

CLIMATE CHANGE IS HERE: WHAT DOES IT MEAN FOR YOU AS A PEDIATRICIAN AND WHAT CAN YOU DO ABOUT IT AS A HUMAN BEING?

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June 2, 2014



Dr Paulson has NO conflicts of interest to declare.

- This material was developed by the Mid-Atlantic Center for Children's Health & the Environment and funded under the cooperative agreement award number 1U61TS000118-05 from the Agency for Toxic Substances and Disease Registry (ATSDR).
- Acknowledgement: The U.S. Environmental Protection Agency (EPA) supports the PEHSU by providing funds to ATSDR under Inter-Agency Agreement number DW-75-92301301-0. Neither EPA nor ATSDR endorse the purchase of any commercial products or services mentioned in PEHSU publications.

Objectives

- Participants will be able to
 - describe the current reality of climate change
 - explain some of the foreseeable impacts on human health and specific impacts on children
 - recommend lifestyle changes that individuals may make to address climate change

The Washington Post

Printed on 100% recycled paper with soy-based inks.

Shower 69-79 • Tomorrow: Partly sunny 66-76 • Details, B5

WEDNESDAY, MAY 7, 2014

MS03CN 30 V1 V2 V3 V4

washingtonpost.com • B1-25



The mother of a missing girl wipes away tears at a rally in Abuja, Nigeria. The Islamist group Boko Haram abducted hundreds from a school.

Nigerian girls inspire international action

U.S. offers rescue team; U.N. warns abductors of legal jeopardy

BY PAMELA CONSTANTINE

An international uproar mounted Tuesday over the fate of hundreds of Nigerian schoolgirls abducted by Islamist militants in mid-April, with the Obama administration preparing to send a team of specialists to Nigeria to help recover the missing girls and U.N. officials warning that the kidnappers could face arrest, prosecution and prison under international law.

In Nigeria, U.N. officials re-



Demonstrators at the Nigerian Embassy in Washington wear T-shirts with a social-media link citing the number of girls missing.

ported that a new kidnapping had occurred, with eight to 11 girls abducted Sunday by armed militants in the northern state of Borno to prevent them from attending school. It is unclear whether the same extremist group was involved in both abductions. The state's police commissioner denied that any abductions had taken place.

The White House announced that Secretary of State John F. Kerry had called Nigerian President Goodluck Jonathan on Tuesday morning and offered to send

A mysterious kidnapper
Little is certain about Abdukar Shekau except his ferocity. A12

Study: Climate risks growing

EVERY PART OF U.S. BEING AFFECTED
Conservatives criticize federal assessment

BY DARRYL FEARS

The government's newest national assessment of climate change declares that increased global warming is affecting every part of the United States. The report released Tuesday chides wide and severe impacts: more sea-level rise, flooding, storm surges, precipitation and heat waves in the Northeast, frequent water shortages and hurricanes in the Southeast and the Caribbean, and more drought and wildfires in the Southwest.

"For a long time, we have perceived climate change as an issue that's distant, affecting just polar bears or something that matters to our kids," said Katharine Hayhoe, a Texas Tech University professor and a co-author of the report. "This shows it's not just in the future; it matters today. Many people are feeling the effects."

The federal climate assessment — the third since 2000 — brought together hundreds of experts in academia and government to guide U.S. policy based on the best available climate science.

The authors of the more-than-800-page report said it aims to present "actionable science" and a road map for local leaders and average citizens to mitigate carbon and other gas emissions that warm the planet.

But the report ran immediately afoul of conservative critics, who called it a political document aimed at giving President Obama a leg up on regulating major polluters such as power plants. In their opinion, regulation costs jobs. Obama, who is increasingly focusing on climate change, spent part of the day talking about the report with television meteorologists from across the country.

Echoing the findings of a recent global report by climate scientists at the Intergovernmental Panel on Climate Change, U.S. scientists said that the climate is changing in the United States and that the warming of the past 50 years was primarily caused by emissions of heat-trapping gases released by humans.

CLIMATE CONTINUED ON A6

Tapping into polarized media
The White House thinks outside the box to reach Americans. A6

Temperatures at sea, on land and on ice all point to a warming trend over the past century, according to indicators in the government's National Climate Assessment.

PLOTTED FROM MULTIPLE DATA SETS
1850 1900 1950 2000

Land surface air temperature
The average global temperature has risen more than 1.5 degrees since 1880. The hottest year on record in the United States was 2012.

ANOMALY IN DEGREES F
2
1
0
-1
-2

Sea surface temperature
La Niña variations that typically lead to lower sea temperatures have helped keep the rising trend in check since 2000. Before that, water temperatures increased steadily for 30 years.

ANOMALY IN DEGREES F
0.5
0
-0.5
-1

Sea level
For two decades, sea level has been rising at about three millimeters per year and hit a record high in 2012.

ANOMALY IN INCHES
4
3
2
1
0
-1
-2

Arctic sea ice, September
The minimum extent of sea ice during the Arctic summer has declined by about 40 percent since satellite monitoring began in 1978. On Sept. 16, 2012, it reached an all-time low of 1.32 million square miles.

IN MILLIONS OF SQUARE MILES
4
3
2
1
0
-1
-2

Glacier mass change
Satellite images show that glaciers are thinning and permafrost temperatures are rising. Permafrost in some interior areas of Alaska is now 32 degrees.

IN 10° C DEGREES
30
20
10
0
-10
-20

Sources: NOAA's "State of the Climate in 2012," National Snow and Ice Data Center, BROWN UNIVERSITY, THE WASHINGTON POST

www.nytimes.com/images/2014/05/07/nyfrontpage/scanant.pdf

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www.nytimes.com/images/2014/05/07/nyfrontpage/scan.pdf

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"All the News That's Fit to Print"

The New York Times

VOL. CLXIII ... No. 56,494

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WEDNESDAY, MAY 7, 2014

Chinese Giant Will Go Public, Listing in U.S.
Price Race Could Eclipse Silicon Valley Rivals

The article is by Vande Goe, Michael J. de la Merced and Neil Cough.

11 Taken, Local Officials Say — Terror Group Is Suspected

NO GIRLS RESCUED YET

ABUJA, Nigeria — A second kidnapping of schoolgirls in Nigeria's northeast by Islamist militants has put new pressure on the country's troubled government, which had been hoping to showcase its emergence as Africa's largest economy this week but instead has been forced to confront its failure to contain a growing insurgency in its north.

Men suspected of being fighters from the radical group Boko Haram kidnapped 11 more girls in Nigeria's northeast, local officials said Tuesday, an intensification of its campaign against female education and the Nigerian government since the abduction of hundreds of schoolgirls three weeks ago.

The spectacle of red-shirted protesters in the streets of the capital here, angry at the government for its tepid response to the crisis, put President Goodluck Jonathan under an uncomfortable spotlight as executives from the world arrived in private jets to attend the Africa meeting of the World Economic Forum, the continent's answer to Davos.

The authorities here — and something has changed in the current Supreme Court term. In opinions concerning human rights abuses, the death penalty and, most notably, affirmative action, Justice Sotomayor has found her voice.

"She's setting a public agenda," said Cristina Rodriguez, a law professor at Yale. "She's looking for her moments. And her willingness to talk about how biography informs judgments challenges a long tradition of the law."

In a sign of deepening global concern, on Tuesday the United States offered to provide a team of experts, including military and law enforcement officers, along

NEW ABDUCTIONS, DISTRESS NIGERIA; U.S. OFFERS HELP

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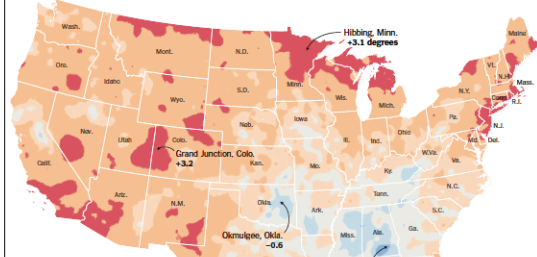
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U.S. CLIMATE HAS ALREADY CHANGED, STUDY FINDS, CITING HEAT AND FLOODS



Rising Temperatures

1991-2012 average temperature compared to 1901-1960 average

Color scale: -0.5 0 +0.5 +1 +2 degrees

Source: National Climatic Data Center

Sotomayor Finds Her Voice Among Justices

BY ADAM LIPKIN

WASHINGTON — "I am a lawyer's judge," Justice Sonia Sotomayor said last year. "I write very technically."

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In 5th Year, Offering a Stream of Questions and Vivid Dissents

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Issue Moves 'Firmly Into the Present' for the Nation

BY JUSTIN GILLIS

The effects of human-induced climate change are being felt in every corner of the United States, scientists reported Tuesday, with water growing scarcer in dry regions, torrential rains increasing in wet regions, heat waves becoming more common and more severe, wildfires growing worse, and forests dying under assault from heat-drying insects.

Such sweeping changes have been caused by an average warming of less than 2 degrees Fahrenheit over most land areas of the country in the past century, the scientists found. If green-

Others attacked her in unusual fashion. "She's setting a public agenda," said Cristina Rodriguez, a law professor at Yale. "She's looking for her moments. And her willingness to talk about how biography informs judgments challenges a long tradition of the law."

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For Gandhis, signs of a dynasty in its twilight

BY ANNIE GOWEN

RAE BARELL, INDIA — When Sonia Gandhi came to this dusty corner of India nearly 20 years ago, thousands turned out to see the beautiful, Italian-born widow of a slain former prime minister and beg her to enter politics. "Sonia, save India!" they chanted.

Since then, Gandhi has become the most powerful woman in India and president of its oldest

Reconciling past and future in Va. 8th



As risks from orbital junk rise, is it time to take out the trash?



Mid-Atlantic Center for Children's Health & the Environment

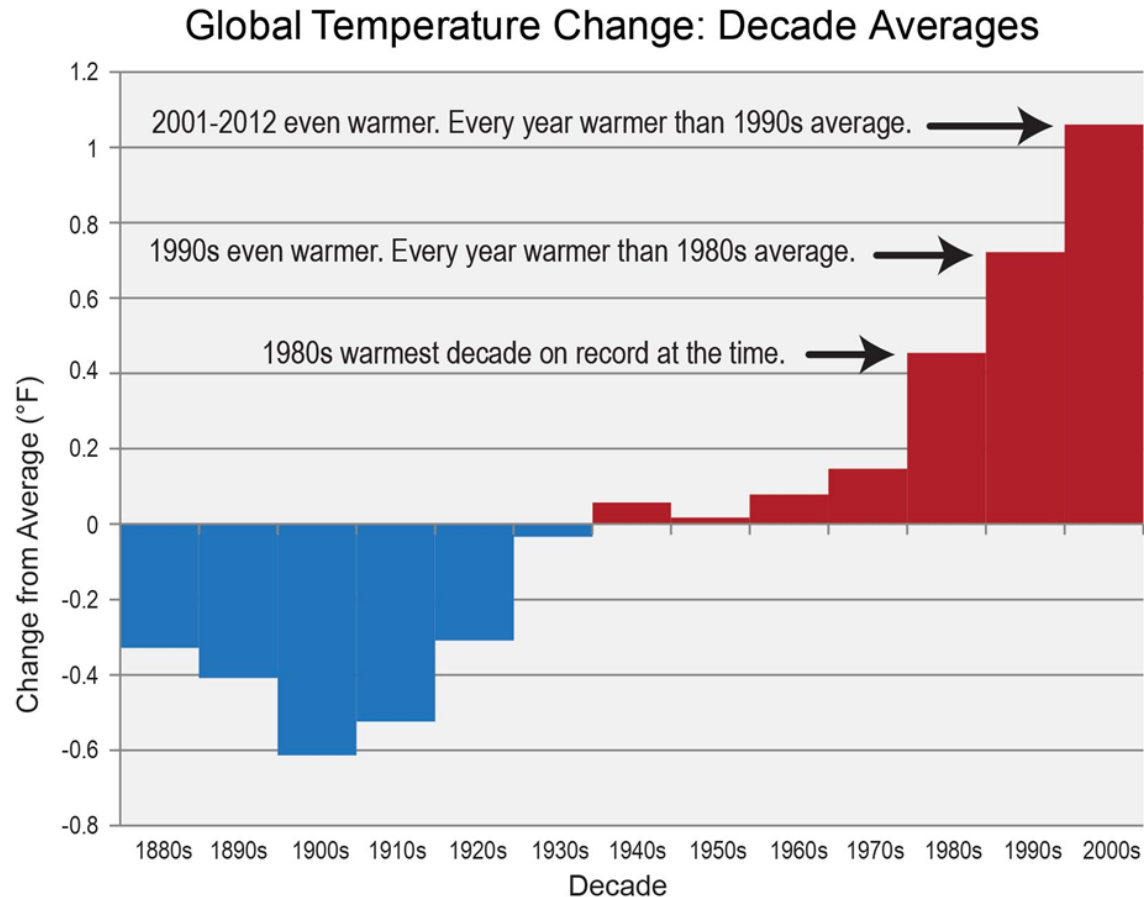


Children's National

Climate Change is Real.

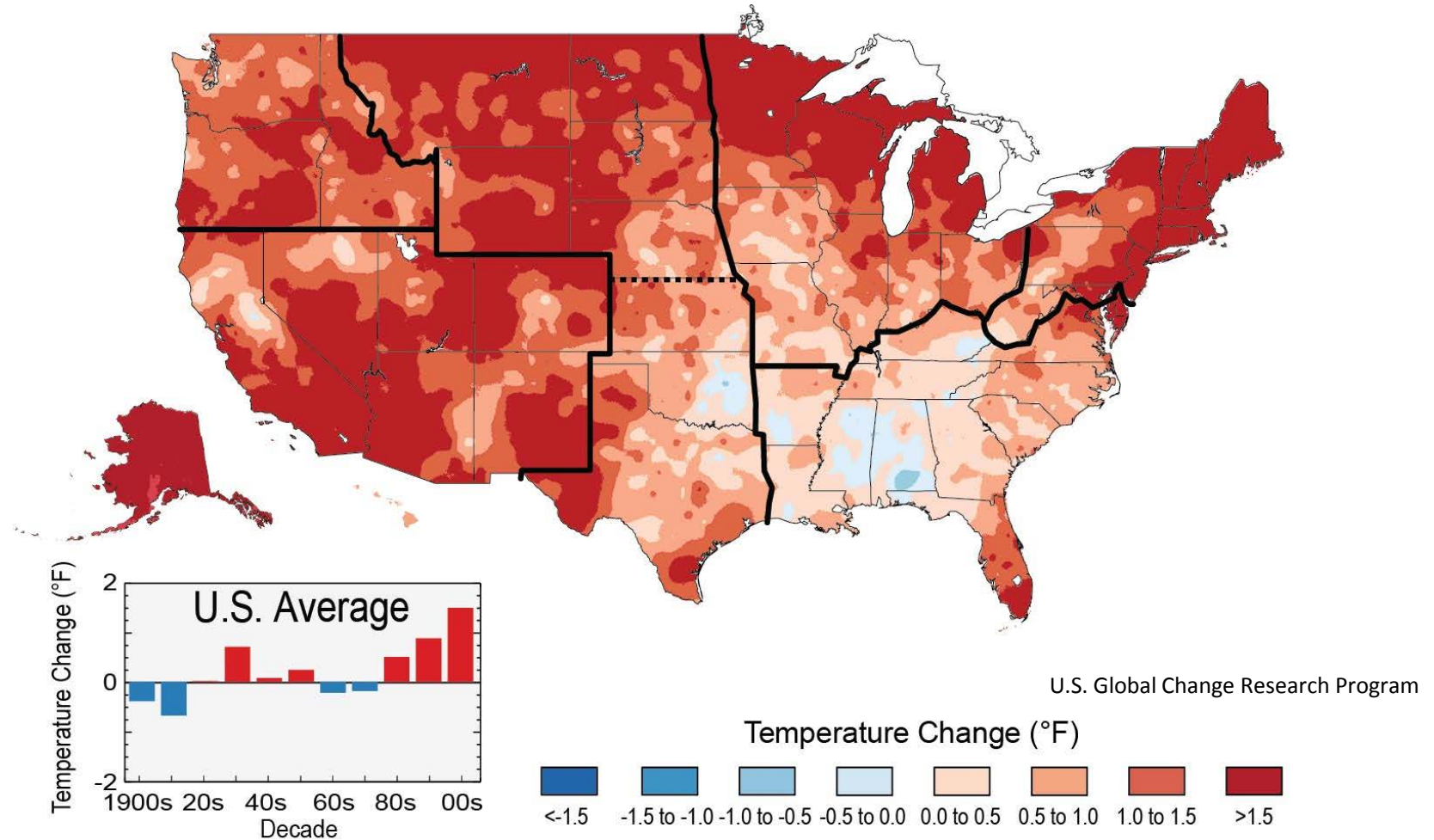
- Climate change is now
 - Climate change includes changes in both the mean and variance of weather variables
- Health impacts are already occurring
- Inertia in the climate system means change will continue for decades after successful control of greenhouse emissions
- Extent of health impacts will depend on our ability to design and implement effective adaptation measures

The period from 2001-2012 was the warmest on record globally.

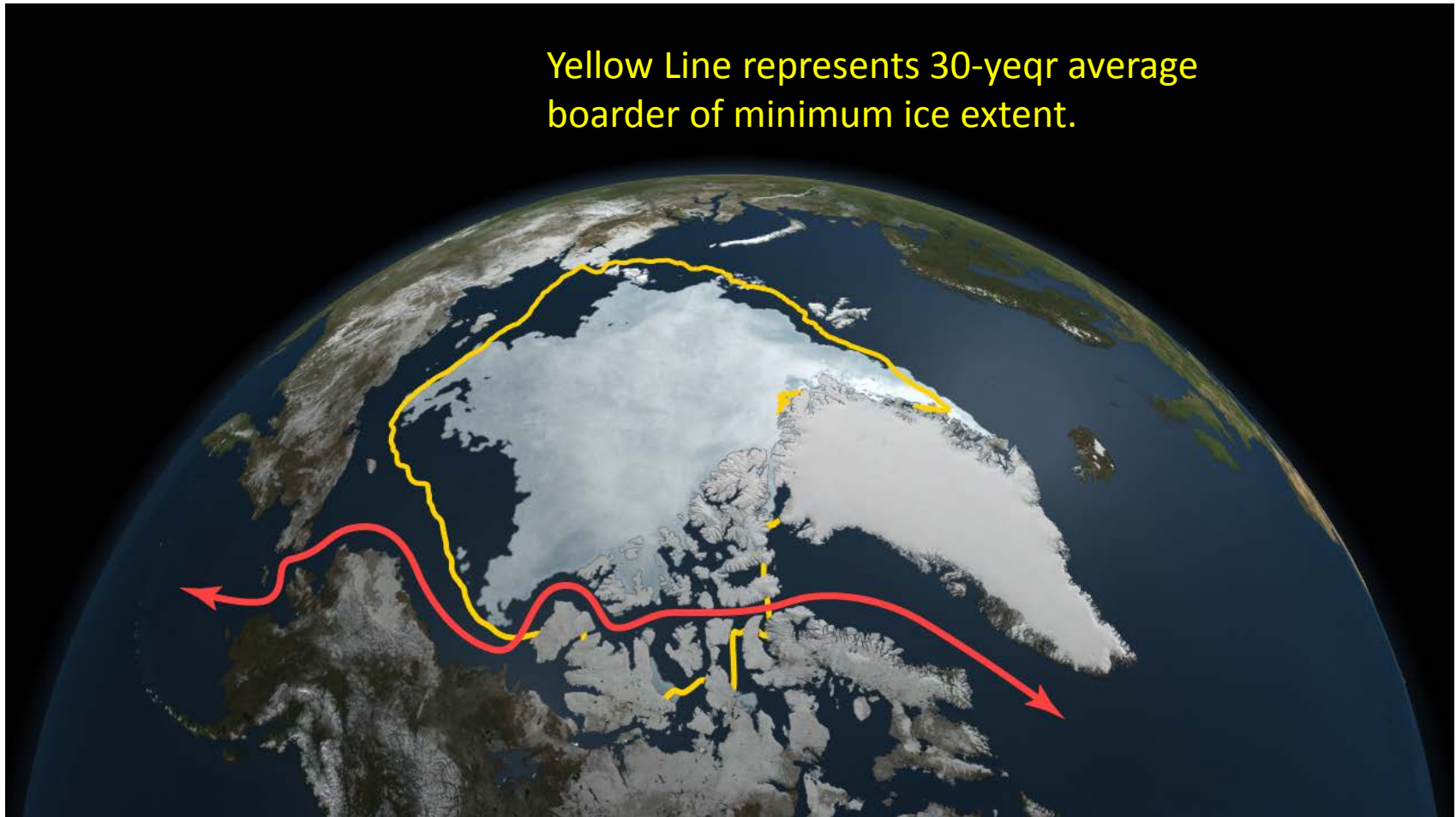


U.S. Global Change Research Program

U.S. temperatures have warmed 1.3-1.9 degrees since 1895, with most of the increase since 1970.



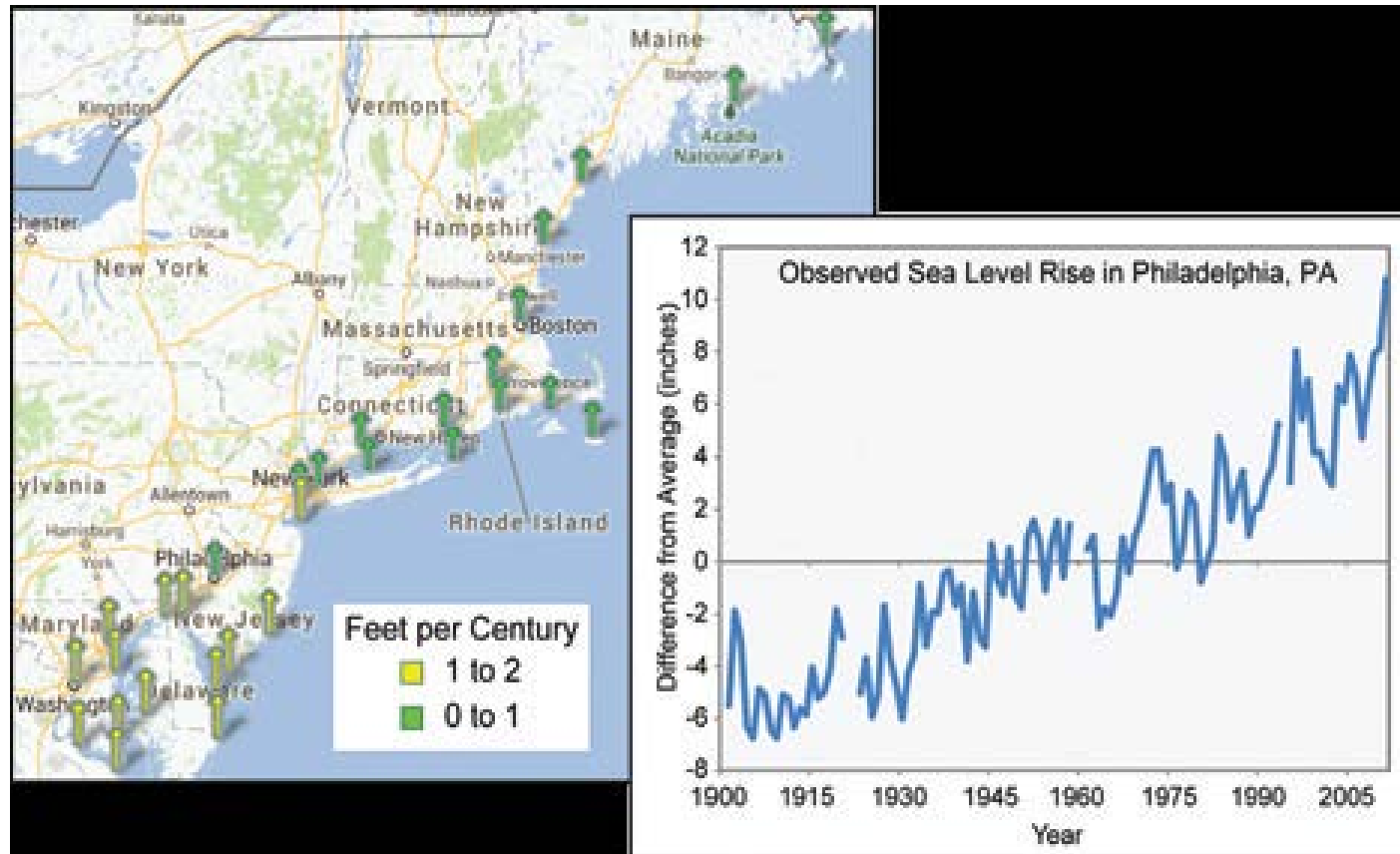
That Fabled Northwest Passage Now Exists in the Summer



http://www.nasa.gov/images/content/593806main_ice_min_2011.01792.jpg

June 2, 2014

Do You Own Beach-Front Property?



Scientists have very high confidence (greater than 90% chance) that global mean sea level will rise at least 8 inches (0.2 meter) and no more than 6.6 feet (2.0 meters) by 2100

<http://scenarios.globalchange.gov/scenarios/sea-level>

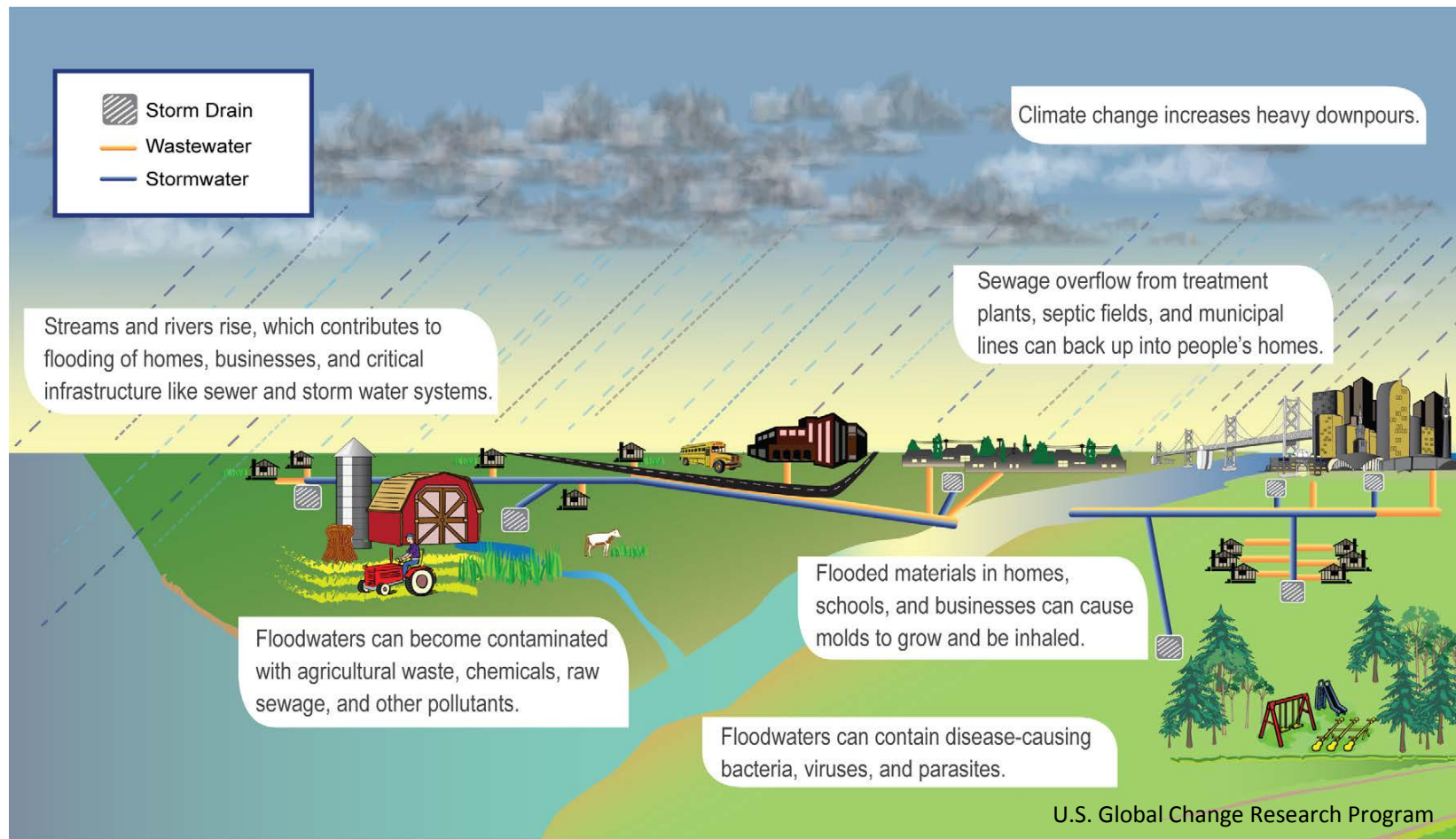
Impacts on Human Health

- Increased extreme weather events
- Wildfire
- Decreased air quality
- Threats to mental health
- Illnesses transmitted by food, water, and disease-carriers such as mosquitoes and ticks
- Increased allergic illness

U.S. Global Change Research Program



Increased Heavy Downpours cause Increased Exposure to Waterborne Disease



June 2, 2014

Air Quality

- Increased ozone
 - Risk of de novo asthma
 - Risk of asthma attack
- Particulate matter
 - Decreased lung growth
 - Asthma exacerbation

Séguin J 2008. Human Health in a Changing Climate. Health Canada

Mental Health Impacts of Extreme Weather

- Kinds of problems
 - Anxiety
 - Depression
 - Post Traumatic Stress Reaction/Disorder (PTSR/D)
- Long-lasting

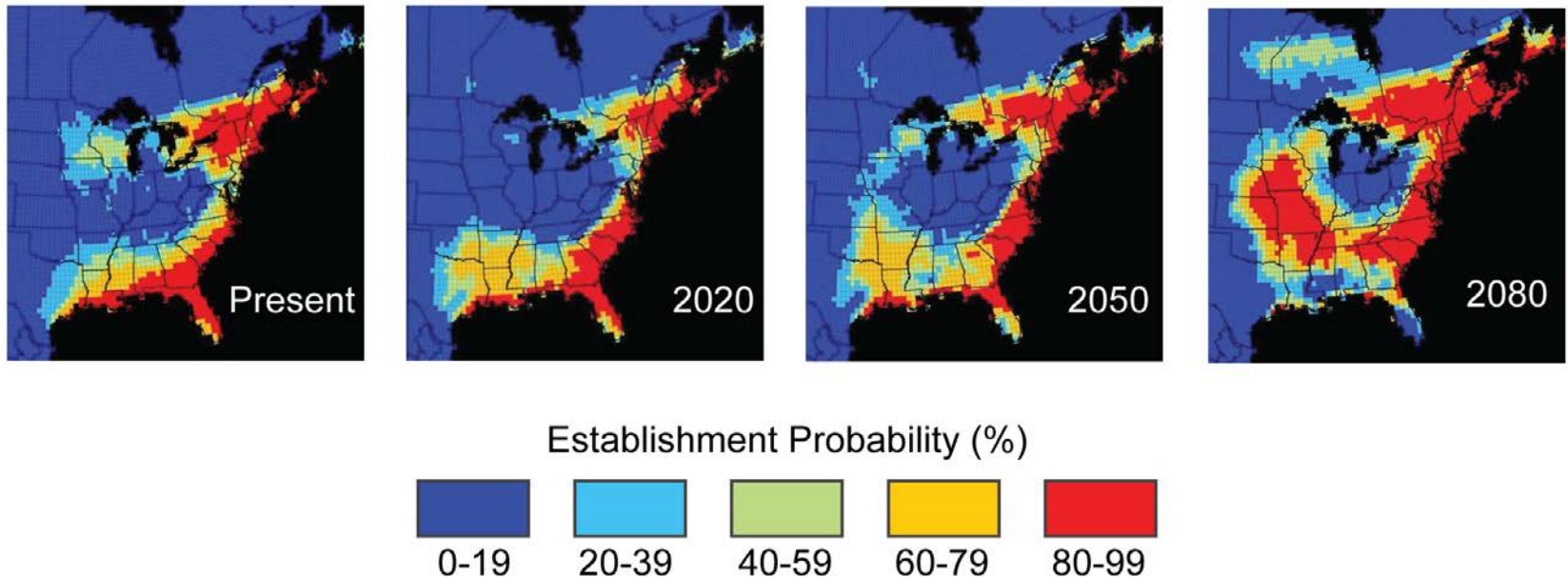


Multi-strike stressor

- Time of event
- During recovery
 - Displacement
 - Loss or damage to home and/or possessions
 - Stress of repair
- Risk of recurrence

SAP 4.6

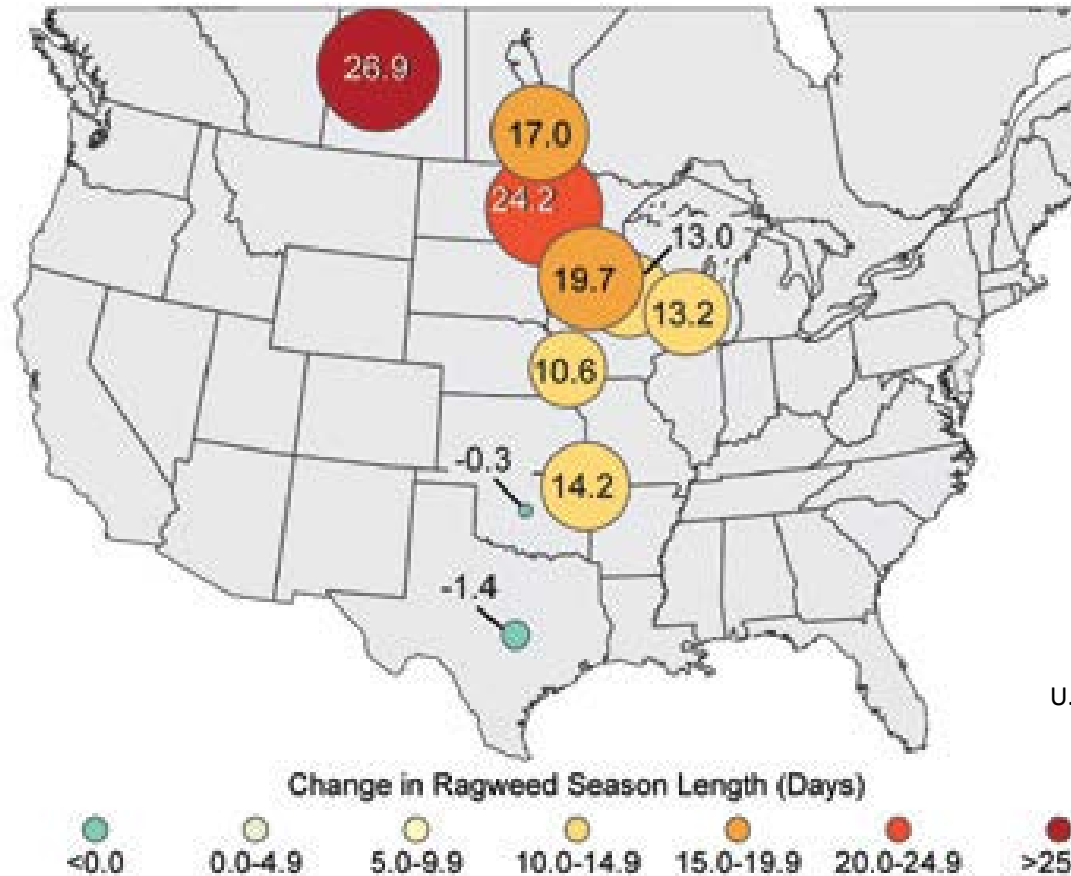
Projected Changes in Tick Habitat (Lyme Disease)



U.S. Global Change Research Program

June 2, 2014

The ragweed (pollen) season is expanding



U.S. Global Change Research Program

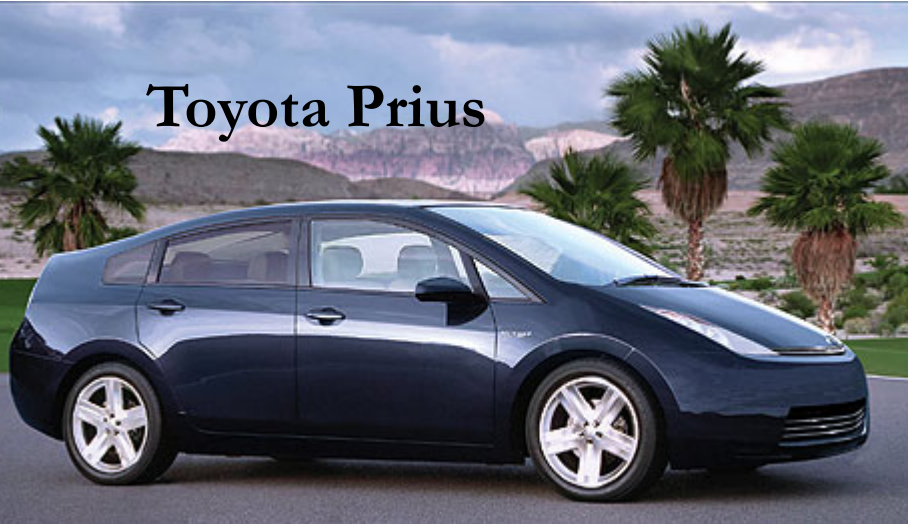
Response: *"Can society manage unavoidable changes and avoid unmanageable changes?"*

Can we elect leaders who take climate change as a real threat to our society ?

- Mitigation – reduce future climate change
 - Decreased burning of fossil fuel
 - Can you
 - Drive less, bike more
 - Drive a hybrid or electric car
 - Decrease energy consumption at home and in the office
 - Eat differently
- Adaptation – address and prepare for impacts
 - Build for storms
 - Personal plan for extreme weather events
 - Support community efforts

Control and Prevention of Outdoor Air Pollution

Toyota Prius



Honda Insight



Chevy Volt

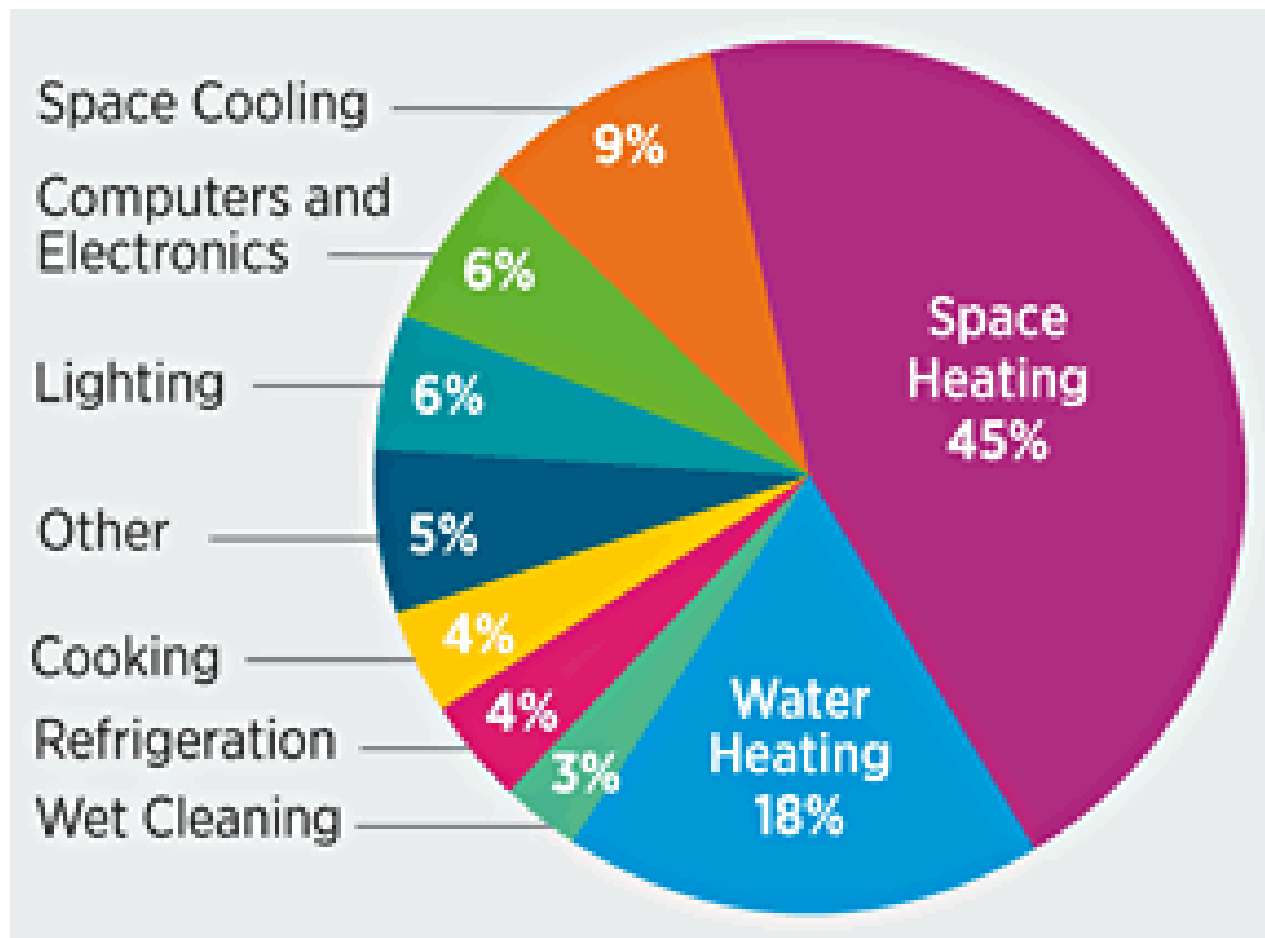


Nissan LEAF





How We Use Energy in Our Homes



- Heating accounts for largest portion of energy bills
 - Space heating
 - Water Heating

<http://energy.gov/energysaver/articles/tips-your-homes-energy-use>

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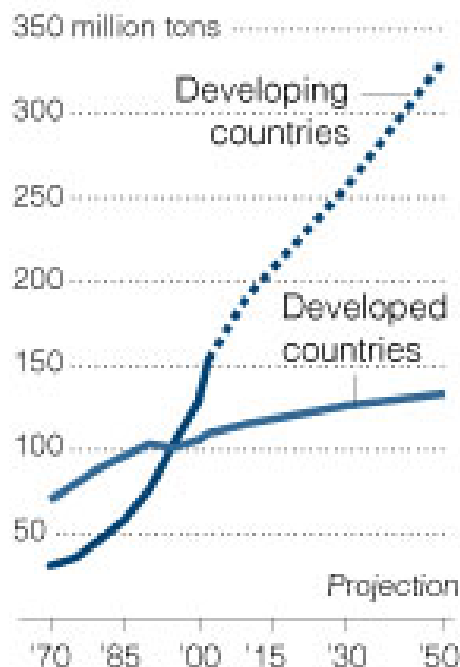
Health care has the second most energy intensive buildings per square foot in the country.

- Mostly hospitals
 - 24 hrs per day
 - High consumption equipment

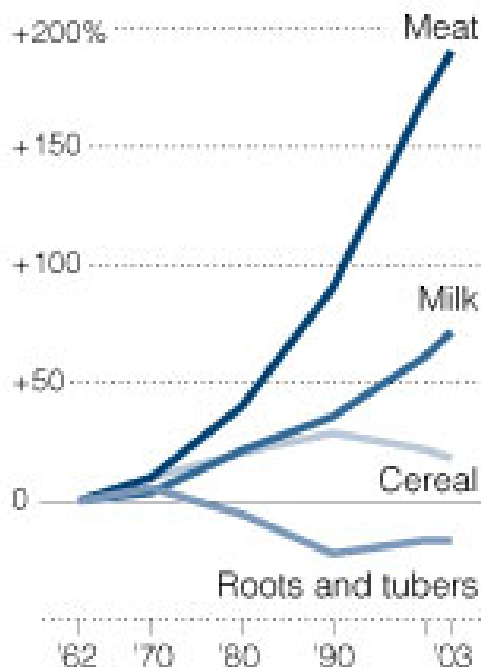
Meat Consumption and CO₂ Emissions

According to a report by the United Nations Food and Agriculture Organization, livestock generates 18 percent of greenhouse gas emissions. The problem is expected to grow, as developing countries increase their consumption of meat and byproducts.

Meat production

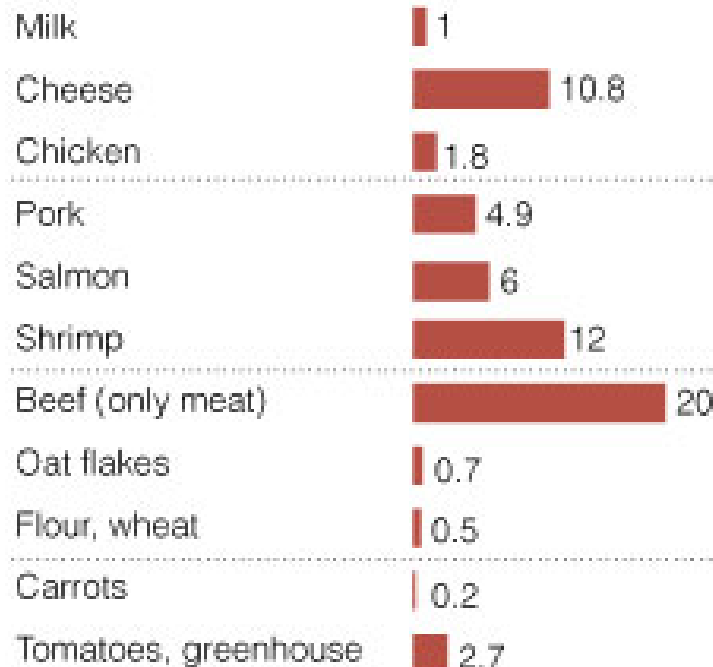


Food consumption in developing countries



CO₂ produced

Pounds of CO₂ per pound of product



Source: "Livestock's Long Shadow," by the United Nations Food and Agriculture Organization, 2006; Lantmannen

THE NEW YORK TIMES

http://www.nytimes.com/2008/12/04/science/earth/04meat.html?pagewanted=all&_r=0

QUESTIONS?



When Confronted with an Environmental Health
Issue Regarding a Child, Where Does One Turn?

To a Pediatric
Environmental Health
Specialty Unit
(PEHSU).



What is a PEHSU?

- A resource for pediatricians, public health officials, school personnel, parents and others to get questions answered about children's health and the environment



What Kinds of Problems do PEHSUs Deal With?

- Lead poisoning
- Pesticide exposures
- Sick building problems
- Water pollution
- Air pollution
- Job related exposures in adolescents
- Volatile Organic Compounds
- Exposure to hazardous waste sites
- Environmentally related asthma
- Agricultural pollutants
- Solvents
- Carbon monoxide
- Arsenic
- Mercury

The Pediatric Environmental Health Specialty Unit (PEHSU) Program is funded by:



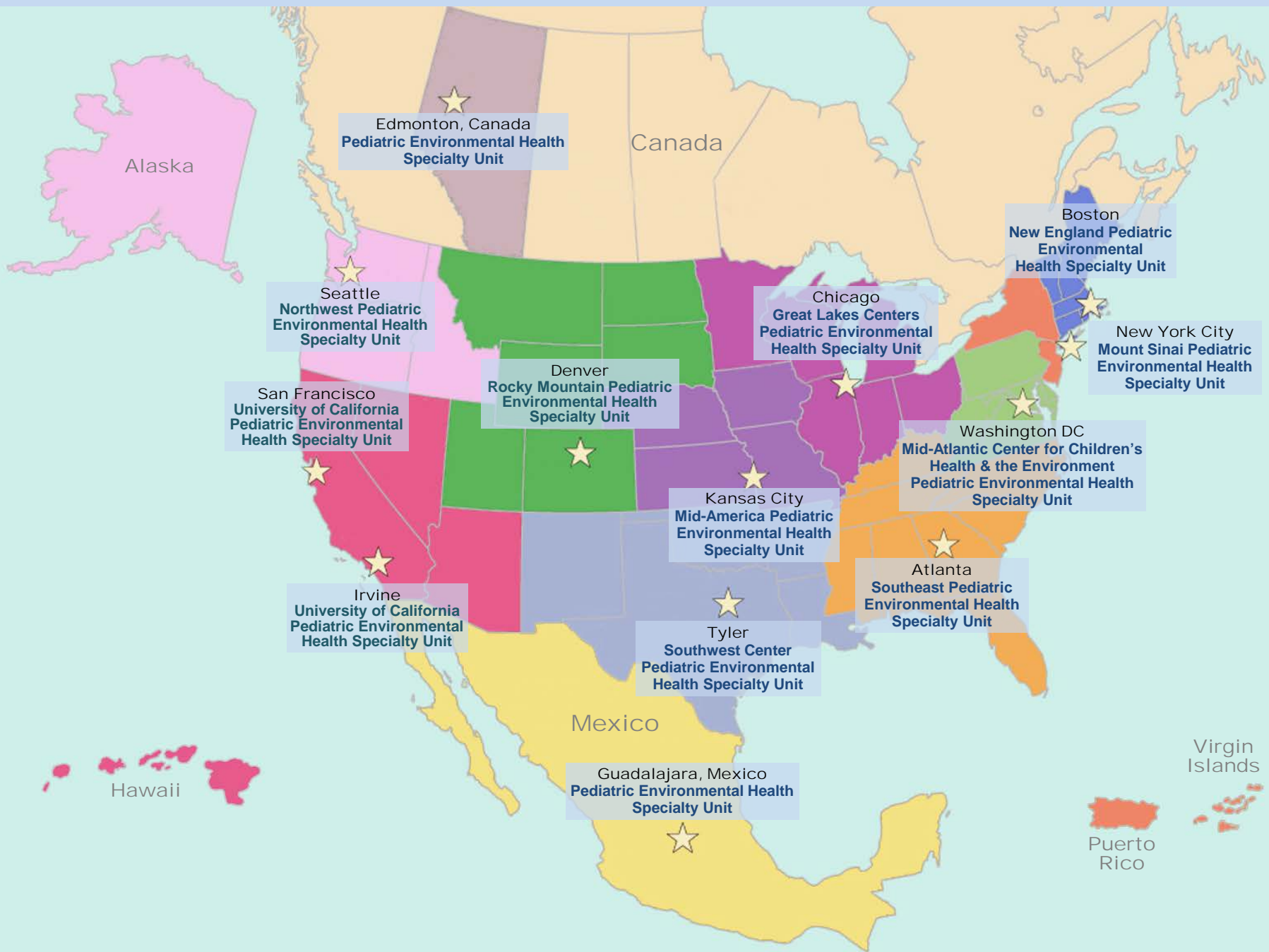
&



The Association of Occupational and Environmental Clinics is responsible for programmatic and financial management.



Pediatric Environmental Health Specialty Units (PEHSU) In North America



THE MID-ATLANTIC CENTER FOR CHILDREN'S HEALTH & THE ENVIRONMENT (MACCHE)

- A PEDIATRIC ENVIRONMENTAL HEALTH SPECIALTY UNIT (PEHSU)
- Based at The Children's National Health System, Washington, DC
- Serve: Pennsylvania, Delaware, Maryland, Virginia, West Virginia, & the District of Columbia



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Questions?

