

THE CAT RESOURCE CENTER

Lahaina, Maui Wildfire

Thursday August 24, 2023

The second costliest natural catastrophe in Hawaii history behind Hurricane Iniki of 1992, the extent of destruction and loss of life in the Lahaina wildfire is severe. This briefing provides an update on the statistics of the wildfire, publicly available industry loss estimates and probes a range of issues the fire brings to bear for the insurance industry.

Lahaina, Maui Fire Statistics

As of August 23, 2023





Peak Wind Gusts by County: 67 mph Maui, 82 mph Honolulu, 82 mph Hawaii





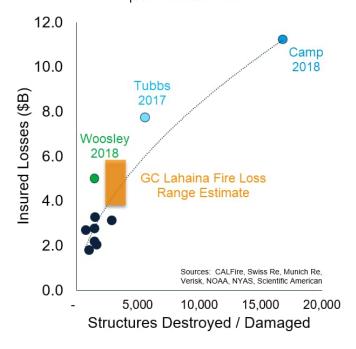
Fatalities: 115 people
Missing: 1,000 to 1,100 people

LAHAINA FIRE INSURED INDUSTRY LOSS: \$4B to \$6B

Industry Loss Estimates: A range of insurance loss estimates have been provided for the Lahaina fire in the chart to the right. The range of estimates is largely due to uncertainties in demand surge and business interruption in an island economy. Given these factors, Guy Carpenter estimates the insured losses will end on the higher end of the range of industry datapoints based on an analysis of the largest wildfires in the state of California.

Source	Date	Insured Loss Estimate (\$B)
RBC	8/14	\$3.0
KCC	8/16	\$3.2
FEMA	8/16	\$5.5
Moody's Analytics	8/16	\$3.0 - \$6.0
State of Hawaii	8/16	\$5.6
RMS	8/21	\$3.0 - \$4.5

Insured Losses vs. Structures Impacted Top 10 California Losses



UNCERTAINTIES IN INSURED LOSS ESTIMATES

Demand Surge for an Island Economy



20% to 35%

Demand surge seen in Puerto Rico after Hurricane Maria

Business Interruption in Kaanapali Beach



30-90 days

Reservation cancellations for largest Maui hotel corridor

Debris Removal Costs



\$1B to \$3B

Cost of debris removal after large California wildfires

Imagery source: Guy Carpenter event reconnaissance

A business of Marsh McLennan

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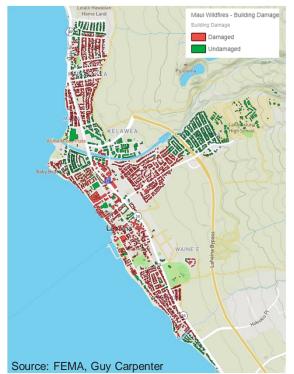
Implications for the Insurance Industry

1) Human Influences Amplifying Catastrophic Losses Beyond Climate

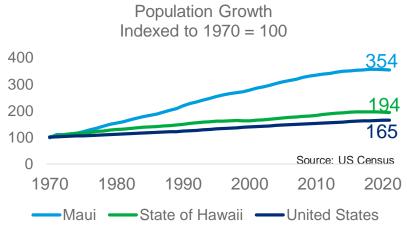
As with any major natural disaster, particularly those which are not anticipated, multiple factors converge to initiate an event. There is no clear signal that any single factor in the fire ignition and spread is linked to climate change, but rather natural variability of several key elements resulted in the conditions necessary for the fire to occur. Human elements outside of man-made climate change were the largest contributors to the event.

Climate Elements **Human Elements** Rainfall volatility; more extreme rains and People continually moving to margins of high-risk regions: coastal, forested, desert more extreme droughts Rapid intensification and sustained major Landscape changes due to urbanization impact vulnerability, permeability, flameability hurricane status of Category 4 Dora Uncertainty in the impact of El Niño when the Cascading impacts from electricity background temperature is already warm infrastructure failure, lack of warning Over 2°F increase in Hawaii temperatures Introduction of non-native invasive grasses since 1950 increase flash drought potential provide additional fuel for fire activity Catastrophic events occurring outside of Expanding bullseye effect driving higher loss normal season and region; SCS, hurricane,

2) Urban Conflagration with Rapid Population Growth







The Lahaina fire initiated downslope of the Lahaina bypass and quickly spread west and downhill to the Pacific Ocean. Due to winds more than 60 mph the initial wildfire spread rapidly as ground fire and eventually structure to structure spread via ember transmission. The population growth of Maui over the last fifty years significantly outpaced the state of Hawaii. The town of Lahaina experienced 28% growth since 2000, with increasing density of housing and businesses due to limited area of buildable land. The pace of spread overwhelmed fire fighting resources resulting in the deadliest fire in over 100 years for the United States.