

# No Decline in Massachusetts Residents' Belief in and Concern About Global Warming

By Ana Villar, Jon Krosnick and Steve Koczela

## Belief levels hold fairly steady from 2010 to 2011

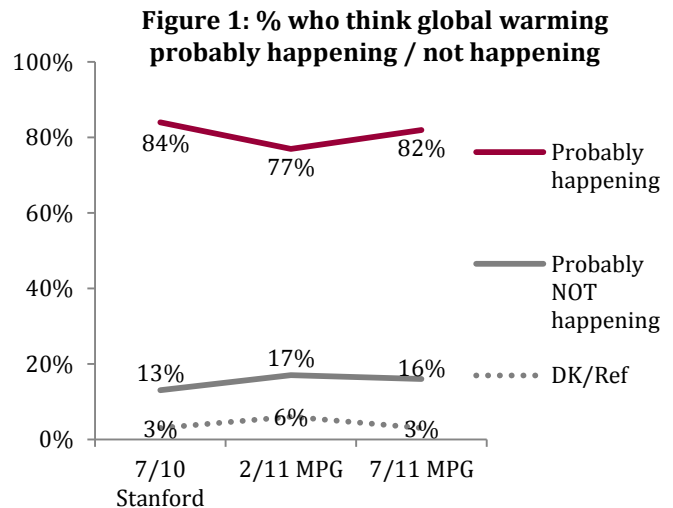
The proportion of Massachusetts residents who think that global warming has been happening remained extremely high and has not declined during the last year (Figure 1) according to a new survey of Massachusetts residents by The MassINC Polling Group (MPG). The percentage of Massachusetts residents who believe that global warming is occurring dipped slightly between July 2010 (84%) and February 2011 (77%), and then returned to 82% as of July 2011 (Table 1). This variation may be partially due to the season in which the interviews were conducted: slightly more people may perceive global warming to be happening in the middle of a hot summer than in the middle of a cold winter. The increase in belief as of July 2011 may also be attributable to the spread of knowledge that 2010 was a record-hot year for the world.

## People who believe grew more certain between 2010 and 2011

Strength of belief in global warming appears to have increased between 2010 and 2011 (Table 2). Among people who thought that global warming had been happening, the proportion of people who were extremely certain about that increased from 19% to 32%. Among people who thought global warming had not been happening, certainty did not change significantly (Table 2). Thus, whereas confidence in skeptical views did not increase over time, confidence in the beliefs endorsed by many natural scientists did increase.

## More people attach great personal importance to the issue

Personal importance of the issue increased between 2010 and 2011 (Table 2). The group of people who said the issue was extremely important to them personally increased from 15% in 2010 to 22% in 2011. This suggests that more people in Massachusetts are likely to vote based on the issue in upcoming elections than did so in the 2010 elections. While a policy issue like climate change is unlikely to influence the votes of all citizens, people who pay close attention to the issue and consider it to be highly important to them personally are likely to base their votes on this issue (Anand & Krosnick, 2003; Krosnick, 1990).



This report compares the results of three surveys done of probability samples of Massachusetts adults.

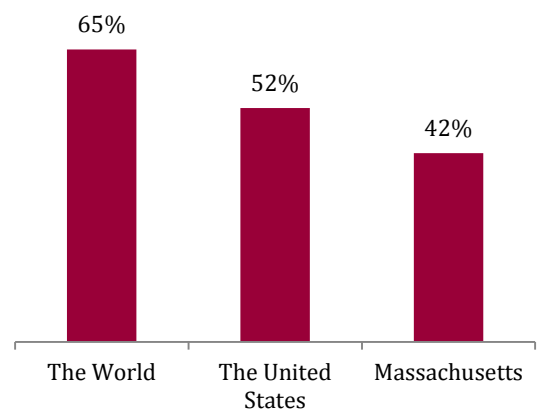
- July, 2010, survey by Stanford University, funded by The National Science Foundation.
- February, 2011, survey by MassINC, funded by The Barr Foundation.
- July, 2011, survey by MassINC, funded by The MassINC Polling Group.

See Appendix B for methodological details and notes.

**More see global warming as a serious threat to the world and the U.S. than to Massachusetts**

While two thirds of Massachusetts residents said that if nothing is done to reduce it, global warming will be a “very serious” problem for the world, less than half said global warming will be a “very serious” problem for the state if no action is taken (Figure 2). Just 42% said global warming will be a “very serious” problem for Massachusetts in the July 2011 poll. More said it will be a very serious problem for The United States (52%) and the World (65%). This same ordering and similar absolute percentages were apparent in a Massachusetts survey done a year before by Stanford University: 51% of respondents said global warming will be a very serious problem for the U.S. and 63% said so about the world.

**Figure 2 : % who called Global Warming “very serious” for: \_\_\_\_\_**



Beliefs about the national and global seriousness of global warming largely held steady between 2010 and 2011 (Table 3). The proportion of people who said that global warming will not be a serious problem for the world decreased significantly, from 8% in 2010 to 2% in 2011.

---

Ana Villar is Research Affiliate at Stanford University.

Jon Krosnick is University Fellow at Resources for the Future.

Steve Koczela is President of The MassINC Polling Group.

## Appendix A – Tables and Charts

Table 1. Trends Over Time in the Belief that Global Warming Has Been Happening

Response	Proportion of the Sample			Change Over Time*		
	July 2010 Stanford	February 2011 MassINC	July 2011 MassINC	July 2010 to February 2011	February 2011 to July 2011	July 2010 to July 2011
Global warming probably has been happening	84%	77%	82%	-6	4	-2
N	600	1,311	500			

\*Change over time is sometimes slightly different than suggested by simply subtracting proportions due to rounding

Table 2: Trends in Strength of Opinions

Response	July 2010 Stanford	July 2011 MassINC	Difference: July 2011 – July 2010*
<u>Certainty that global warming has been happening</u>			
Extremely sure	19%	32%	13
Very sure	31%	30%	-1
Somewhat sure	40%	31%	-9
Not sure at all	10%	7%	-3
DK/Refusal	0%	1%	1
Total	100% (N = 502)	100% (N = 408)	$F(4, 3,359) = 4.19,$ $p = 0.003$
<u>Certainty that global warming has not been happening</u>			
Extremely sure	19%	13%	-6
Very sure	16%	21%	4
Somewhat sure	48%	44%	-4
Not sure at all	17%	20%	4
DK/Refusal	0%	2%	1
Total	100% (N = 79)	100% (N = 79)	$F(3, 517) = 0.42,$ $p = 0.75$
<u>Personal importance of global warming</u>			
Extremely important	15%	22%	7
Very important	29%	30%	1
Somewhat important	33%	26%	-7
Not too important	14%	12%	-2
Not at all important	9%	9%	1
DK/Refusal	0%	1%	1
Total	100% (N = 600)	100% (N = 500)	$F(4, 4,767) = 2.55,$ $p = 0.03$
<u>Personal importance of global warming</u>			
Extremely important	15%	22%	7
All other answers	85%	78%	-7
Total	100% (N = 600)	100% (N = 500)	$F(1, 1,099) = 5.72,$ $p = 0.02$

\*Change over time is sometimes slightly different than suggested by simply subtracting proportions due to rounding

Table 3. Trends in Beliefs about National and World Seriousness

Response	July 2010 Stanford	July 2011 MassINC	Difference: July 2011 - July 2010**
<u>National Seriousness of GW</u>			
Very serious	51%	52%	1
Somewhat serious	31%	25%	-6
Not so serious	7%	11%	4
Not serious at all	8%	9%	1
DK/Refusal	3%	3%	0
Total	100% (N = 600)	100% (N = 257)	$F(4, 3,169) = 0.71,$ $p = 0.57$
<u>World Seriousness of GW</u>			
Very serious	63%	65%	2
Somewhat serious	22%	22%	0
Not so serious	5%	9%	3
Not serious at all	8%	2%	-5
DK/Refusal	2%	2%	0
Total	100% (N = 600)	100% (N = 243)	$F(4, 3,267) = 2.41,$ $p = 0.049$

\*These questions were asked of a random half of respondents in the July 2011 MassINC survey.

\*\* Change over time is sometimes slightly different than suggested by simply subtracting proportions due to rounding

## Appendix B – Data Collection

July 2010 Stanford Survey. The first survey was commissioned by Stanford University and was conducted by Abt SRBI, who spoke with 600 adults, including 400 respondents interviewed on a landline telephone and 200 interviewed on a cell phone. Interviews were conducted between July 9 and 15, 2010, and were administered in English and Spanish.

The AAPOR Response Rate 3 was 14% for the landline sample and 9% for the cell phone sample. Weights were computed following procedures outlined by DeBell and Krosnick (2009). The weights were designed to combine interviews done on landlines and cell phones, taking into account the national rates of landline and cell phone usage from the National Health Interview Survey. The sample was weighted to account for unequal probability of selection within household among those respondents called on a landline telephone, and post-stratification was done to match state demographic benchmarks from the 2006-2008 American Community Survey (sex, age, education, race, and Hispanic ethnicity), using the R “anesrake” library (Pasek, 2010). During the raking procedure, weights larger than 5 were changed to 5 after each iteration.

February 2011 MassINC Survey. The February 2011 survey involved RDD telephone interviews with a probability sample of 1,311 adults living in Massachusetts. Interviews were conducted in English and Spanish by Princeton Survey Research Associates International (PSRAI) on landlines (N = 1,005) and cell phones (N = 306) between February 8 and 14, 2011.

The AAPOR Response Rate 3 was 11% for the landline sample and was 8% for the cell phone sample. Weights were built via a three-stage procedure. The first stage adjusted for oversampling of Suffolk County respondents. The second stage corrected for different probabilities of selection associated with each respondent’s telephone usage patterns, as well as for the overlapping landline and cell sample frames and the sizes of each frame and each sample. The final stage post-stratified sample demographics (sex, age, education, race, Hispanic origin, region, and telephone ownership) to population distributions. Distributions of all variables except telephone ownership were obtained using Massachusetts data from the U.S. Census Bureau’s 2010 Annual Social and Economic Supplement (ASEC) to the Current Population Survey. The distribution of telephone ownership was derived from recent dual-frame telephone surveys conducted by PSRAI and from estimates generated with surveys conducted by the National Center for Health Statistics.

July 2011 MassINC Survey. The third survey was commissioned by The MassINC Polling Group. The July 2011 survey involved RDD telephone interviews and was conducted by Eastern Research Services, who spoke with 500 adults, including 400 respondents interviewed on a landline telephone and 100 interviewed on a cell phone. Interviews were conducted between July 27-30, 2011, and were administered in English and Spanish.

The AAPOR Response Rate 3 was 8% for the landline sample and 7% for the cell phone sample. Weights were computed using a two stage weighting procedure. The first stage of weighting corrected for different probabilities of selection associated with each respondent’s telephone usage patterns, as well as for the overlapping landline and cell sample frames and the sizes of each frame and each sample. The distribution of telephone ownership was derived from recent dual-frame telephone surveys conducted by PSRAI and from estimates generated with surveys conducted by the National Center for Health Statistics. The second stage of weighting balanced sample demographics to match known population parameters from the

American Community Survey (sex, age, education, race, region) as well as party registration statistics provided by the office of the Massachusetts Secretary of State.

## Appendix C – Question Wording

Construct	July 2010 Stanford Survey	February 2011 MassINC Survey	July 2011 MassINC Survey
Existence of global warming	<p>You may have heard about the idea that the world's temperature may have been going up slowly over the past 100 years. What is your personal opinion on this? Do you think this has probably been happening, or do you think it probably has not been happening?</p> <p>What is your personal opinion? Do you think that the world's temperature probably has been going up slowly over the past 100 years, or do you think this probably has not been happening?</p>	<p>You may have heard about the idea that the world's temperature has been going up slowly over the past 100 years. Do you think this has probably been happening or has probably NOT been happening?</p>	<p>You may have heard about the idea that the world's temperature has been going up slowly over the past 100 years. Do you think this has probably been happening or has probably NOT been happening?</p>
Certainty that global warming has been happening	<p>How sure are you that the world's temperature has been going up? Extremely sure, very sure, somewhat sure, or not sure at all?</p>	Not asked	<p>How sure are you that the world's temperature has been going up? Extremely sure, very sure, somewhat sure, or not sure at all?</p>
Certainty that global warming has not been happening	<p>How sure are you that the world's temperature has not been going up? Extremely sure, very sure, somewhat sure, or not sure at all?</p>		<p>How sure are you that the world's temperature has not been going up? Extremely sure, very sure, somewhat sure, or not sure at all?</p>
Personal importance	<p>How important is the issue of global warming to you personally? Extremely important, very important, somewhat important, not too important, or not at all important?</p>	Not asked	<p>How important is the issue of global warming to you personally? Extremely important, very important, somewhat important, not too important, or not at all important?</p>



Construct	July 2010 Stanford Survey	February 2011 MassINC Survey	July 2011 MassINC Survey
National seriousness**	(Assuming it's happening,) If nothing is done to reduce global warming in the future, how serious of a problem do you think it (will/would) be for the United States? Very serious, somewhat serious, not so serious, or not serious at all?	Not asked	If nothing is done to reduce global warming in the future, how serious of a problem do you think it will be for the United States? Very serious, somewhat serious, not too serious or not at all serious? (response option order was rotated across respondents)
World seriousness**	(Assuming it's happening,) If nothing is done to reduce global warming in the future, how serious of a problem do you think it (will/would) be for the world? Very serious, somewhat serious, not so serious, or not serious at all?	Not asked	If nothing is done to reduce global warming in the future, how serious of a problem do you think it will be for the world? Very serious, somewhat serious, not too serious or not at all serious? (response option order was rotated across respondents)

\*In the July 2010 survey, respondents were randomly assigned to be asked one of these two versions of the existence question. This question wording manipulation did not have a statistically significant impact on the distribution of responses, so the two sets of responses are combined here.

\*\*If a respondent said “probably has not been happening” or “don’t know” or refused to answer when asked whether they thought global warming had been happening, “Assuming it’s happening” was included at the beginning of this question in the July 2010 survey, and “would be” was said instead of “will be”.