



U.S. media reporting of sea level rise & climate change

Coverage in national and local newspapers, 2001-2015

Akerlof, K. (2016). *U.S. media coverage of sea level rise and climate change: Coverage in national and local newspapers, 2001-2015*. Fairfax, VA: Center for Climate Change Communication, George Mason University.

The cover image of Miami is courtesy of NOAA National Ocean Service Image Gallery.

Summary

In recent years, public opinion surveys have demonstrated that people in some vulnerable U.S. coastal states are less certain that sea levels are rising than that climate change is occurring.¹ This finding surprised us. People learn about risks in part through physical experience. As high tide levels shift ever upwards, they leave their mark upon shorelines, property, and infrastructure. Moreover, sea level rise has long been tied to climate change discourses.² But awareness of threats can also be attenuated or amplified as issues are communicated across society. Thus, we turned our attention to the news media to see how much reporting on sea level rise has occurred in comparison to climate change from 2001–2015 in four of the largest and most prestigious U.S. newspapers—*The Washington Post*, *The New York Times*, *Los Angeles Times*, and *The Wall Street Journal*—and four local newspapers in areas of high sea level rise risk: *The Miami Herald*, Norfolk/Virginia Beach’s *The Virginian-Pilot*, Jacksonville’s *The Florida Times-Union*, and *The Tampa Tribune*.^{3,4}

We find that media coverage of sea level rise compared to climate change is low, even in some of the most affected cities in the U.S., and co-occurs in the same discourses. Yet, differences in the proportion of sea level rise to climate change reporting between local and prestige national newspapers reveal emerging sources of community-focused information. Since 2012, the ratio of sea level rise to climate change coverage is generally higher in local publications than in the national prestige newspapers.⁵

Key findings

- Sea level rise coverage is lower than for climate change, but has been increasing slowly in U.S. prestige newspapers since 2011.
- In the last two years, attention to sea level rise in *The Miami Herald* has surpassed that of *The New York Times*.
- Even with increased sea level rise coverage, relative frequencies of sea level rise to climate change reporting remain low in U.S. prestige papers, largely below 9%.
- Local newspapers have increased their attention to sea level rise within climate coverage since 2012 at higher percentages generally than U.S. prestige newspapers.

¹ Akerlof, K., & Maibach, E. W. (2014). *Adapting to climate change & sea level rise: A Maryland statewide survey, fall 2014*. Fairfax, VA: Center for Climate Change Communication, George Mason University.; Responsive Management. (2014). *Delaware residents’ opinions on climate change and sea level rise* [State of Delaware and the Delaware Sea Grant College Program]. Harrisonburg, VA. See questions and frequencies in Appendix A.

² Abarbanel, A., & McClusky, T. (1950). Is the world getting warmer. *Saturday Evening Post*, 22–23.

³ Strauss, B. H., Kulp, S., & Levermann, A. (2015). *Carbon choices determine US cities committed to futures below sea level*. *Proceedings of the National Academy of Sciences*, 112(44), 13508–13513.

⁴ Abbreviations used in this report are as follows: *The Washington Post* (WashPost), *The New York Times* (NYT), *Los Angeles Times* (LATimes), *The Wall Street Journal* (WSJ), *The Miami Herald* (Herald), Norfolk/Virginia Beach’s *The Virginian-Pilot* (VAPilot), Jacksonville’s *The Florida Times-Union* (FTU), and *The Tampa Tribune* (Tribune).

⁵ For an earlier analysis of sea level rise reporting, see Rick, U. K., Boykoff, M. T., & Pielke, Jr., R. A. (2011). Effective media reporting of sea level rise projections: 1989–2009. *Environmental Research Letters*, 6(1), 1–5.

Methodology

We searched four of the largest U.S. prestige newspapers⁶ and four local newspapers in areas of high coastal vulnerability⁷ to quantify the amount of coverage of sea level rise between 2001 and 2015, and look for trends over time. We searched for articles with the following terms: “sea level rise,” “sea-level rise,” or “rising sea levels.”⁸ We conducted a search on the co-occurrence of “global warming” or “climate change” with the sea level rise terms, and calculated those articles referring to both climate change and sea level rise as a percent of articles that referred solely to climate change.

Importantly, we note that this analysis does not address likely regional differences in the terms used to discuss the effects of sea level rise, such as “recurrent” or “nuisance” flooding.⁹ More thorough quantitative and qualitative media analyses should take these into account. Significantly, the national prestige papers are also located in cities at high risk from sea level rise: New York City, Washington, D.C, and Los Angeles.

⁶ USA Today was not included in the search, but has the highest national circulation. See circulation estimates in Appendix B for all eight newspapers.

⁷ Strauss, B. H., Kulp, S., & Levermann, A. (2015).

⁸ See Appendix B for databases.

⁹ Sweet, W., Park, J., Marra, J., Zervas, C., & Gill, S. (2014). *Sea level rise and nuisance flood frequency changes around the United States* [NOAA Technical Report NOS CO-OPS 073]. Silver Spring, MD: National Oceanic and Atmospheric Administration, National Ocean Service, Center for Operational Oceanographic Products and services.

1.0 Sea level rise coverage is lower than for climate change, but is on the rise

In the past 15 years media attention to sea level rise (SLR) has been substantially lower than for climate change in all eight local and national prestige newspapers included in this analysis (Figure 1). Since 2011, there has been a slow rise in the frequency of coverage in U.S. prestige publications. The total number of articles per year in the NYT, WSJ, WashPost, and LATimes, combined, peaked twice—at 148 in 2007 and 240 in 2014. Meanwhile, climate change appeared in 4,959 texts in 2007 and was climbing again in 2014 with 3,601.

Smaller, local newspapers in areas at high risk from coastal waters demonstrated considerably lower rates of climate coverage than their higher circulation brethren, peaking at 1,614 and 1,616 texts that mention the phenomenon in 2007 and 2008. However, they maintained approximately the same levels of sea level rise attention as the prestige publications over the 15-year period with a low of 4 articles among all four publications in 2003 but more than 200 by 2015.

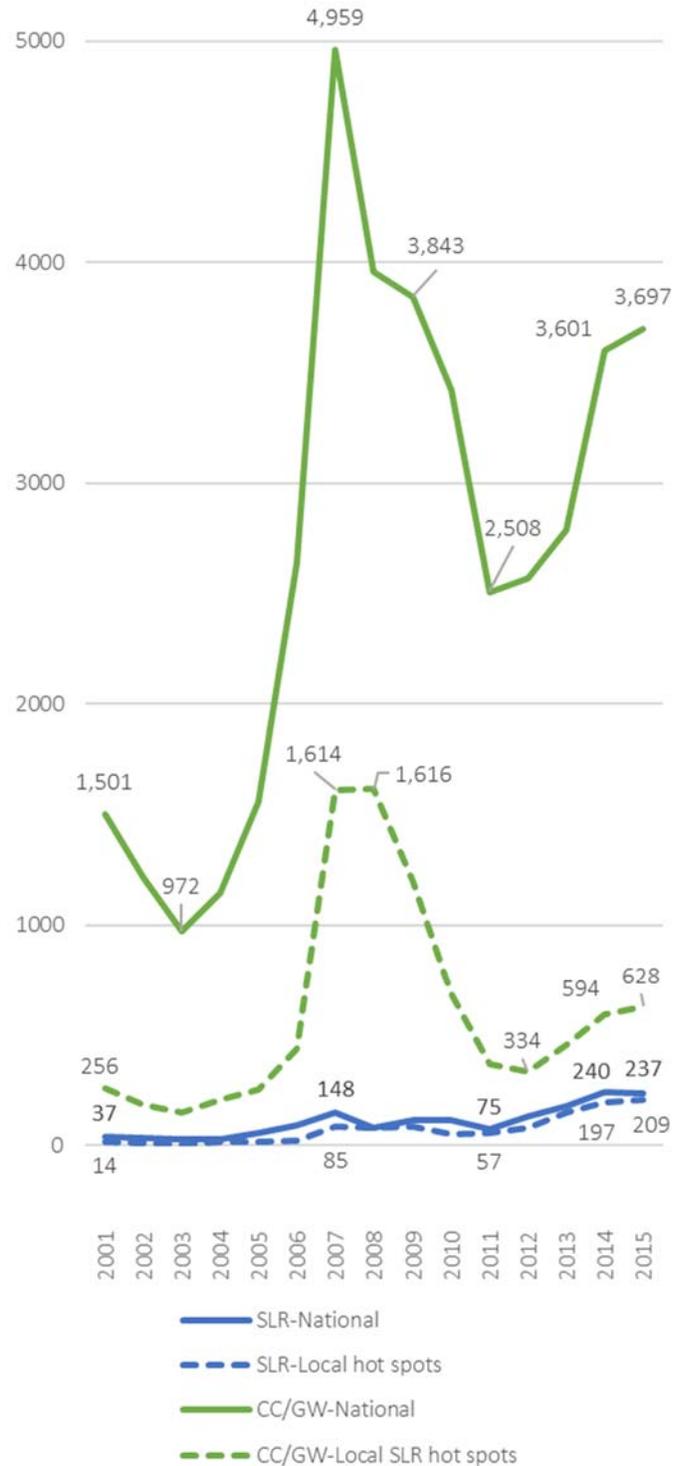


Figure 1. Comparing national and local climate change and sea level rise newspaper coverage: total yearly counts of articles mentioning climate change and sea level rise. Data for *The Virginian-Pilot* are unavailable from 2014-2015.

2.0 Sea level rise in *The Miami Herald* surpasses *The New York Times*

The NYT has maintained the highest coverage of sea level rise since 2010 of the four national prestige papers. It published 105 articles mentioning sea level rise in 2014-- the most per year of any of the four papers during the 15 years. The 2007 and recent peaks for sea level rise coverage resemble longitudinal trends in climate change reporting, albeit at much lower frequencies. In 2007, there were more than 40 articles mentioning sea level rise in the NYT and WashPost (NYT, 50; WashPost, 46). Subsequently, the frequency of attention declined slightly, only to resurge starting in 2012 (Figure 2a).

Coverage in four local newspapers in areas of high sea level rise vulnerability—Norfolk/Virginia Beach, Miami, Tampa, and Jacksonville—remained below 11 articles a year until 2007, when the VAPilot and Herald’s frequency of attention began to increase (Figure 2b). The other two Florida publications did not see big jumps in reporting until 2014 (Tribune, 65; FTU, 24). In the last two years, attention to sea level rise in the Herald has bypassed that of the NYT (2014, 108 texts vs. 105; 2015, 145 texts vs. 75).

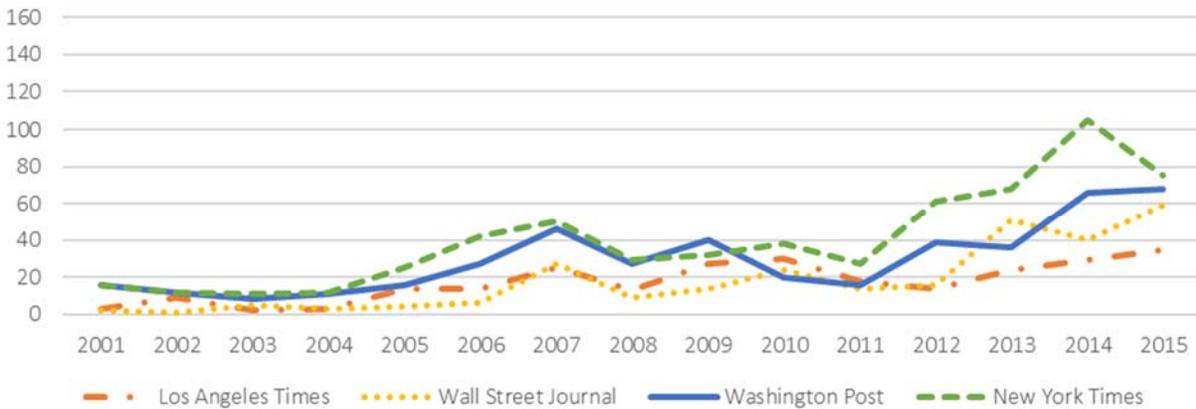


Figure 2a. Article counts for sea level rise in prestige, top-circulation U.S. newspapers.

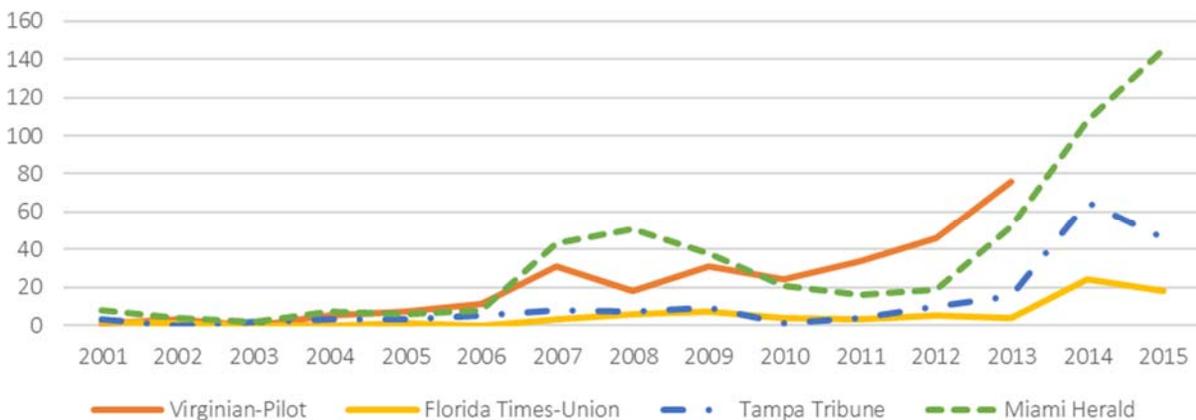


Figure 2b. Article counts for sea level rise in local newspapers in areas at high risk. Data for *The Virginian-Pilot* are unavailable from 2014-2015.

3.0 Relative coverage of sea level rise to climate change remains low in prestige papers

Until 2012, 5% or less of prestige national newspaper texts that addressed climate change also mentioned sea level rise, and this percent did not exceed 9% across all 15 years with the exception of the WashPost in 2015 (Figure 3). Of note, the 2015 increase in the ratio of sea level rise to climate change coverage to 30% by the WashPost does not reflect a surge in sea level rise attention, but instead a relatively smaller number of climate change stories in 2015. The number of texts mentioning sea level rise actually declined slightly (2014, 65 texts; 2015, 57 texts).

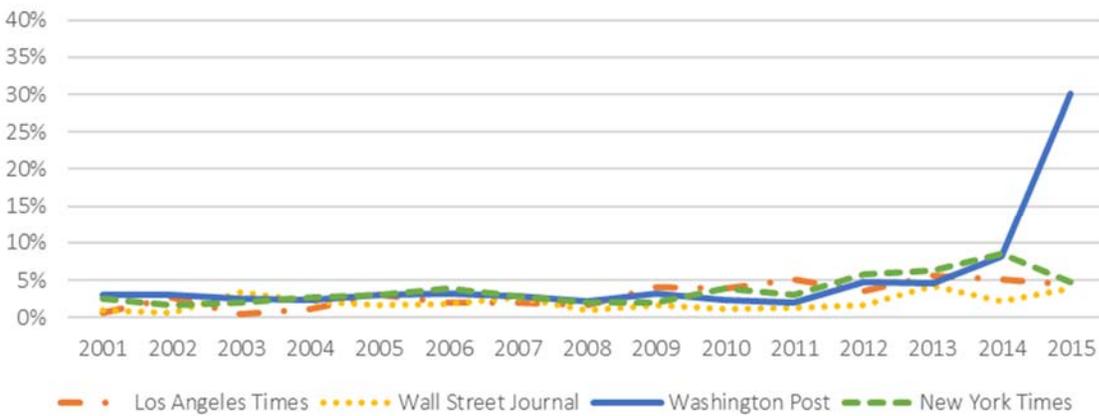


Figure 3. Percent of sea level rise coverage that co-occurs with mentions of climate change/global warming in prestige, top-circulation U.S. newspapers.

4.0 Local newspapers increase attention to sea level rise within climate coverage

In the local Virginia and Florida newspapers, rates of sea level rise mention within texts that address climate change reach higher rates than in national prestige publications, but the ratio is also more variable (Figure 4). Attention to sea level rise by the Herald has steadily increased in the last decade with more than 30% of the Herald's climate change texts mentioning rising seas in the past three years (2013, 35%; 2014, 31%; 2015, 33%). Within these local publications there appears to be an upwards trend toward higher percentages of sea level rise discussion within the same discourses as climate change. Since 2012, all have produced relative rates of sea level rise to climate change coverage of greater than 10%, though not consistently. Both the FTU and Tribune saw dips in 2013.

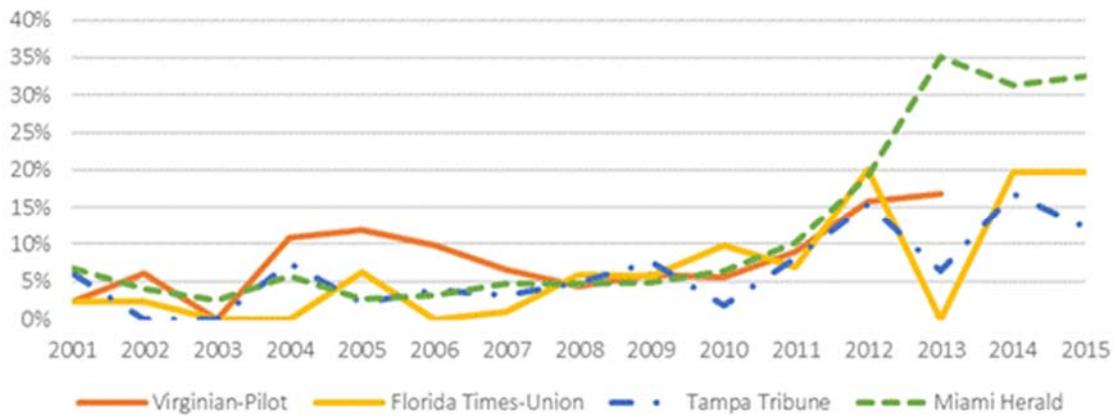


Figure 4. Percent of sea level rise coverage that co-occurs with mentions of climate change/global warming in local newspapers in areas at high risk. Data for *The Virginian-Pilot* are unavailable from 2014-2015.

Appendix A

Table 1. [Delaware*] How convinced are you that [sea levels are rising/climate change is happening]?

	8/2014 sea level rise	8/2014 climate change
Completely convinced	39%	46%
Mostly convinced	31%	32%
Not so convinced	17%	13%
Not at all convinced	9%	7%
Don't know	5%	1%
n	1508	1508

*Responsive Management. (2014). *Delaware residents' opinions on climate change and sea level rise* [State of Delaware and the Delaware Sea Grant College Program]. Harrisonburg, VA.

Table 2. [Maryland**] (a) Sea-level rise is an issue that some Maryland communities have been discussing recently. Sea-level rise refers to increases in the average height of water relative to the land. Do you think that sea-level rise is currently happening along Maryland's coastlines? If you answered either yes or no, how sure are you? (b) Do you think that climate change is happening? If you answered either yes or no, how sure are you?

	3/17-6/10/2014 sea level rise	3/17-6/10/2014 climate change
Extremely sure is not happening	0%	1%
Very sure is not happening	2%	3%
Somewhat sure is not happening	4%	5%
Not at all sure is not happening	2%	1%
Don't know	53%	13%
Not at all sure is happening	3%	3%
Somewhat sure is happening	18%	29%
Very sure is happening	14%	26%
Extremely sure is happening	4%	18%
n	2012	1995

** Akerlof, K., & Maibach, E. W. (2014). *Adapting to climate change & sea level rise: A Maryland statewide survey, fall 2014*. Fairfax, VA: Center for Climate Change Communication, George Mason University.

Appendix B

Newspaper	Database	Circulation	
The Wall Street Journal	ProQuest	2,294,093	**
The New York Times	LexisNexis	2,237,707	*
Los Angeles Times	ProQuest	523,539	*
The Washington Post	LexisNexis	382,285	*
The Miami Herald (Miami, FL)	Newspaper online archives	163,557	*
The Virginian-Pilot (Norfolk, VA)	Newspaper online archives	154,618	*
The Tampa Tribune (Tampa, FL)	LexisNexis	152,637	*
The Florida Times-Union (Jacksonville, FL)	LexisNexis	106,014	***

**Mon-Fri circulation statistics, downloaded 7/2016, Alliance for Audited Media*

***Alliance for Audited Media, 2014*

****Newspaper's own marketing online report, 2013*

