# NYU Furman Center <br> Population in the U.S. Floodplains 



# Population in the U.S. Floodplains 

As sea levels rise due to climate change, planners and policymakers in flood-prone areas must plan ahead to protect vulnerable residents from the effects of flooding. To plan effectively, they need vital information about the people and housing located in the floodplains. To meet this need, the NYU Furman Center, with funding from the Kresge Foundation, designed FloodzoneData.us, a tool that describes the housing stock and population in floodplains at the national, state, county, and census tract level. These data can help policymakers assess needs and formulate plans and policies for floodplain management.

The NYU Furman Center's accompanying data brief series summarizes and highlights the data available at FloodzoneData.us. this second brief discusses the population in the nation's floodplains. The first brief, which was released in the spring of 2017, described the housing in the nation's floodplains; and the third brief will summarize the housing and population in areas affected by recent hurricanes.

## Introduction

In the first brief in this series, Housing in the U.S. Floodplains, we provided background information about how we define floodplains and how users can access data about the housing and population in the floodplain ${ }^{1}$ using our data tool, FloodzoneData.us. We also described the housing that lies in the nation's floodplains, finding that, for example, most of the housing units in the nation's floodplain are single-family homes and 22 percent of all housing units in the 100-year and combined floodplains were built prior to 1960. In this second brief, we focus on the more than 30 million people living in the combined floodplain (100-year or 500year floodplain) in 2011-2015. ${ }^{2}$ We also take a closer look at how the population living in the floodplain varies by state. This information shows who is likely

[^0]to bear the eventual cost of flooding, which can help policymakers plan the most effective and geographyspecific disaster prevention and readiness programs.

## Population in the Floodplain

An average of 15 million people nationwide lived in the 100-year floodplain in 2011-2015, representing nearly five percent of the nation's population. More than 30 million people-nearly 10 percent of the nation's popu-lation-lived in the combined 100 - and 500-year floodplain during this time period (Table 1). Two-thirds of the population living in the nation's combined floodplain lived in either California, Florida, Arizona, Texas, or New York in 2011-2015.

In the vast majority of states, less than 10 percent of the state's population lived in the combined floodplain in 2011-2015. In several states, however, large shares of the population lived in the floodplain. Contrary to popular conception that floodplains are mostly a problem for coastal areas, Arizona had the largest share of the population living in the combined floodplain ( $64 \%$ ), followed by Florida ( $26 \%$ ), North Dakota ( $20 \%$ ), and Louisiana ( $17 \%$ ). See Appendix A for a state breakout of the population in the 100-year and combined floodplain.

## Children and Seniors

Children and seniors may face a particular set of challenges when flooding occurs, so it is important to look at the age of those who live in the floodplain. Figure 1 shows the share of households with children and share of households with seniors, respectively, in the nation and in the 100-year and combined floodplains. In the 100-year floodplain, 30 percent of households included children and 29 percent of households included seniors. ${ }^{3}$ Of the households in the combined floodplain, 33 percent include children and 28 percent include seniors.

For the vast majority of states, the share of households with children and/or seniors in the floodplain approximated the shares for the state as a whole. There were, however, a few exceptions. In California, households in the combined floodplain were more likely to have children than households statewide ( $41 \%$ versus $36 \%$ respectively). In Delaware, 30 percent of households had at least one senior in 2011-2015, compared to 39 percent in the combined floodplain. See Appendix B for state breakout of households with children and seniors in the 100-year and combined floodplains.

## Race and Ethnicity

As Figure 2 shows, the racial and ethnic composition of the total U.S. population and the population living in the 100-year floodplain were approximately the same. However, compared to the U.S. population, a higher share of the population living in the combined floodplain identified as Hispanic ( $25 \%$ in floodplain vs $17 \%$ nationally), and a lower share of the population in the combined floodplain was white ( $55 \%$ in floodplain vs $62 \%$ nationally). with both may be larger than the share with only children or the share with only seniors.

Table 1: Population Living in the Floodplain, 2011-2015

|  | Total | Share of U.S. <br> Population |
| :--- | ---: | ---: |
| 100-year floodplain | $15,000,304$ | $5 \%$ |
| Combined floodplain | $30,239,796$ | $10 \%$ |
| U.S. | $316,515,021$ | $100 \%$ |

Sources: American Community Survey, U.S. Federal Emergency Management Agency, NYU Furman Center

Figure 1: Share of Households with Children and Seniors, 2011-2015

- U.S. $\quad 100$-year Floodplain ■ Combined Floodplain


Sources: American Community Survey, U.S. Federal Emergency Management Agency, NYU Furman Center

Figure 2: Share of the Population by Race and Ethnicity, 2011-2015
$\square$ U.S. $\quad$ 100-year Floodplain $\quad$ Combined Floodplain


[^1]There is some variation between the overall population and the population living in the floodplain, however, at the state level. For example, in Arkansas, 27 percent of residents in the combined floodplain were black in 2011-2015, nearly double the statewide share of 15 percent; in Maryland, 17 percent of residents in the combined floodplain were black compared to 29 percent of residents statewide. In California, 46 percent of residents in the combined floodplain were Hispanic in 2011-2015 compared to 38 percent statewide; in New Mexico, 51 percent of the population in the combined floodplain was Hispanic compared to 47 percent statewide. In Washington State, eight percent of residents statewide were Asian compared to three percent of residents in the combined floodplain. See Appendix C for state breakout of race and ethnicity in the 100-year and combined floodplains.

## Poverty in the Floodplain

The financial resources of floodplain residents have important public policy implications, both for the ability of a community to make resilience improvements and for its ability to cope with the costs of disasters.

## Population below the Poverty Line

About 15 percent of the nation's population lived in poverty in 2011-2015. The poverty rate in the 100-year floodplain was the same- 15 percent-and the poverty rate in the combined floodplain was slightly higher at 16 percent (see Figure 3).

The national data, however, masks some state variation. There were several states, including Alabama, Arkansas, Colorado, Idaho, and Washington D.C., where the poverty rate in the combined floodplain in 2011-2015 was at least three percentage points higher than the statewide poverty rate. There were also two statesMichigan and Rhode Island-where the poverty rate in the combined

Figure 3: Share of Population below the Poverty Line,

2011-2015


Sources: American Community Survey, U.S. Federal Emergency Management Agency, NYU Furman Center
floodplain was about 3 percentage points lower than the state poverty rate. See Appendix D for state breakout of poverty rates in the 100-year and combined floodplain.

## Neighborhood Poverty in the Floodplain

Poverty rates reported at the national and state levels can mask deeper pockets of poverty in the floodplain. In some cases, waterfront areas may be desirable and expensive, and attract higher-income residents; whereas other floodplain areas may be less desirable, and thus more affordable for households with lower incomes. In order to examine poverty in the floodplain at the neighborhood level, we use census tract data provided by FloodzoneData.us. ${ }^{4}$

We first group census tracts into several categories based on the census tract's poverty rate in 2011-2015. Low-poverty census tracts are defined as those where the share of the population in poverty was less than 10 percent; moderate-poverty tracts are defined as those where the share of the population in poverty was between 10 percent and 30 percent, and highpoverty tracts are defined as those where the share of the population in poverty was greater than 30 percent.

Next, we classify census tracts as being either in the floodplain, or outside of the floodplain. "Non-floodplain" tracts have no population in the floodplain and

[^2]"floodplain" tracts have at least some population living in the combined floodplain.

Nationwide in 2011-2015, among non-floodplain tracts, 44.3 percent of the population lived in a low-poverty tract, 43.5 percent of the population lived in a moder-ate-poverty tract, and 12.2 percent of the population lived in a high-poverty tract. Among tracts in the 100year floodplain, a larger share of the population lived in moderate-poverty tracts ( $50.4 \%$ ), but a smaller share lived in both low- and high-poverty tracts. In the combined floodplain, more of the population lived in highpoverty tracts $(13.7 \%)$ than in the other geographies.

## Conclusion

Using data from FloodzoneData.us, we find that households in the combined floodplain are somewhat more likely to have children, but no more or less likely to have seniors. The population in the nation's 100-year floodplain is more likely to be white, while the population in the combined floodplain is more likely to be Asian and Hispanic, and less likely to be white. Finally, while the nationwide poverty rate and the poverty rate in the 100-year and combined floodplain are about the same, we find that a higher share of the population lives in a moderate- or high-poverty census tract in the 100-year and combined floodplains than in nonfloodplain census tracts.

Figure 4: Share of Population Living in Low-, Moderate-, and High-Poverty Census Tracts
$\square$ Low poverty $\square$ Moderate poverty $\quad$ High poverty


Sources: American Community Survey, U.S. Federal Emergency Management Agency, NYU Furman Center
Note: Estimates based on census tracts covered by the National Flood Hazard Layer (NFHL). NFHL coverage varies by state.

While at the national level, the population in the floodplain largely mirrors the population more generally, disaggregating the data at the state level begins to reveal important variation, and localities may see more variation as they explore neighborhoods within their jurisdiction.

The 30 million people who live in the nation's floodplains bear the immediate brunt of flooding, which is happening more frequently as serious storms become more commonplace. ${ }^{5}$ In order for communities and governments to adequately prepare for this risk and address needs when flooding does occur, it is critically important to have data on the characteristics of who lives in the floodplains.

# Appendix A: Population in the 100-Year and Combined Floodplain by State, 2011-2015 

| State | Total population | Population in 100-year floodplain* | Share of total |
| :---: | :---: | :---: | :---: |
| Alabama | 4,830,620 | 249,644 | 5\% |
| Alaska | 733,375 | 18,899 | 3\% |
| Arizona | 6,641,928 | 210,636 | 3\% |
| Arkansas | 2,958,208 | 181,604 | 6\% |
| California | 38,421,464 | 1,055,397 | 3\% |
| Colorado | 5,278,906 | 105,484 | 2\% |
| Connecticut | 3,593,222 | 196,940 | 5\% |
| Delaware | 926,454 | 43,201 | 5\% |
| D.C. | 647,484 | 6,419 | 1\% |
| Florida | 19,645,772 | 3,551,305 | 18\% |
| Georgia | 10,006,693 | 538,580 | 5\% |
| Hawaii | 1,406,299 | 88,744 | 6\% |
| Idaho | 1,616,547 | 37,052 | 2\% |
| Illinois | 12,873,761 | 287,427 | 2\% |
| Indiana | 6,568,645 | 273,544 | 4\% |
| lowa | 3,093,526 | 97,400 | 3\% |
| Kansas | 2,892,987 | 103,774 | 4\% |
| Kentucky | 4,397,353 | 201,853 | 5\% |
| Louisiana | 4,625,253 | 587,248 | 13\% |
| Maine | 1,329,100 | 32,352 | 2\% |
| Maryland | 5,930,538 | 103,342 | 2\% |
| Massachusetts | 6,705,586 | 393,397 | 6\% |
| Michigan | 9,900,571 | 299,831 | 3\% |
| Minnesota | 5,419,171 | 136,763 | 3\% |
| Mississippi | 2,988,081 | 325,755 | 11\% |
| Missouri | 6,045,448 | 163,695 | 3\% |
| Montana | 1,014,699 | 32,420 | 3\% |
| Nebraska | 1,869,365 | 87,758 | 5\% |
| Nevada | 2,798,636 | 67,986 | 2\% |
| New Hampshire | 1,324,201 | 72,415 | 5\% |
| New Jersey | 8,904,413 | 451,898 | 5\% |
| New Mexico | 2,084,117 | 96,886 | 5\% |
| New York | 19,677,282 | 620,075 | 3\% |
| North Carolina | 9,843,566 | 431,190 | 4\% |
| North Dakota | 723,998 | 50,686 | 7\% |
| Ohio | 11,573,853 | 365,703 | 3\% |
| Oklahoma | 3,850,073 | 208,345 | 5\% |
| Oregon | 3,938,904 | 132,476 | 3\% |

Continued on page 7.

| State | Total population | Population in 100-year floodplain* | Share of total | Population in Combined floodplain* | Share of total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Pennsylvania | 12,781,730 | 357,386 | 3\% | 509,502 | 4\% |
| Rhode Island | 1,051,970 | 65,708 | 6\% | 96,860 | 9\% |
| South Carolina | 4,777,239 | - | 0\% | 15,691 | 0\% |
| South Dakota | 843,413 | 41,280 | 5\% | 56,876 | 7\% |
| Tennessee | 6,501,445 | 208,377 | 3\% | 274,960 | 4\% |
| Texas | 26,537,376 | 1,559,458 | 6\% | 2,538,087 | 10\% |
| Utah | 2,903,646 | 29,342 | 1\% | 93,134 | 3\% |
| Vermont | 625,723 | 25,022 | 4\% | 29,565 | 5\% |
| Virginia | 8,256,095 | 354,303 | 4\% | 508,129 | 6\% |
| Washington | 6,987,276 | 73,187 | 1\% | 98,269 | 1\% |
| West Virginia | 1,850,205 | 127,755 | 7\% | 200,816 | 11\% |
| Wisconsin | 5,742,634 | 238,508 | 4\% | 298,603 | 5\% |
| Wyoming | 576,170 | 11,854 | 2\% | 26,811 | 5\% |

*Estimates based on the 100-year and combined floodplains as defined by the National Flood Hazard Layer (NFHL) NFHL coverage varies by state.
Sources: American Community Survey, U.S. Federal Emergency Management Agency, NYU Furman Center

## Appendix B: Households with Children and Seniors in the 100-Year and Combined Floodplain by State, 2011-2015



Continued on page 8.

| State | Households with Children |  |  | Households with Seniors |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Share of all households | Share of households in the 100-year floodplain* | Share of households in the combined floodplain* | Share of all households | Share of households in the 100-year floodplain* | Share of households in the combined floodplain* |
| Kansas | 33\% | 34\% | 33\% | 25\% | 25\% | 24\% |
| Kentucky | 32\% | 32\% | 32\% | 26\% | 27\% | 27\% |
| Louisiana | 33\% | 35\% | 35\% | 25\% | 24\% | 24\% |
| Maine | 27\% | 27\% | 27\% | 30\% | 30\% | 30\% |
| Maryland | 33\% | 29\% | 29\% | 26\% | 31\% | 31\% |
| Massachusetts | 30\% | 29\% | 30\% | 27\% | 30\% | 29\% |
| Michigan | 30\% | 29\% | 29\% | 27\% | 29\% | 28\% |
| Minnesota | $31 \%$ | 33\% | 33\% | 25\% | 25\% | 25\% |
| Mississippi | 34\% | 34\% | 33\% | 27\% | 26\% | 26\% |
| Missouri | 31\% | 32\% | 31\% | 27\% | 29\% | 28\% |
| Montana | 27\% | 29\% | 29\% | 28\% | 29\% | 28\% |
| Nebraska | 32\% | 29\% | 30\% | 25\% | 26\% | 26\% |
| Nevada | 32\% | 28\% | 31\% | 26\% | 33\% | 27\% |
| New Hampshire | 29\% | 28\% | 28\% | 27\% | 29\% | 28\% |
| New Jersey | 34\% | 29\% | 30\% | 28\% | 27\% | 26\% |
| New Mexico | 32\% | 32\% | 32\% | 28\% | 29\% | 30\% |
| New York | 31\% | 29\% | 29\% | 28\% | 30\% | 29\% |
| North Carolina | 32\% | 30\% | 30\% | 26\% | 29\% | 29\% |
| North Dakota | 29\% | 32\% | 27\% | 24\% | 22\% | 20\% |
| Ohio | 30\% | 30\% | 30\% | 27\% | 28\% | 28\% |
| Oklahoma | 33\% | 34\% | 33\% | 26\% | 28\% | 26\% |
| Oregon | 29\% | 27\% | 28\% | 28\% | 32\% | 31\% |
| Pennsylvania | 29\% | 28\% | 28\% | 29\% | 30\% | 30\% |
| Rhode Island | 29\% | 29\% | 29\% | 28\% | 30\% | 30\% |
| South Carolina | 31\% | - | 31\% | 28\% | - | 25\% |
| South Dakota | 30\% | 29\% | 29\% | 26\% | 25\% | 25\% |
| Tennessee | 31\% | 31\% | 31\% | 27\% | 27\% | 26\% |
| Texas | 38\% | 38\% | 38\% | 23\% | 23\% | 22\% |
| Utah | 42\% | 41\% | 39\% | 21\% | 24\% | 24\% |
| Vermont | 27\% | 26\% | 26\% | 28\% | 30\% | 30\% |
| Virginia | 33\% | 32\% | 32\% | 25\% | 26\% | 26\% |
| Washington | 31\% | 32\% | 32\% | 25\% | 27\% | 27\% |
| West Virginia | 27\% | 27\% | 27\% | 31\% | 32\% | 32\% |
| Wisconsin | 30\% | 30\% | 30\% | 26\% | 28\% | 27\% |
| Wyoming | 30\% | 31\% | 29\% | 24\% | 24\% | 24\% |

[^3]
# Appendix C: Population by Race and Ethnicity in the 100-Year and Combined Floodplain by State, 2011-2015 

| State | Asian, Non-Hispanic |  |  | Black, Non-Hispanic |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Share of population | Share of population in the 100-year floodplain* | Share of population in the combined floodplain* | Share of population | Share of population in the 100-year floodplain* | Share of population in the combined floodplain* |
| Alabama | 1\% | 1\% | 1\% | 26\% | 31\% | 33\% |
| Alaska | 6\% | 4\% | 5\% | 3\% | 2\% | 2\% |
| Arizona | 3\% | 2\% | 4\% | 4\% | 3\% | 5\% |
| Arkansas | 1\% | 1\% | 1\% | 15\% | 18\% | 27\% |
| California | 14\% | 12\% | 15\% | 6\% | 4\% | 6\% |
| Colorado | 3\% | 4\% | 3\% | 4\% | 2\% | 3\% |
| Connecticut | 4\% | 4\% | 4\% | 10\% | 9\% | 9\% |
| Delaware | 4\% | 2\% | 2\% | 21\% | 13\% | 15\% |
| D.C. | 4\% | 2\% | 3\% | 48\% | 76\% | 59\% |
| Florida | 3\% | 2\% | 3\% | 15\% | 11\% | 15\% |
| Georgia | 4\% | 3\% | 3\% | 31\% | 28\% | 29\% |
| Hawaii | 37\% | 37\% | 36\% | 2\% | 2\% | 1\% |
| Idaho | 1\% | 1\% | 2\% | 1\% | 1\% | 1\% |
| Illinois | 5\% | 4\% | 4\% | 14\% | 8\% | 12\% |
| Indiana | 2\% | 2\% | 2\% | 9\% | 7\% | 8\% |
| Iowa | 2\% | 2\% | 2\% | 3\% | 2\% | 3\% |
| Kansas | 3\% | 2\% | 2\% | 6\% | 4\% | 5\% |
| Kentucky | 1\% | 1\% | 1\% | 8\% | 6\% | 5\% |
| Louisiana | 2\% | 2\% | 1\% | 32\% | 26\% | 31\% |
| Maine | 1\% | 1\% | 1\% | 1\% | 1\% | 1\% |
| Maryland | 6\% | 4\% | 4\% | 29\% | 17\% | 17\% |
| Massachusetts | 6\% | 5\% | 5\% | 6\% | 4\% | 4\% |
| Michigan | 3\% | 2\% | 3\% | 14\% | 6\% | 8\% |
| Minnesota | 4\% | 3\% | 3\% | 5\% | 2\% | 2\% |
| Mississippi | 1\% | 1\% | 1\% | 37\% | 37\% | 38\% |
| Missouri | 2\% | 1\% | 1\% | 11\% | 7\% | 9\% |
| Montana | 1\% | 0\% | 1\% | 0\% | 0\% | 0\% |
| Nebraska | 2\% | 2\% | 1\% | 5\% | 3\% | 2\% |
| Nevada | 8\% | 4\% | 9\% | 8\% | 4\% | 7\% |
| New Hampshire | 2\% | 2\% | 2\% | 1\% | 1\% | 1\% |
| New Jersey | 9\% | 11\% | 10\% | 13\% | 8\% | 10\% |
| New Mexico | 1\% | 1\% | 1\% | 2\% | 2\% | 2\% |
| New York | 8\% | 6\% | 7\% | 14\% | 11\% | 13\% |
| North Carolina | 2\% | 2\% | 2\% | 21\% | 20\% | 20\% |
| North Dakota | 1\% | 1\% | 2\% | 2\% | 1\% | 2\% |
| Ohio | 2\% | 1\% | 1\% | 12\% | 7\% | 8\% |

Continued on page 10.

| State | Asian, Non-Hispanic |  |  | Black, Non-Hispanic |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Share of population | Share of population in the 100-year floodplain* | Share of population in the combined floodplain* | Share of population | Share of population in the 100-year floodplain* | Share of population in the combined floodplain* |
| Oklahoma | 2\% | 1\% | 2\% | 7\% | 6\% | 7\% |
| Oregon | 4\% | 3\% | 3\% | 2\% | 1\% | 1\% |
| Pennsylvania | 3\% | 2\% | 2\% | 11\% | 8\% | 9\% |
| Rhode Island | 3\% | 2\% | 2\% | 5\% | 2\% | 2\% |
| South Carolina | 1\% | - | 2\% | 27\% | - | 27\% |
| South Dakota | 1\% | 1\% | 1\% | 2\% | 2\% | 2\% |
| Tennessee | 2\% | 2\% | 2\% | 17\% | 16\% | 18\% |
| Texas | 4\% | 5\% | 6\% | 12\% | 13\% | 15\% |
| Utah | 2\% | 1\% | 2\% | 1\% | 1\% | 2\% |
| Vermont | 1\% | 1\% | 1\% | 1\% | 1\% | 1\% |
| Virginia | 6\% | 4\% | 4\% | 19\% | 23\% | 25\% |
| Washington | 8\% | 3\% | 3\% | 3\% | 1\% | 1\% |
| West Virginia | 1\% | 0\% | 1\% | 3\% | 3\% | 4\% |
| Wisconsin | 2\% | 2\% | 2\% | 6\% | 2\% | 2\% |
| Wyoming | 1\% | 1\% | 1\% | 1\% | 2\% | 1\% |

Hispanic, Any Race
White, Non-Hispanic

| State | Hispanic, Any Race |  |  | White, Non-Hispanic |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Share of population | Share of population in the 100-year floodplain* | Share of population in the combined floodplain* | Share of population | Share of population in the 100-year floodplain* | Share of population in the combined floodplain* |
| Alabama | 4\% | 4\% | 4\% | 66\% | 62\% | 60\% |
| Alaska | 7\% | 5\% | 5\% | 62\% | 63\% | 60\% |
| Arizona | 30\% | 29\% | 32\% | 57\% | 61\% | 56\% |
| Arkansas | 7\% | 7\% | 6\% | 74\% | 71\% | 64\% |
| California | 38\% | 40\% | 46\% | 39\% | 41\% | 30\% |
| Colorado | 21\% | 18\% | 22\% | 69\% | 74\% | 69\% |
| Connecticut | 15\% | 13\% | 13\% | 69\% | 72\% | 71\% |
| Delaware | 9\% | 7\% | 7\% | 64\% | 76\% | 74\% |
| D.C. | 10\% | 4\% | 5\% | 36\% | 16\% | 31\% |
| Florida | 24\% | 25\% | 25\% | 56\% | 60\% | 55\% |
| Georgia | 9\% | 8\% | 9\% | 55\% | 59\% | 57\% |
| Hawaii | 10\% | 8\% | 9\% | 23\% | 27\% | 27\% |
| Idaho | 12\% | 11\% | 12\% | 83\% | 84\% | 82\% |
| Illinois | 16\% | 14\% | 14\% | 62\% | 72\% | 68\% |
| Indiana | 6\% | 5\% | 6\% | 81\% | 84\% | 81\% |
| Iowa | 5\% | 4\% | 4\% | 87\% | 91\% | 90\% |
| Kansas | 11\% | 9\% | 14\% | 77\% | 81\% | 75\% |
| Kentucky | 3\% | 3\% | 3\% | 86\% | 89\% | 89\% |

Continued on page 11.

| State | Hispanic, Any Race |  |  | White, Non-Hispanic |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Share of population | Share of population in the 100-year floodplain* | Share of population in the combined floodplain* | Share of population | Share of population in the 100-year floodplain* | Share of population in the combined floodplain* |
| Louisiana | 5\% | 4\% | 3\% | 59\% | 67\% | 62\% |
| Maine | 1\% | 1\% | 1\% | 94\% | 95\% | 95\% |
| Maryland | 9\% | 6\% | 6\% | 53\% | 71\% | 71\% |
| Massachusetts | 11\% | 8\% | 9\% | 74\% | 81\% | 80\% |
| Michigan | 5\% | 4\% | 4\% | 76\% | 86\% | 83\% |
| Minnesota | 5\% | 4\% | 4\% | 82\% | 89\% | 88\% |
| Mississippi | 3\% | 3\% | 4\% | 57\% | 57\% | 56\% |
| Missouri | 4\% | 3\% | 3\% | 80\% | 86\% | 83\% |
| Montana | 3\% | 3\% | 3\% | 87\% | 90\% | 90\% |
| Nebraska | 10\% | 10\% | 13\% | 81\% | 83\% | 82\% |
| Nevada | 28\% | 19\% | 25\% | 52\% | 67\% | 54\% |
| New Hampshire | 3\% | 2\% | 2\% | 91\% | 94\% | 93\% |
| New Jersey | 19\% | 15\% | 17\% | 57\% | 65\% | 62\% |
| New Mexico | 47\% | 51\% | 51\% | 39\% | 38\% | 39\% |
| New York | 18\% | 16\% | 19\% | 57\% | 65\% | 58\% |
| North Carolina | 9\% | 7\% | 7\% | 64\% | 68\% | 68\% |
| North Dakota | 3\% | 3\% | 3\% | 87\% | 90\% | 88\% |
| Ohio | 3\% | 3\% | 3\% | 80\% | 86\% | 86\% |
| Oklahoma | 10\% | 8\% | 9\% | 67\% | 69\% | 68\% |
| Oregon | 12\% | 10\% | 11\% | 77\% | 81\% | 80\% |
| Pennsylvania | 6\% | 4\% | 5\% | 78\% | 84\% | 82\% |
| Rhode Island | 14\% | 7\% | 7\% | 74\% | 86\% | 87\% |
| South Carolina | 5\% | - | 5\% | 64\% | - | 64\% |
| South Dakota | 3\% | 4\% | 4\% | 83\% | 86\% | 85\% |
| Tennessee | 5\% | 5\% | 6\% | 75\% | 75\% | 72\% |
| Texas | 38\% | 38\% | 37\% | 44\% | 42\% | 40\% |
| Utah | 13\% | 12\% | 16\% | 80\% | 82\% | 76\% |
| Vermont | 2\% | 2\% | 2\% | 94\% | 94\% | 94\% |
| Virginia | 9\% | 7\% | 7\% | 63\% | 62\% | 61\% |
| Washington | 12\% | 15\% | 14\% | 71\% | 75\% | 76\% |
| West Virginia | 1\% | 1\% | 1\% | 93\% | 93\% | 92\% |
| Wisconsin | 6\% | 4\% | 5\% | 82\% | 90\% | 89\% |
| Wyoming | 10\% | 9\% | 9\% | 84\% | 83\% | 84\% |

[^4]
## Appendix D: Poverty Rate in the 100-Year and Combined Floodplain by State, 2011-2015

| State | Statewide poverty rate | Poverty rate in the 100-year floodplain* | Poverty rate in the combined floodplain* |
| :---: | :---: | :---: | :---: |
| Alabama | 19\% | 21\% | 22\% |
| Alaska | 10\% | 9\% | 10\% |
| Arizona | 18\% | 17\% | 17\% |
| Arkansas | 19\% | 20\% | 22\% |
| California | 16\% | 18\% | 18\% |
| Colorado | 13\% | 14\% | 16\% |
| Connecticut | 11\% | 9\% | 9\% |
| Delaware | 12\% | 10\% | 11\% |
| D.C. | 18\% | 30\% | 21\% |
| Florida | 17\% | 15\% | 15\% |
| Georgia | 18\% | 18\% | 18\% |
| Hawaii | 11\% | 12\% | 12\% |
| Idaho | 15\% | 16\% | 18\% |
| Illinois | 14\% | 12\% | 12\% |
| Indiana | 15\% | 14\% | 15\% |
| Iowa | 12\% | 11\% | 12\% |
| Kansas | 14\% | 12\% | 16\% |
| Kentucky | 19\% | 21\% | 21\% |
| Louisiana | 20\% | 18\% | 20\% |
| Maine | 14\% | 13\% | 14\% |
| Maryland | 10\% | 11\% | 11\% |
| Massachusetts | 12\% | 9\% | 9\% |
| Michigan | 17\% | 13\% | 14\% |
| Minnesota | 11\% | 7\% | 9\% |
| Mississippi | 23\% | 24\% | 23\% |
| Missouri | 16\% | 15\% | 15\% |
| Montana | 15\% | 13\% | 13\% |
| Nebraska | 13\% | 13\% | 13\% |
| Nevada | 15\% | 16\% | 15\% |
| New Hampshire | 9\% | 8\% | 8\% |
| New Jersey | 11\% | 10\% | 11\% |
| New Mexico | 21\% | 21\% | 21\% |
| New York | 16\% | 14\% | 16\% |
| North Carolina | 17\% | 17\% | 18\% |
| North Dakota | 12\% | 8\% | 13\% |
| Ohio | 16\% | 15\% | 15\% |
| Oklahoma | 17\% | 16\% | 16\% |
| Oregon | 16\% | 17\% | 17\% |

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|  |  | Statewide <br> poverty rate | Poverty rate <br> in the 100-year <br> floodplain* | Poverty rate <br> in the combined <br> floodplain* |
| :--- | :--- | ---: | ---: | ---: |
| State |  | $13 \%$ | $13 \%$ | $13 \%$ |

*Estimates based on the 100-year and combined floodplains as defined by the National Flood Hazard Layer (NFHL).
NFHL coverage varies by state.
Sources: American Community Survey, U.S. Federal Emergency Management Agency, NYU Furman Center

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Special Thanks
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The Furman Center is grateful for funding provided by The Kresge Foundation for this research brief and FloodzoneData.us.

The NYU Furman Center advances research and debate on housing, neighborhoods, and urban policy.


[^0]:    1FloodzoneData.us combines U.S. Census Bureau data and data from the National Subsidized Housing Database with the National Flood Hazard Layer (NFHL), which contains the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRMs). FEMA is the entity that defines the boundaries of the 100 and 500 year floodplain. The NFHL covers 71 percent of the counties in the U.S., and approximately 92 percent of the population. Some areas with flood risk are not covered by the NFHL. For more information about the NFHL see FEMA. (April 2017). The National Flood Hazard Layer. https://www.fema.gov/media-library-data/1492206395397-ddb37681a7ad12e4ae9365b3aa5f84ed/The_ National_Flood_Hazard_Layer.pdf.
    2 Unless otherwise noted, the data in this report are based on the American Community Survey 2011-2015 five-year estimates. These data are period estimates and should be interpreted as a measure of the conditions during the full date range.

[^1]:    Sources: American Community Survey, U.S. Federal Emergency Management Agency, NYU Furman Center

[^2]:    4 Census tracts are a small, statistical geography delineated by the U.S. Census Bureau and often are used by researchers as a neighborhood proxy. For more information, see: https://www.census.gov/geo/reference/gtc/ gtc_ct.html.

[^3]:    *Estimates based on the 100-year and combined floodplains as defined by the National Flood Hazard Layer (NFHL)
    NFHL coverage varies by state.
    Sources: American Community Survey, U.S. Federal Emergency Management Agency, NYU Furman Center

[^4]:    *Estimates based on the 100-year and combined floodplains as defined by the National Flood Hazard Layer (NFHL).
    NFHL coverage varies by state.
    Sources: American Community Survey, U.S. Federal Emergency Management Agency, NYU Furman Center

