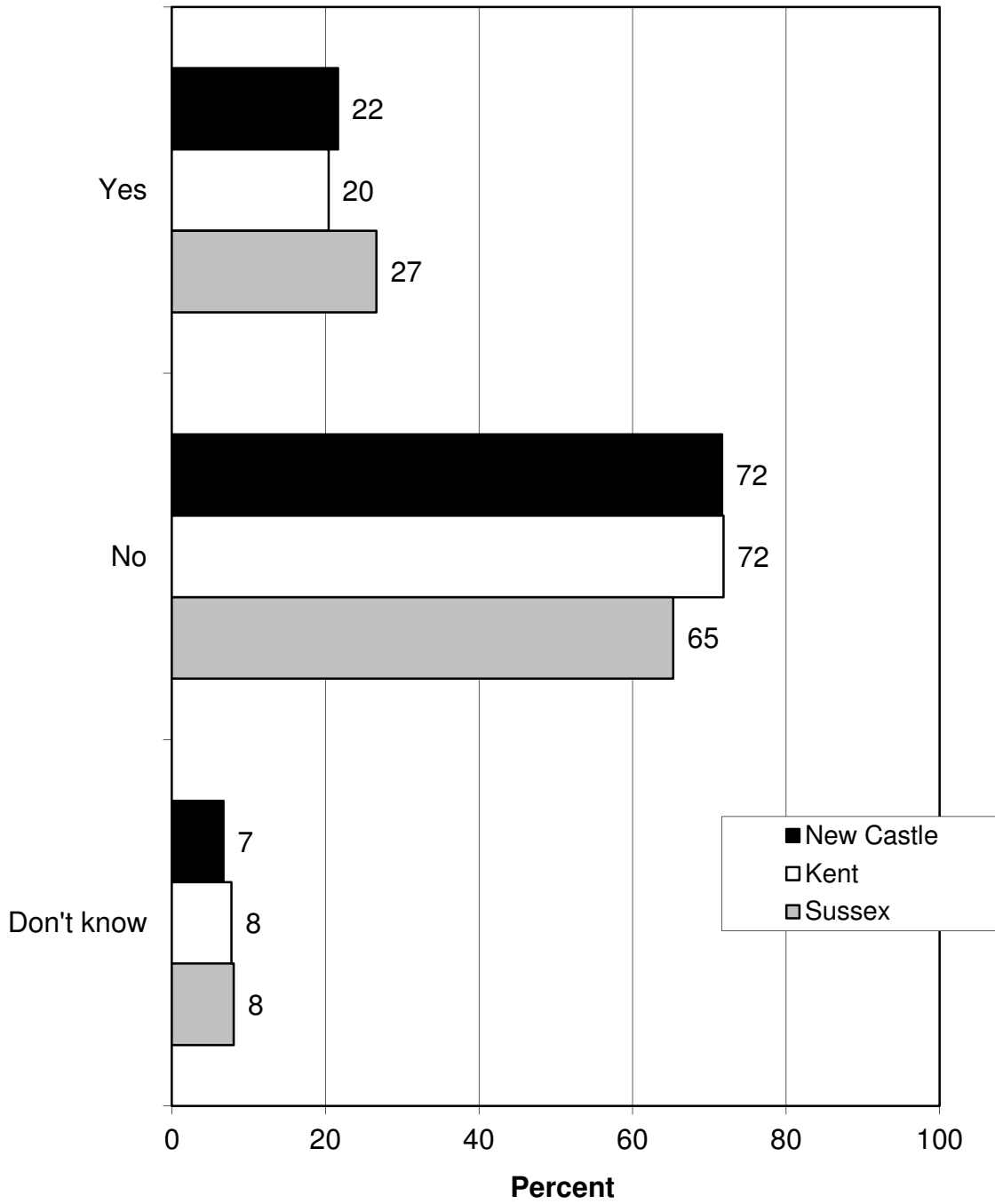
### Q152. Do you rent or own your current place of residence?



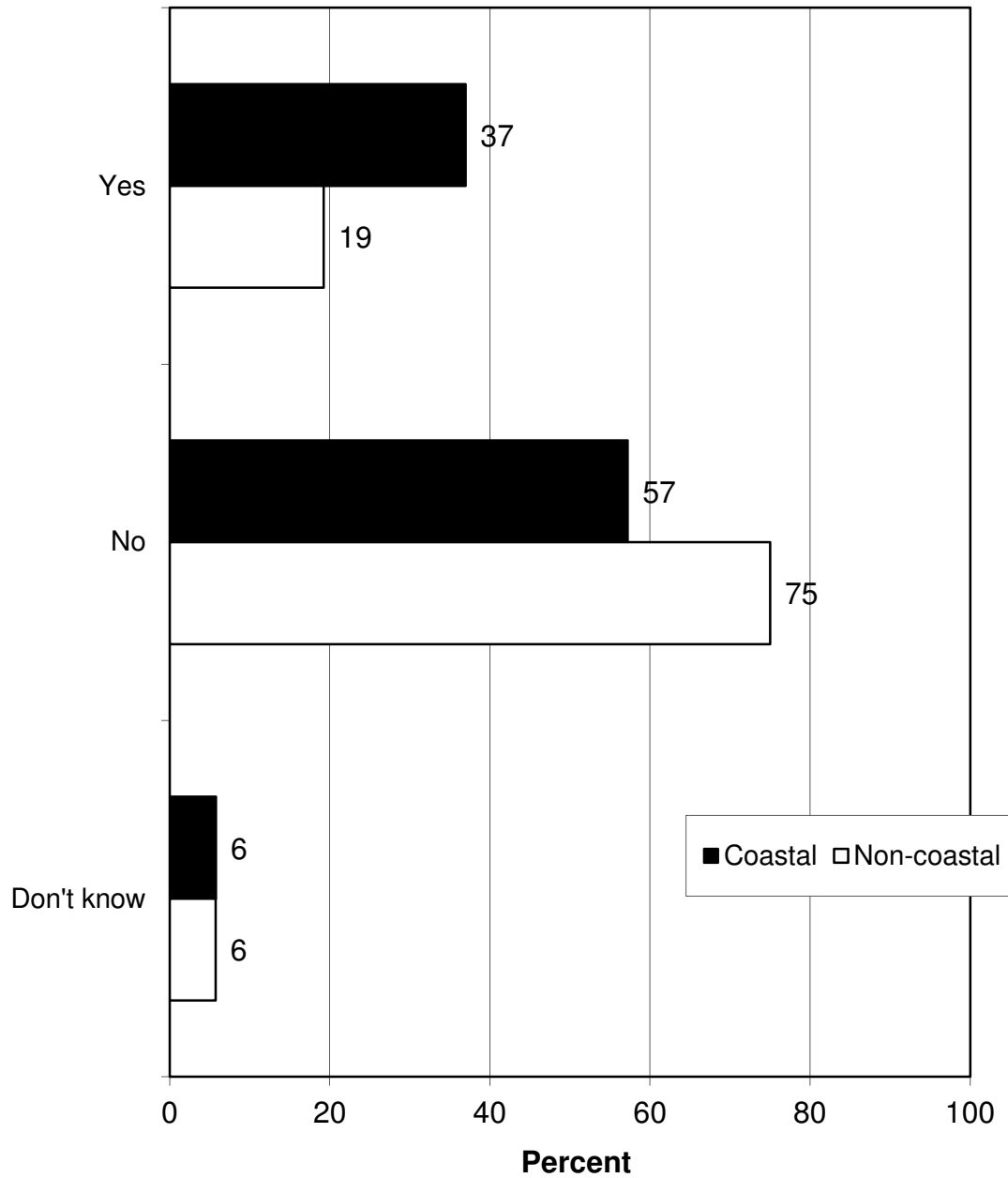
**Q153. Do you have flood insurance for your current place of residence?**



### Q153. Do you have flood insurance for your current place of residence?

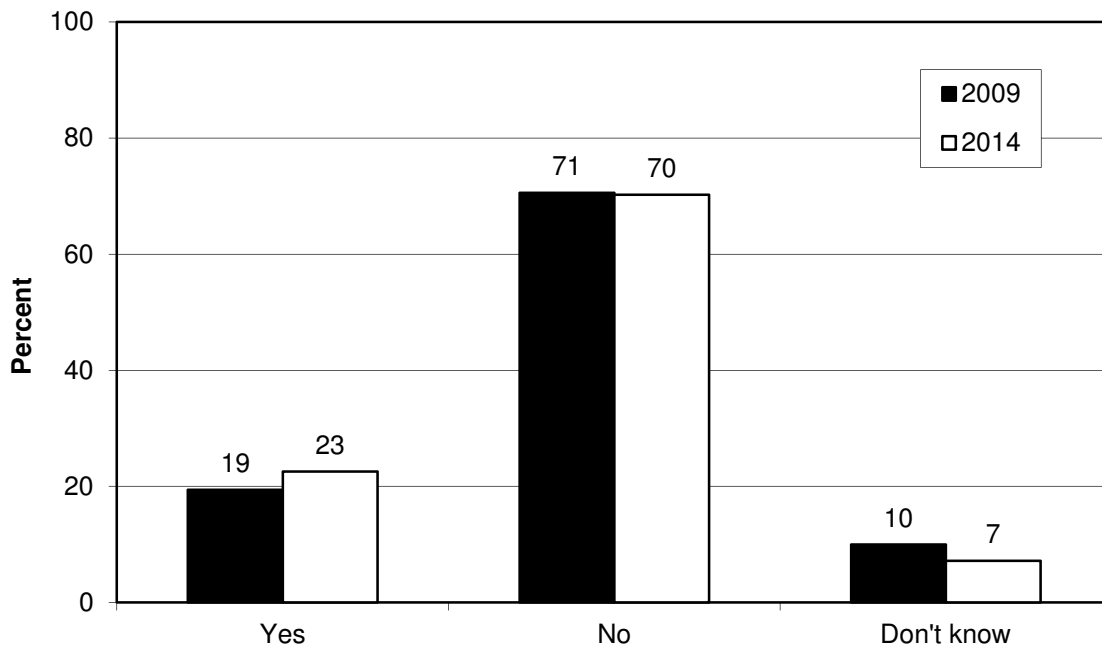


**Q153. Do you have flood insurance for your current place of residence?**





**Q153. Do you have flood insurance for your current place of residence?**



## **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 attitude and opinion 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 24 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.

Visit the Responsive Management website at:

**[www.responsivemanagement.com](http://www.responsivemanagement.com)**





