

Human Health Risks of Extreme Weather Events

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Impacts of Extreme Events Depend on Local Context



Location of Hurricane Landfalls,
1995-2000



Percentage of US Population 65
or older, 2000



Locations of Extreme Heat Events,
1995-2000



West Nile Virus Cases, 2004

Heat Can Kill

- ▶ Over period 1979-1999, 8,015 deaths in the US were heat-related
 - ▶ 3,829 due to weather conditions
 - ▶ Large underestimate
- ▶ Excess heat causes
 - ▶ Heat cramps
 - ▶ Fainting due to the heat
 - ▶ Heat exhaustion
 - ▶ Intense thirst, heavy sweating, dizziness, fatigue, fainting, nausea or vomiting, and headache
 - ▶ Heatstroke
 - ▶ Death

Populations Vulnerable to Heatwaves and High Temperatures

- ▶ Younger children
- ▶ Those with certain chronic conditions
 - ▶ Diabetes
 - ▶ Overweight
- ▶ Those with low levels of fitness
- ▶ Those taking certain drugs
- ▶ Lower socioeconomic status
- ▶ Those living alone





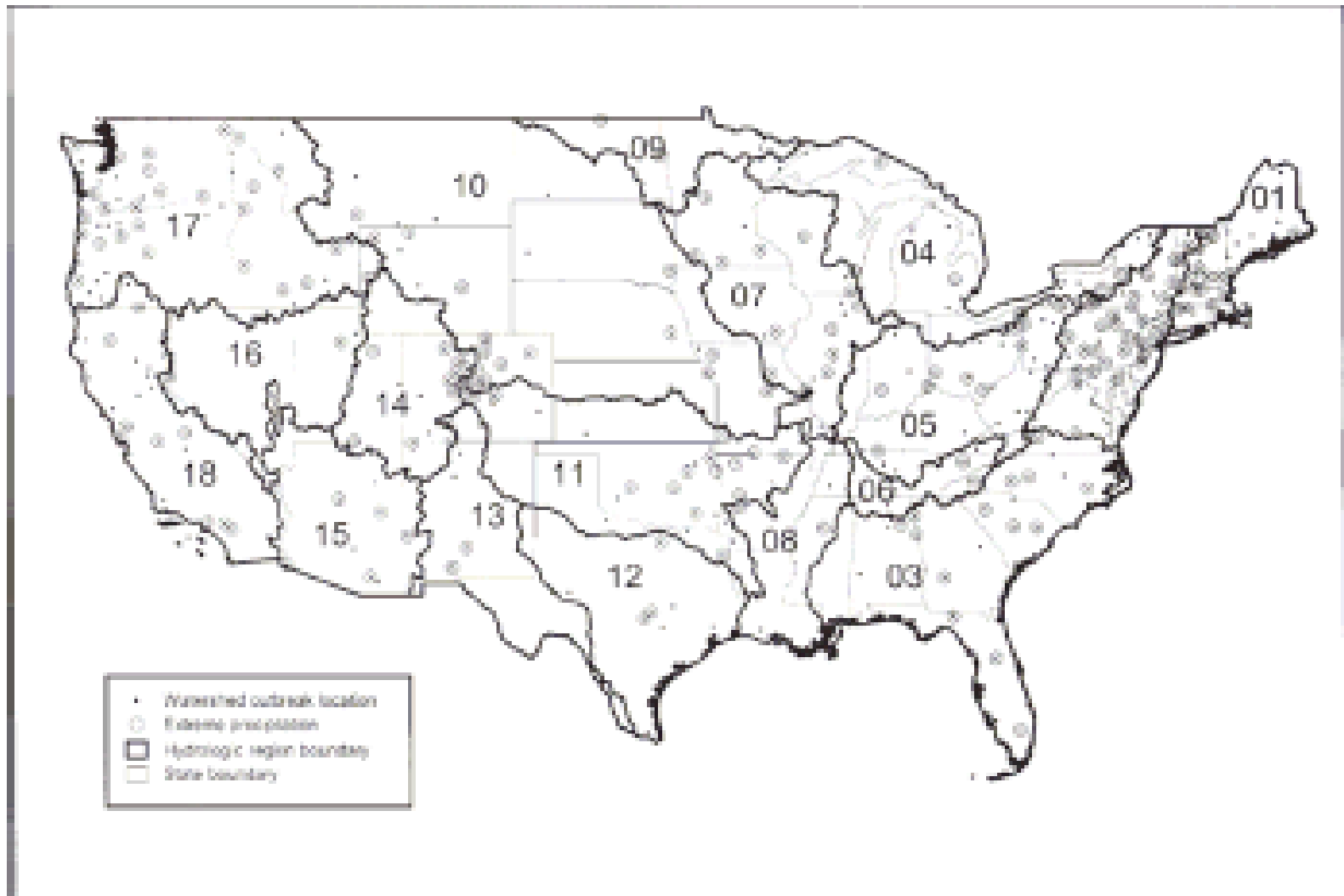
Katrina Deaths by Race & Gender

Gender	
Male	432 (53%)
Female	421 (47%)
Race	
African-American	451 (53%)
Caucasian	334 (39%)
Hispanic	18 (2%)
Unknown/other	50 (6%)

Populations Vulnerable to Extreme Weather Events

- ▶ Urban and rural poor
- ▶ Pregnant women
- ▶ Those with chronic medical conditions, mobility, and cognitive constraints
- ▶ In addition, for days with high ozone or pollen concentrations
 - ▶ Children, athletes, and outdoor workers
 - ▶ People with a wide range of respiratory problems and chronic diseases

Drinking Waterborne Disease Outbreaks and 90%-ile Precipitation Events; 1948 – 1994





Thank-you



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Vulnerabilities Vary by Region

United States Census Regions	Climate-Related Impacts								
	Early Snowmelt	Degraded Air Quality	Urban Heat Island	Wildfires	Heat Waves	Drought	Tropical Storms	Extreme Rainfall with Flooding	Sea Level Rise
New England ME VT NH MA RI CT	•	•	•		•	•		•	•
Middle Atlantic NY PA NJ	•	•	•		•	•	•	•	•
East North Central WI MI IL IN OH	•	•	•		•	•		•	
West North Central ND MN SD IA NE KS MO	•		•		•	•		•	
South Atlantic WV VA MD MC SC GA FL DC		•	•	•	•	•	•	•	•
East South Central KY TN MS AL					•	•	•		•
West South Central TX OK AR LA		•	•	•	•	•	•	•	•
Mountain MT ID WY NV UT CO AZ NM	•	•	•	•	•	•			
Pacific AK CA WA OR HI	•	•	•	•	•	•	•	•	•