Preparing for Rain and Flooding in San Francisco

Climate Change and Your Health

San Francisco Department of Public Health • Climate and Health Program

Visit www.sfclimatehealth.org and follow @sfclimatehealth
OBJECTIVES:

Get to Know the Facts

• What is climate change?
• How does flooding affect San Francisco?
• How does flooding affect your health?
• What can you do to prepare?
Weather vs. Climate?

Weather

can change anytime
and varies a lot

Climate

is a particular weather
pattern of a region
What is Climate Change?

10 Hottest Years: All since 1998
Outcomes of Climate Change

- Changing Rain and Snow Patterns
- Changes in Animal Migration and Life Cycles
- Higher Temperatures and More Heat Waves
- More Droughts and Wildfires
- Thawing Permafrost
- Less Snow and Ice
- Changes in Plant Life Cycles
- Damaged Corals
- Rising Sea Level
- Warmer Oceans
- Stronger Storms
Linking Climate Change to Health
FLOODING:

Extreme Storms

• Precipitation
FLOODING:

Coastal Flooding

Climate Change Flood Projections

<table>
<thead>
<tr>
<th>See Level Rise Projections</th>
<th>2050</th>
<th>2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Likely</td>
<td>11”</td>
<td>36”</td>
</tr>
<tr>
<td>Upper Range</td>
<td>24”</td>
<td>66”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>See Level Rise + Storm Surge</th>
<th>2050</th>
<th>2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Likely</td>
<td>53”</td>
<td>66”</td>
</tr>
<tr>
<td>Upper Range</td>
<td>78”</td>
<td>108”</td>
</tr>
</tbody>
</table>

Projected Sea Level Rise + Storm Surge
Most Likely Scenario, 2100
36in Sea Level Rise + 42in Storm Surge
EXAMPLE:

December 11, 2014

Storm Surge: 18 inches
Precipitation: 3.4 inches

Results:
- 80,000 homes & business without power
- All SFUSD schools closed for day
- BART & MUNI delays & closures
- Nearly 300 flood inundation-related 311 calls
- Great Highway closed & traffic diverted
So how does flooding impact my health?
Injuries

Most Common:
- Blunt trauma
- Sprains
- Motor vehicle crashes
- Bike/Pedestrian injuries
- Electrocution
Foodborne Illness

- Ocean temp ↑
- Pacific algae bloom
- Algae bloom linked to neurotoxics
Respiratory Illness

- Stormwater Intrusion / Household Dampness
- Exposure to Mold

People living in moldy homes are...

- 50% more likely to currently have asthma.
- 33% more likely to have ever been diagnosed with asthma.
- 50% more likely to cough.
- 44% more likely to wheeze.
- 52% more likely to have upper respiratory tract symptoms.
- Linked to a 50% increase in the odds of having at least four colds in a year.
Water-borne Illness

- **↑** gastrointestinal problems
- Cases typically **↑** after heavy rainfall
- Direct contact with water
Vector borne Disease

- Standing water
- Mosquitos
- Rodents
Power Outages

- Electricity-dependent populations
- Medical devices
- Food
- Heating / cooling
- Elevators
- Transportation
- CO poisoning
Mental Health

- Anxiety
- Depression & bipolar disorder
- Post-traumatic stress disorders
- Preparing & recovering simultaneously
Income Loss

- Building improvements
- Replace damaged property
- Transportation delays & business closures
- School closures = pay for childcare or miss work
- Medical bills
- Ex: Sandy cost $19 billion in private losses
Why does this matter?

“Climate change will impact all San Franciscans, though not all San Franciscans will suffer the impacts evenly.”
WHAT MAKES SOMEONE VULNERABLE?

Exposure

- Proximity to coastal flooding
- Proximity to rainfall-related flooding
- Low lying areas
WHAT MAKES SOMEONE VULNERABLE?

Living Conditions

- Homeless population
- Housing quality
- Social isolation
WHAT MAKES SOMEONE VULNERABLE?

Health Conditions

- Asthma
- Mental health
- Physical disabilities
- Dependency on electronic medical equipment
WHAT MAKES SOMEONE VULNERABLE?

Social Vulnerability

- Age
- Race
- Income
- Education
- Language
- Disabilities or Access and Functional Needs
Mapping

Health + Housing =

Social + Exposure =
So what can I do?

San Franciscans! Become climate ready!

Get to know your neighbors

Get to know the facts

Help tackle climate change
PLAN & PREPARE: Yourself

Make a Plan / Get a Kit / Stay Informed

- SF72.org
- Local TV
- Local radio:
  - KGO 810
  - KCBS 740
  - KNBR 680
- AlertSF.org
PLAN & PREPARE:

Your Home

- Flood insurance
- Inspection, clear gutters & storm drains
- Move items off floor – chemicals
- Tie down/move items indoors
- Sandbags: 10 free at Kansas & Marin Streets
RESPOND:
During the storm

- Report power outages to PG&E: 1-800-743-5002
- Call 911 only for life threatening situations
- Call 311 for informational purposes
- Avoid flood waters
- No generators/BBQs inside
- No ovens as heat
Power Outage

FOOD SAFETY BEFORE, DURING, AND AFTER A POWER OUTAGE

Know how to keep food safe before, during, and after emergencies. Hurricanes, tornados, winter weather and other events may cause power outages. Follow these tips to help minimize food loss and reduce your risk of foodborne illness.

BEFORE

Put appliance thermometers in your refrigerator and freezer.

Keep freezer 0°F or below.

Refrigerator 40°F or below.

Freeze containers of water and gel packs to help keep food cold if the power goes out.

Freeze refrigerated items such as leftovers, milk, and fresh meat and poultry that you do not need immediately.

Group foods together in the freezer to help food stay colder longer.

If you think power will be out for an extended period of time, buy dry or block ice to keep the fridge or freezer cold.

Store nonperishable foods on higher shelves to avoid flooded water.

DURING

Keep the refrigerator and freezer doors closed to maintain cold temperature.

IF DOORS STAY CLOSED...

...a full freezer will hold its temperature for 48 HOURS.

...a fridge will keep food safe for 24 HOURS.

...half-full
Take Care

- Check on neighbors
- Acknowledge & accept feelings
- Stay informed, limit media intake
RECOVER:

Clean Up

- Check on neighbors
- Fans & dehumidifiers
- 1 cup bleach/gal of water
- Flood damage:
  - SFDPH Healthy Homes & Neighborhoods: 415-252-3805
  - rebuildingtogethersf.org
- Gas problems:
  - PG&E: 1-800-743-5000
DO YOUR PART:
Live Sustainably

SAN FRANCISCO CLIMATE ACTION
0 50 100

- Zero Waste
- Sustainable Transit
- Renewable Energy
- Capturing Carbon
Thank you!

San Francisco Department of Public Health • Climate and Health Program

Visit www.sfclimatehealth.org and follow @sfclimatehealth