

Beacon Hill Seminars – 2016

“Earth’s Changing Climate: What is Causing
It? What Will It Mean for You?”

Session 2 – Climate and Sea Level Change

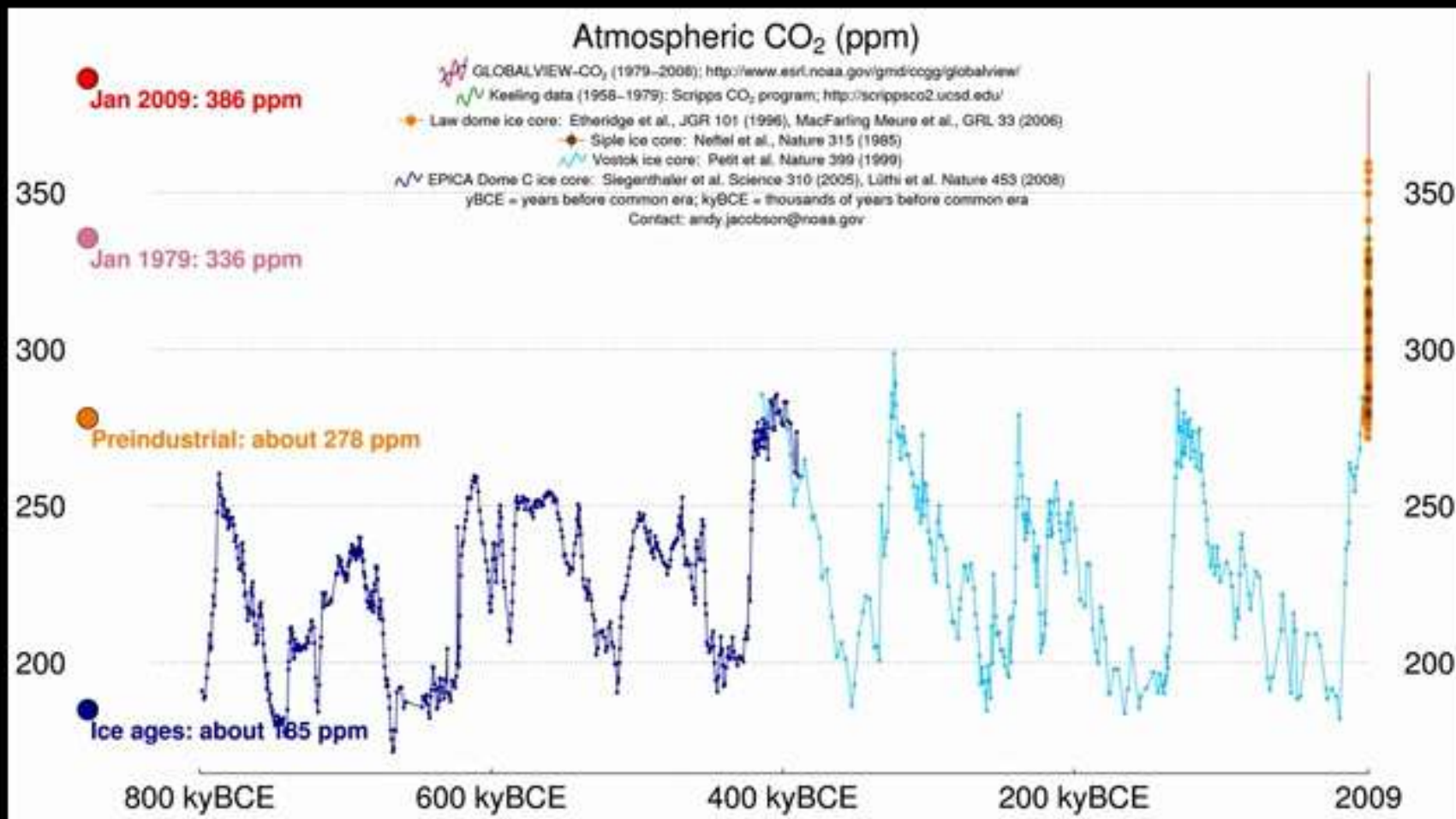


Timothy C. Weiskel

13 October 2016

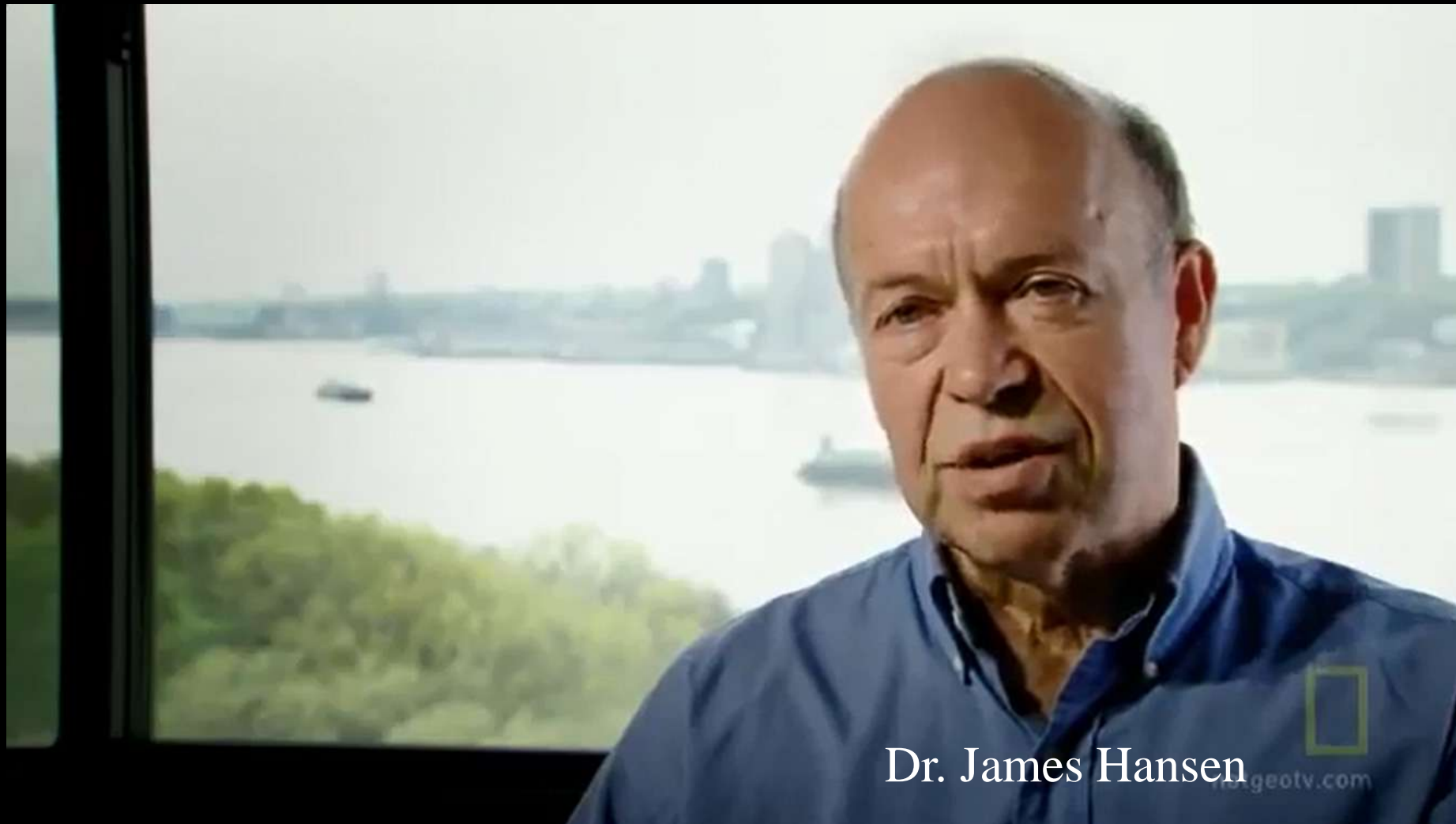
Transition-Studies
Cambridge Climate Research Associates
Fall Semester 2016

Actually, we can learn a lot...



What determines “sea level” in Earth’s ecosystem?





Dr. James Hansen

“...not a question of *will* sea level rise a large amount... It is only a question of how fast that will occur.”

A video still showing Professor Harold Wanless, an older man with glasses and a mustache wearing a green button-down shirt, sitting and talking to a man with grey hair wearing a blue button-down shirt. They are outdoors on a grassy area near a body of water. In the background, a woman in a white t-shirt is standing. The ocean and a distant city skyline are visible under a cloudy sky.

PROFESSOR HAROLD WANLESS
Chair of Geology, University of Miami

What will this mean for Boston in “historical time?”



Courtesy of T.C. Weiskel

Eel fishing, Back Bay section of the lower Charles River, about 1845. The causeway in the background was built for the Boston & Worcester Railroad, which began serving passengers in 1835.

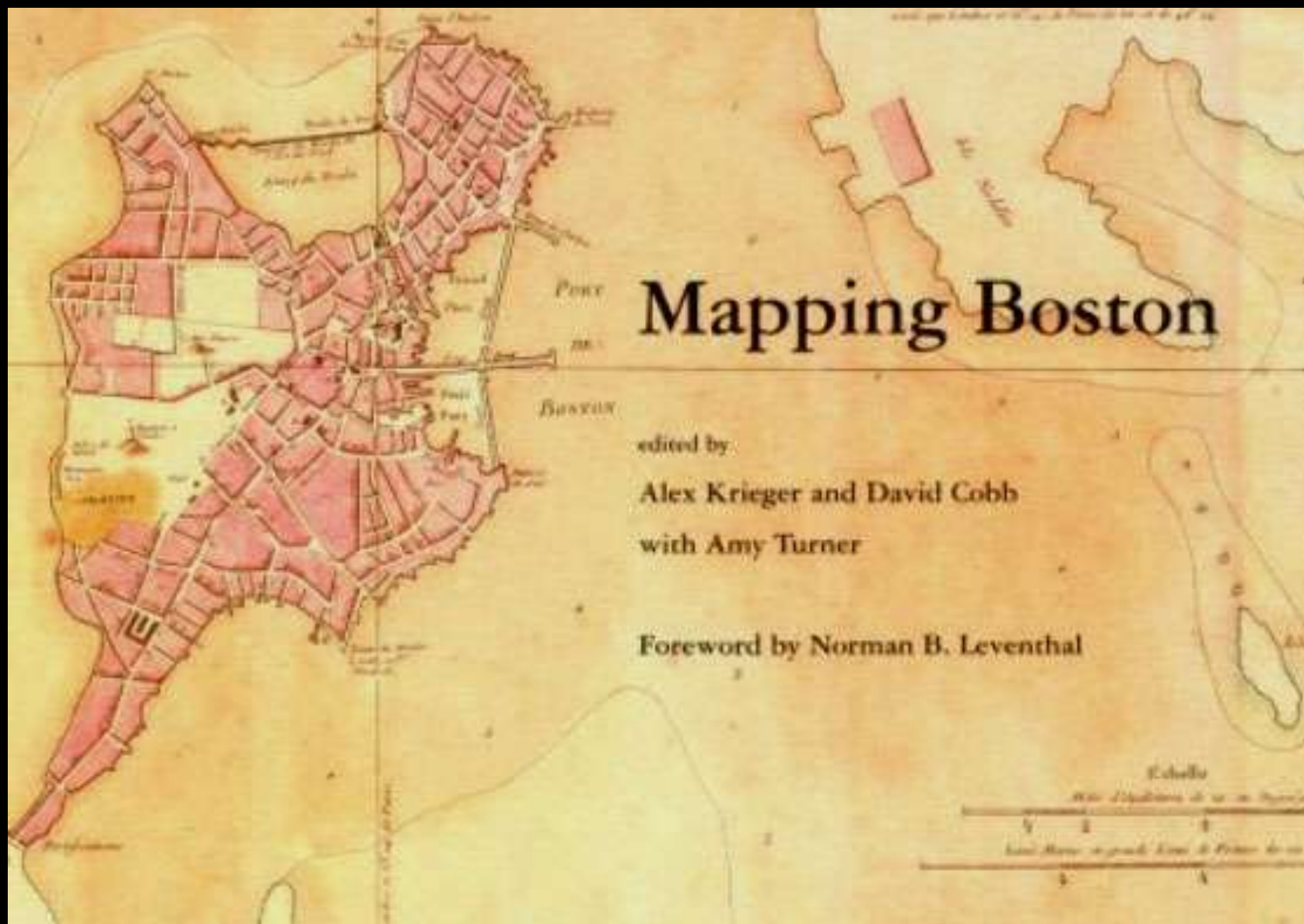
Local Heroes on Global Issues: Fighting for Climate Information and Common Sense



First:

Common Sense

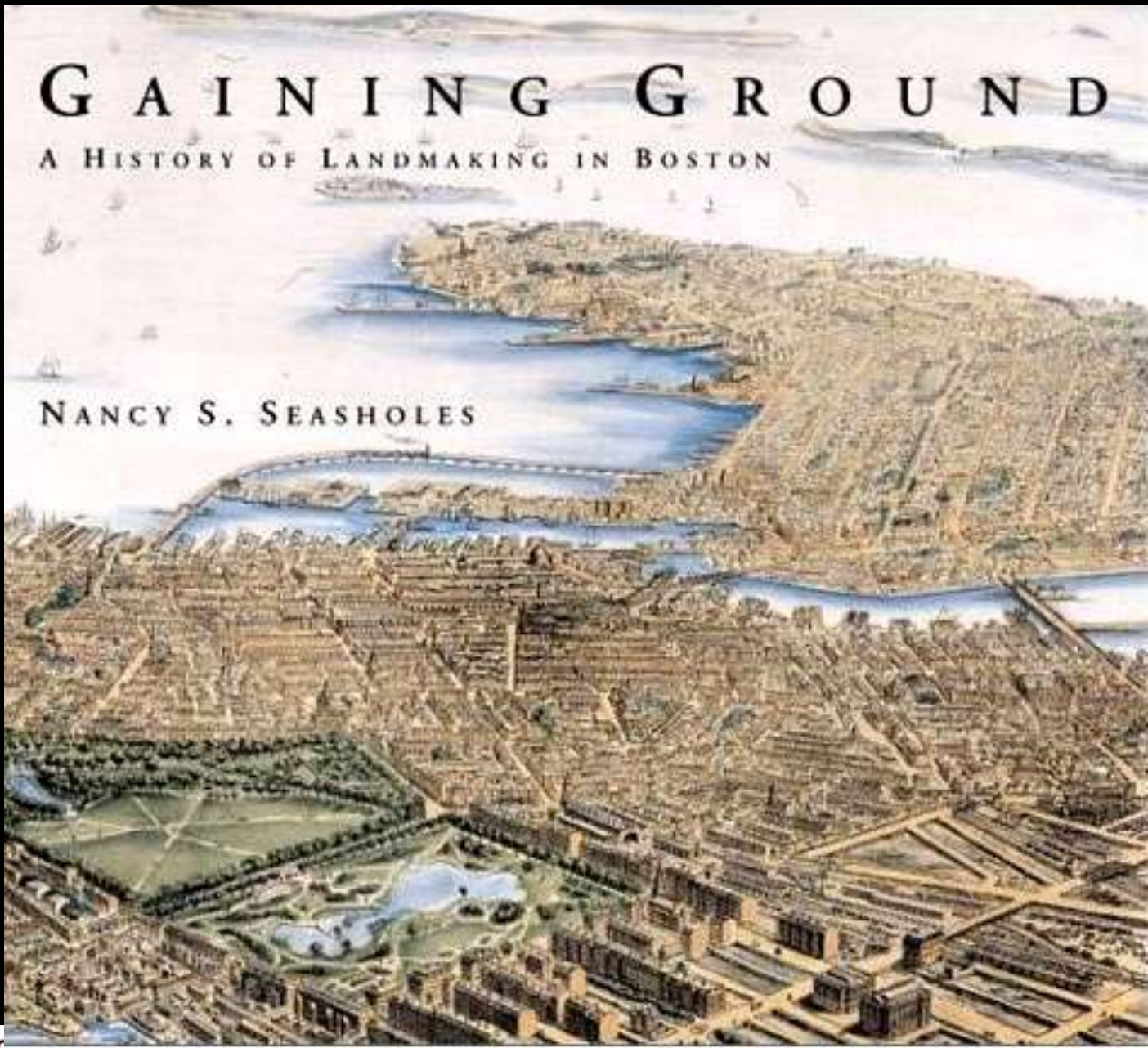
(with a little understanding of history)



GAINING GROUND

A HISTORY OF LANDMAKING IN BOSTON

NANCY S. SEASHOLES



EDEN
ON THE
CHARLES

THE MAKING OF BOSTON

MICHAEL RAWSON



BOSTON'S BACK BAY

The Story of America's Greatest
Nineteenth-Century Landfill Project

WILLIAM A. NEWMAN *and*
WILFRED E. HOLTON

BOSTON'S BACK BAY

The Story of America's Greatest
Nineteenth-Century Landfill Project



BOSTON'S BACK BAY

The Story of America's Greatest
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BOSTON'S BACK BAY

The Story of America's Greatest
Nineteenth-Century Landfill Project





In cooperation with the
U.S. Environmental Protection Agency and the
Massachusetts Department of Environmental Protection

Water Resources and the Urban Environment, Lower Charles River Watershed, Massachusetts, 1630–2005



Circular 1280

BHS be
se

U.S. Department of the Interior
U.S. Geological Survey



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Circular 1280

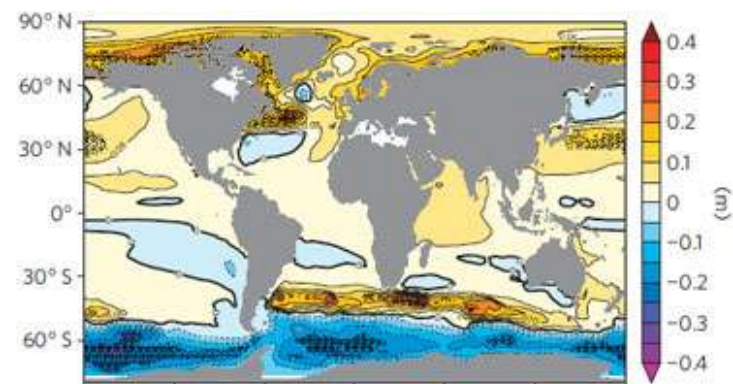
BHS be
se

U.S. Department of the Interior
U.S. Geological Survey

Model projections of rapid sea-level rise on the northeast coast of the United States

Jianjun Yin¹*, Michael E. Schlesinger² and Ronald J. Stouffer³

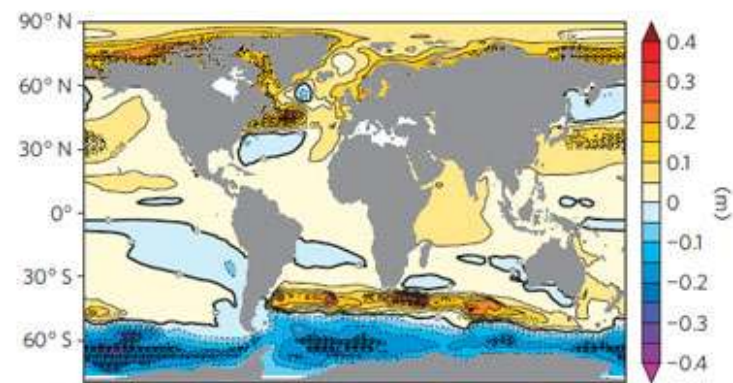
Human-induced climate change could cause global sea-level rise. Through the dynamic adjustment of the sea surface in response to a possible slowdown of the Atlantic meridional overturning circulation^{1,2}, a warming climate could also affect regional sea levels, especially in the North Atlantic region³, leading to high vulnerability for low-lying Florida and western Europe^{4–6}. Here we analyse climate projections from a set of state-of-the-art climate models for such regional changes, and find a rapid dynamical rise in sea level on the northeast coast of the United States during the twenty-first century. For New York City, the rise due to ocean circulation changes amounts to 15, 20 and 21 cm for scenarios with low, medium and high rates of emissions respectively, at a similar magnitude



Model projections of rapid sea-level rise on the northeast coast of the United States

Jianjun Yin^{1*}, Michael E. Schlesinger² and Ronald J. Stouffer³

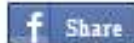
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Feb 18, 2011

Study: Sea level rise to swamp coastal cities by 2100

04:24 PM



36



Yahoo! Buzz



Share



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By Doyle Rice, USA TODAY

233 Comments

10 Recommend



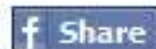
■ CAPTION

Jeremy Weiss, University of Arizona

GREEN

IMPROVE YOUR LIFE. IMPROVE THE WORLD.

Rising seas threaten 180 U.S. cities by 2100: study



Climate Change Video: **Kite Energy May Soon Take Off**
AP



Climate Change Video: **Disappearing Mexican glaciers** Reuters



Climate Change Video: **The Conversation: 'Carbon Nation'** ABC News

By Deborah Zabarenko, Environment Correspondent – Wed Feb 16, 5:29 pm ET

WASHINGTON (Reuters) – Rising seas spurred by climate change could threaten 180 U.S. coastal cities by 2100, a new study says, with Miami, New Orleans and Virginia Beach among those most severely affected.

Previous studies have looked at where rising waters might go by the end of this century, assuming various levels of sea level rise, but this latest research focused on municipalities in the contiguous 48 states with population of 50,000 or more.

Cities along the southern Atlantic coast and the Gulf of Mexico will likely be hardest hit if global sea levels rise, as projected, by about 3 feet (1 meter) by 2100, researchers reported in the journal *Climate Change Letters*.

Study: Sea-level rise threatens 1,400 U.S. cities

Posted on [August 11, 2013](#) | [Leave a comment](#) | [Edit](#)



(Photo: Peter Morgan, AP)



Category II hurricane at high tide

The storm surge overtops the Charles River dam, causing widespread flooding in Cambridge and the Back Bay. The flood extends from Fenway to UMass-Boston in Dorchester.



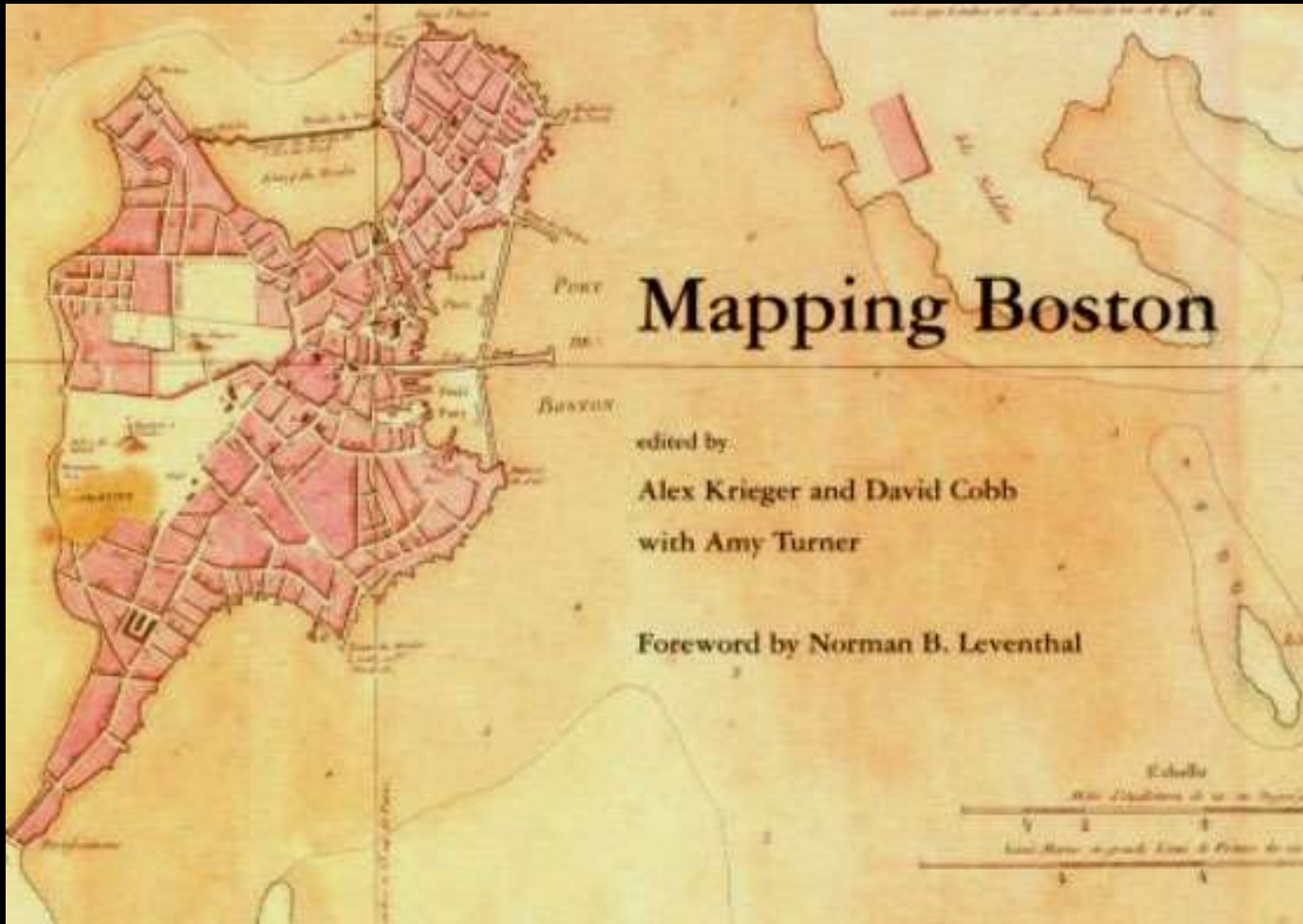
START OVER

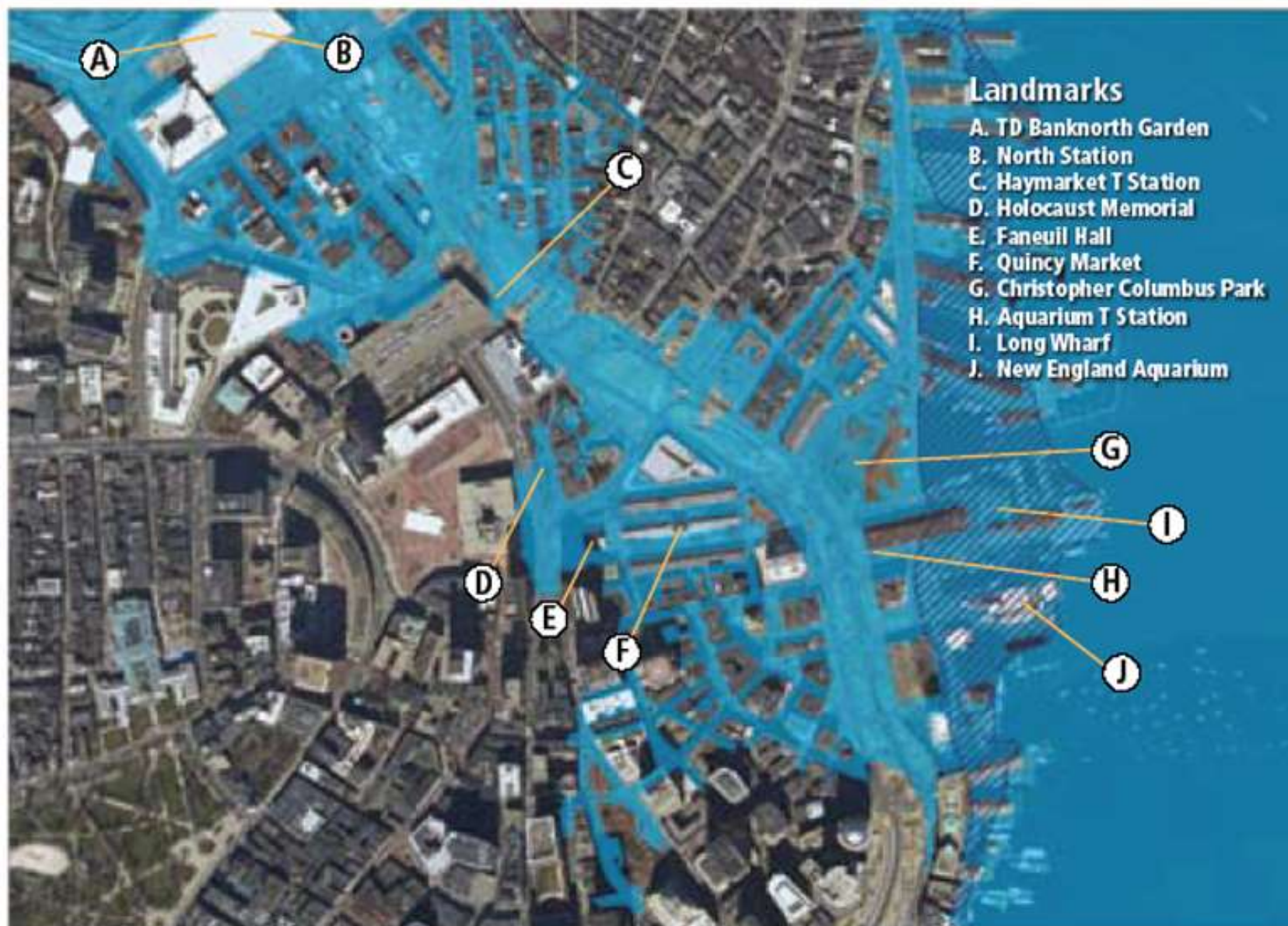
<< BACK

NEXT >>

Methodology

Remember the old maps...?





■ Current 100-year flood zone
■ Projected 100-year flooded area (higher-emissions scenario)



Landmarks

- A. TD Banknorth Garden
- B. North Station
- C. Haymarket T Station
- D. Holocaust Memorial
- E. Faneuil Hall
- F. Quincy Market
- G. Christopher Columbus Park
- H. Aquarium T Station
- I. Long Wharf
- J. New England Aquarium

Park

n

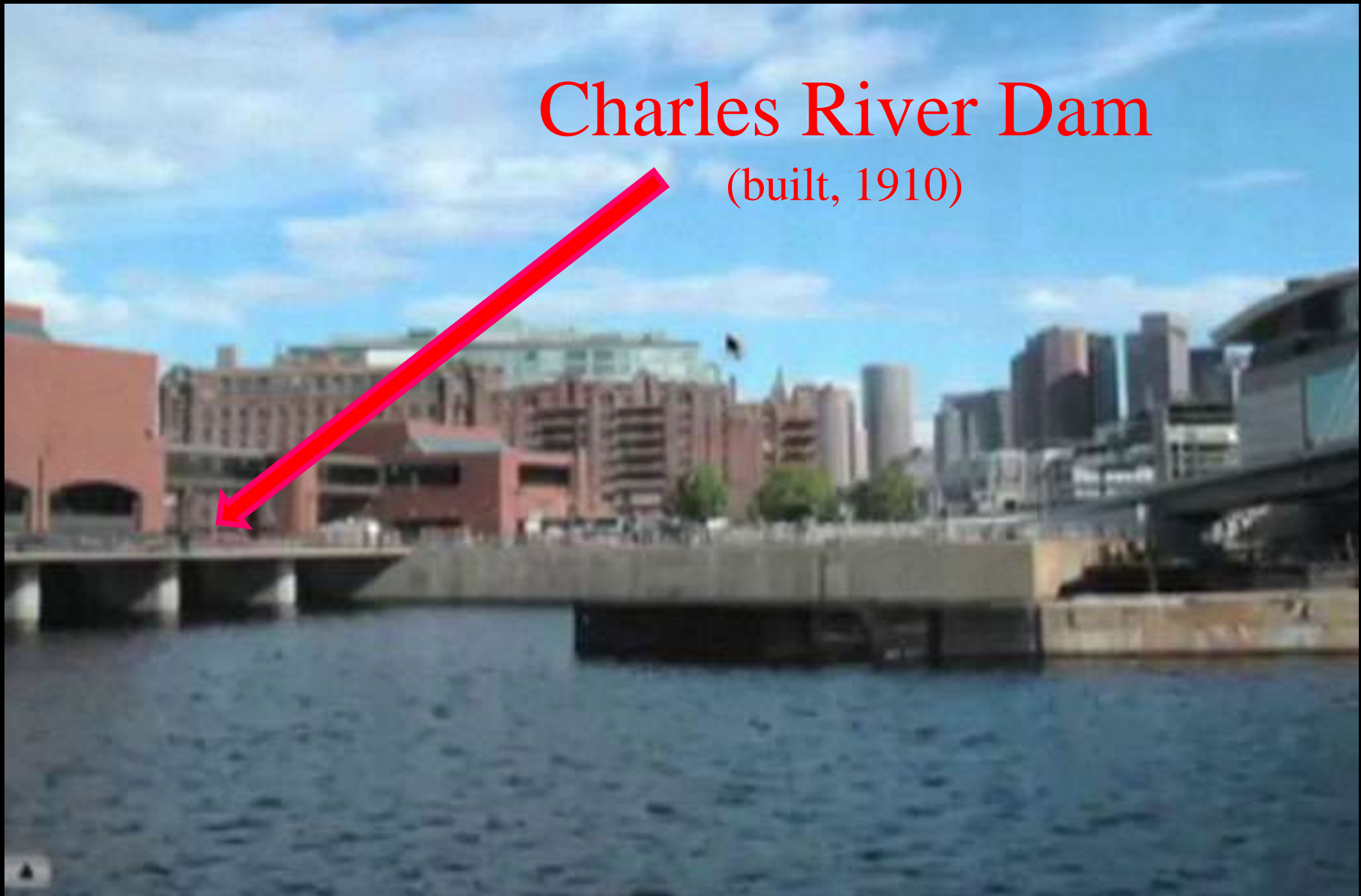


Flooding from 100 year storm with 0.6 m sea level rise



Charles River Dam

(built, 1910)





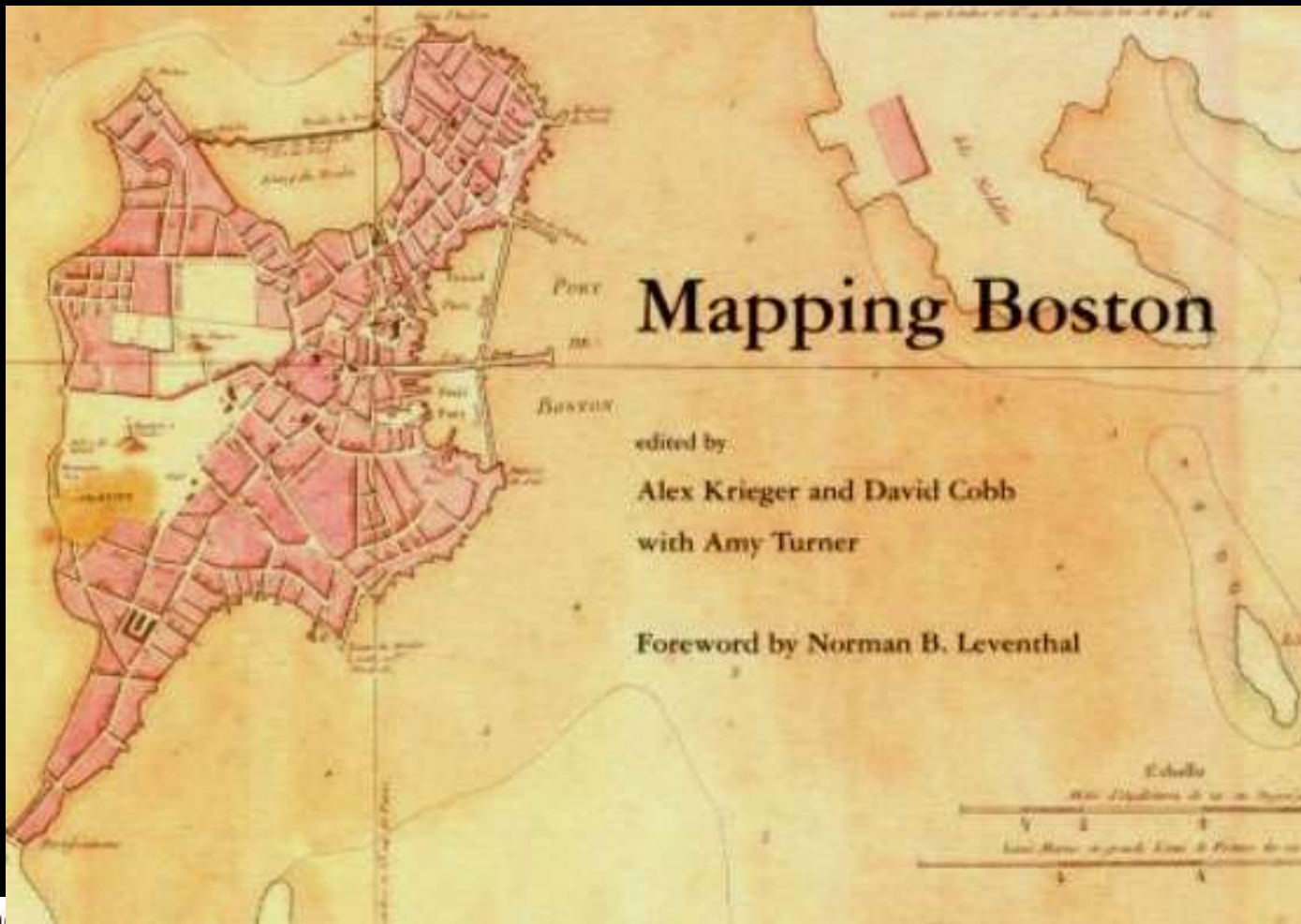


Re-Viewing Boston by the Sea



Re-Viewing Boston by the Sea

Remember the old maps...?



Climate's Long-term Impacts on Metro Boston (CLIMB)



Media
Summary

AUTHORS:

PAUL H. KRISHNAN
TUFTS UNIVERSITY

WILLIAM P. ANDERSON
BOSTON UNIVERSITY

MATTHIAS RUTH
UNIVERSITY OF MARYLAND

Charles River
Dam

Science
Museum



Boston
Univers

Re-

Sea

Study of Potential Impact of Global Climate
Change on Boston

WBUR

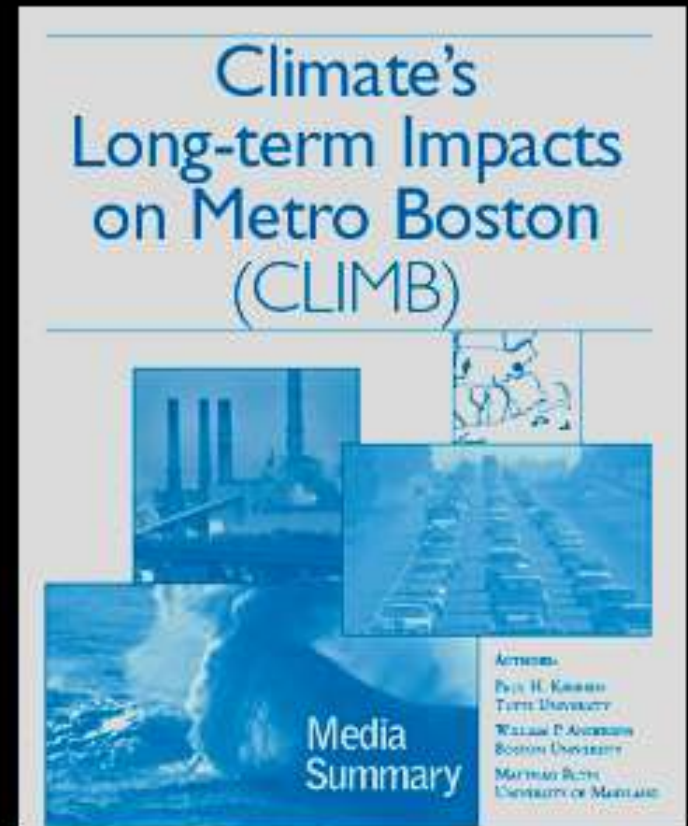
15 February 2005

Report Summary

Report Text

Major Impacts - Summary List

February 2005 Interview
of WBUR's Fred Thys with
Dr. Paul Kirshen
& Dr. William Anderson



Report: 13 August 2004



Click to Start, Pause, Stop

Paul Kirshen – Civil Engineer: **Advocate for common sense about planning for predictable impact of climate change.**



A middle-aged man with grey hair, wearing a red sweater over a light blue collared shirt, is speaking to the camera. He is standing outdoors in front of a large concrete bridge with multiple spans. The background shows a body of water and some industrial or construction structures under an overcast sky.

Paul Kirshen, Ph.D.
Research Leader, Battelle Memorial Institute



Harbor Highlights

The Boston Harbor Association's "Boston Harbor Sea Level Rise Forum" and related community meetings

Come learn about climate change and sea-level rise in Boston Harbor at The Boston Harbor Association (TBHA)'s "Boston Harbor Sea-Level Rise Forum" on the evening of 9 November and the morning of 10 November 2010.



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TBHA 2011

**Become a Member
or Make a Donation**



Announcements


[Harbor News](#)

[Waterfront Activities / Best of Boston Harbor](#)



Featured Events

[Click here](#) for TBHA Events



Featured Resources

The Boston Harbor Association (TBHA) is the leading harbor advocacy group working to promote a clean, alive, and accessible Boston Harbor. Founded in 1973 by the League of Women Voters and the Boston Shipping Association, TBHA prides itself in its creative and innovative programs that bring together diverse interests to build a consensus for an accessible and environmentally sustainable Boston Harbor and waterfront.

TBHA advocates for greater public access, open spaces, and public amenities along Boston Harbor, monitors water quality improvements and supports the restoration of Boston Harbor beaches for swimming, supports a comprehensive and affordable water transportation network throughout the Harbor, educates urban youths about Boston Harbor and related career opportunities, and promotes a "green" Working Port and waterfront. TBHA is also a leader in focusing attention on sea level rise in Boston Harbor.

Boston Harbor Sea Level Rise Forum and Community Meetings

More than 450 people participated on 9 - 10 November 2010 at The Boston Harbor Association's "Boston Harbor Sea Level Rise Forum"

TBHA 2011

**Become a Member
or Make a Donation**

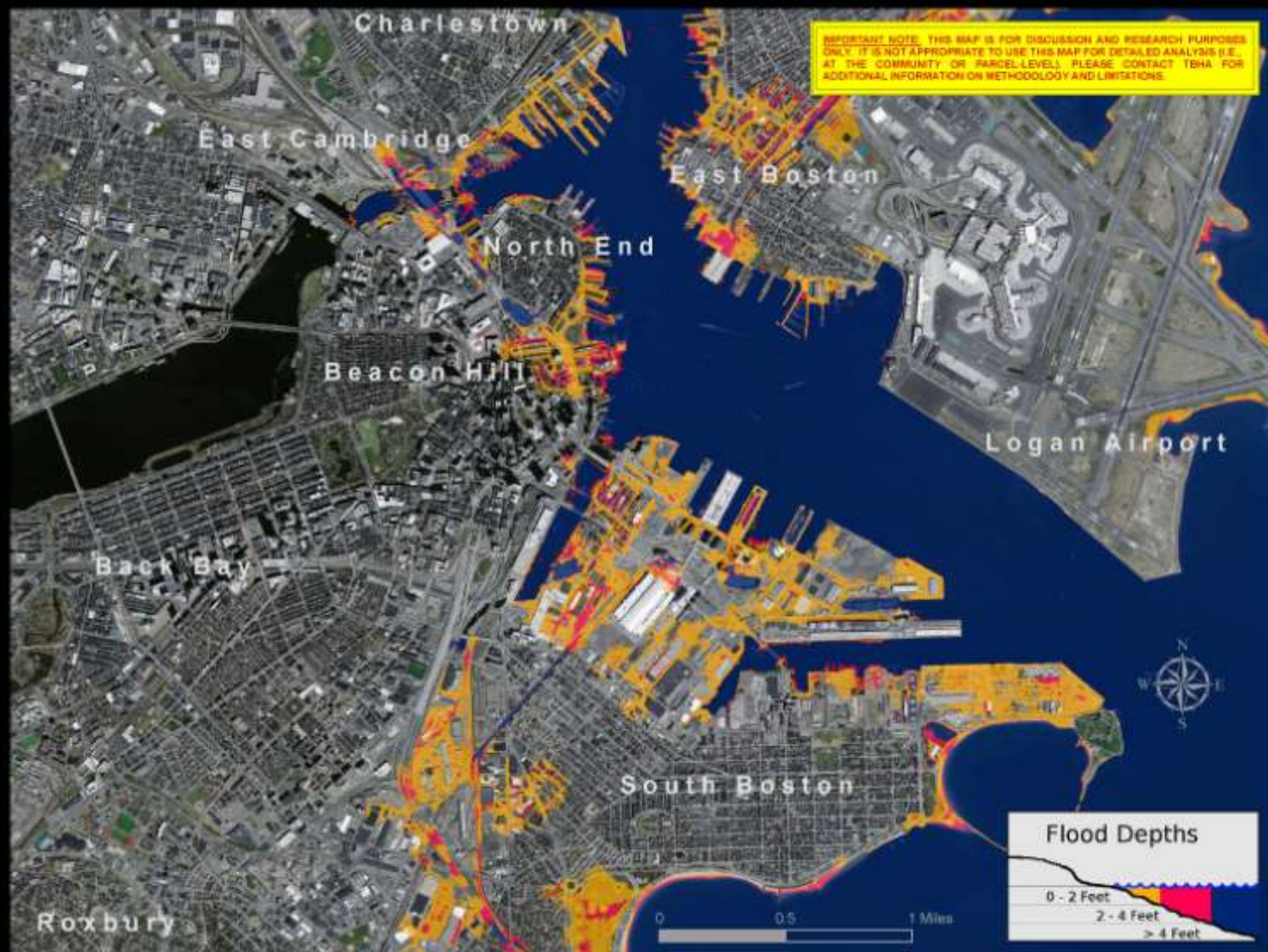
The Boston Harbor Association (TBHA) is the leading harbor advocacy group working to promote a clean, alive, and accessible

Materials from the Forum, including the maps showing potential sea level rise and information from the two community meetings in East Boston and Dorchester, will be posted on TBHA's web site by late March 2011.

 **Featured Resources**

and related career opportunities, and promotes a "green" Working Port and waterfront. TBHA is also a leader in focusing attention on sea level rise in Boston Harbor.

BHS beacon hill
seminars







What does sea-level
rise have to do with
environmental
justice?

Leo Robinson, President of the
Chelsea City Council, 2011



Leo Robinson, President of the
Chelsea City Council, 2011

What does sea-level
rise have to do with
environmental
justice?

Who would you ask?



Leo Robinson, President of the
Chelsea City Council, 2011
OR

Dan Schrag, Director
Harvard University Center
for the Environment.

What does sea-level
rise have to do with
environmental
justice?

Who would you ask?



"Daniel Schrag: Geoengineering," WGBH Forum Network, (30 October 2008).

Dan Schrag's “solution”?





Exxon Sued Again, This Time for Polluting Mystic River

Posted on [October 10, 2016](#) | [Leave a comment](#) | [Edit](#)



THE WEATHER OF THE FUTURE

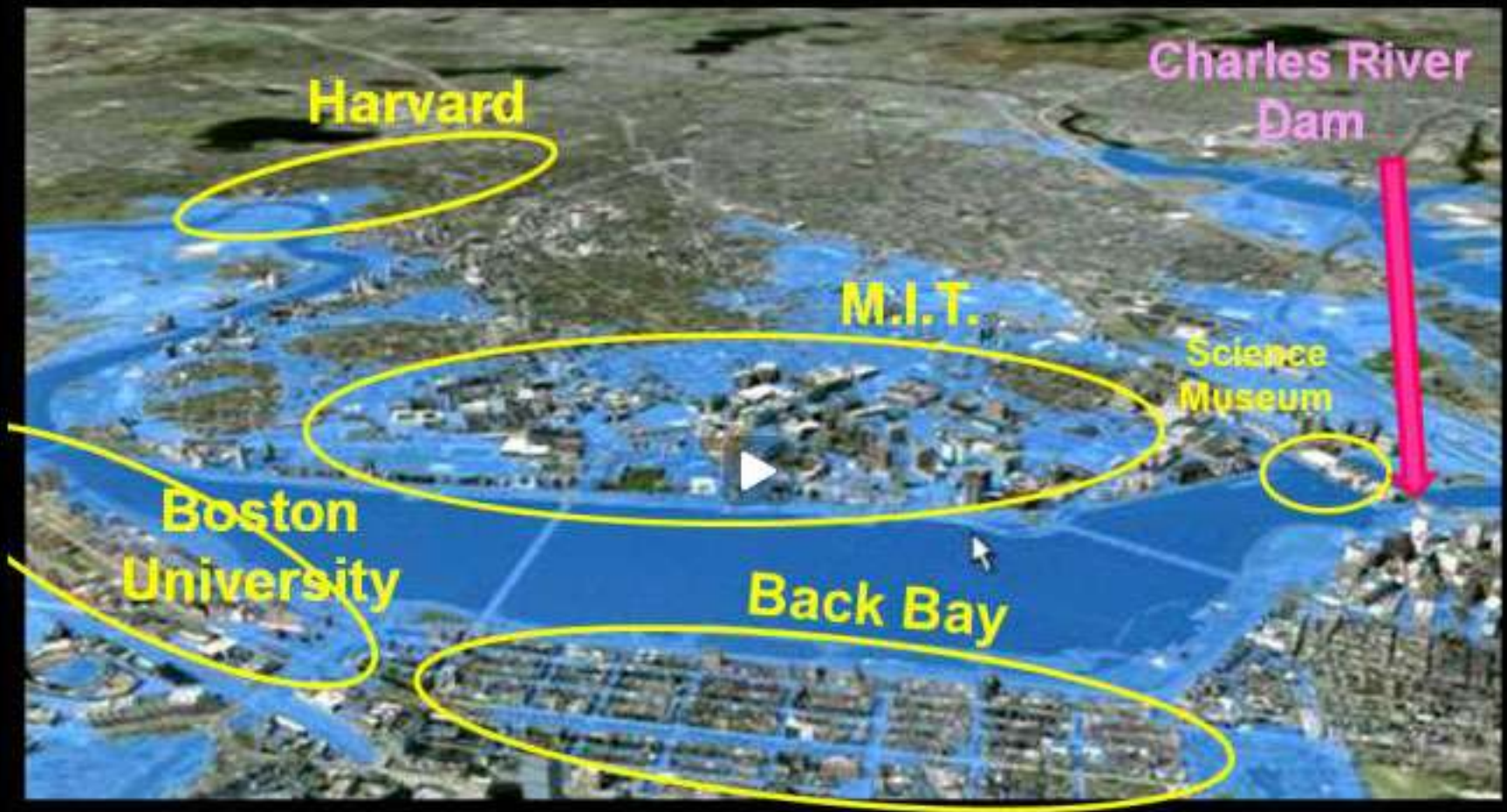
Heat Waves, Extreme Storms, and Other Scenes
from a Climate-Changed Planet



Heidi Cullen

THE WEATHER OF THE FUTURE

Heat Waves, Extreme Storms, and Other Scenes
from a Climate-Changed Planet



Re-Viewing Boston by the Sea



Re-Viewing Boston by the Sea

Rethinking the
Post-Columbian City....

Atlas of Boston History

The Making of a City



edited by Nancy Seasholes

THE UNIVERSITY OF MASSACHUSETTS BOSTON

Department of History, Public History Track

presents

Nancy S. Seasholes, Director and Editor, *Atlas of Boston History*

Susan Wilson, House Historian, Omni Parker House, Boston

Comments by Sam Bass Warner, Jr., Professor of American Urban History
(emeritus), Boston University and Massachusetts Institute of Technology

Legislators Ban Phrase “Sea Level Rise”

Posted on [October 15, 2012](#) | [Leave a comment](#) | [Edit](#)



Published on Jun 30, 2012 by [TheYoungTurks](#)

Legislators Ban Phrase “Sea Level Rise”

Posted on [October 13, 2012](#) | [Leave a comment](#) | [Edit](#)



Published on Jun 30, 2012 by [TheYoungTurks](#)

Institutions and their Leaders in times of catabolic collapse



Exclusive: Harvard President Faust Says Fossil Fuel Companies Are Not Blocking Clean Energy

Posted on March 9, 2014 | [Leave a comment](#) | [Edit](#)

By [Joe Romm](#) on March 4, 2014 at 5:32 pm

"Exclusive: Harvard President Faust Says Fossil Fuel Companies Are Not Blocking Clean Energy"



Leaders of major American
institutions lack the
moral vision to
speak truth
to future
generations.

Even the best informed political leaders are stoking unrealistic expectations.... This is just wrong.



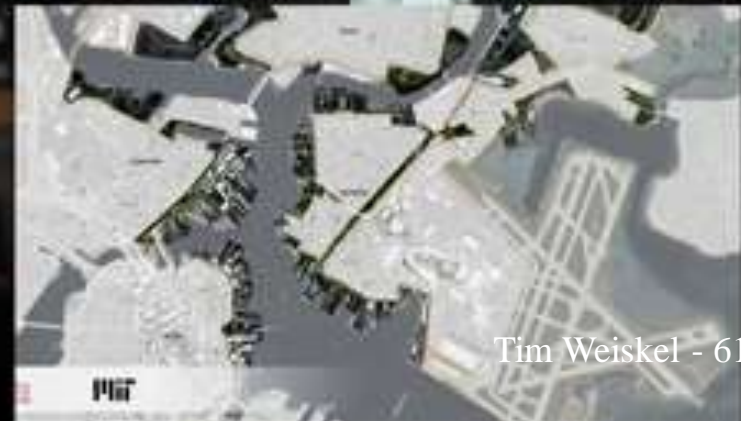
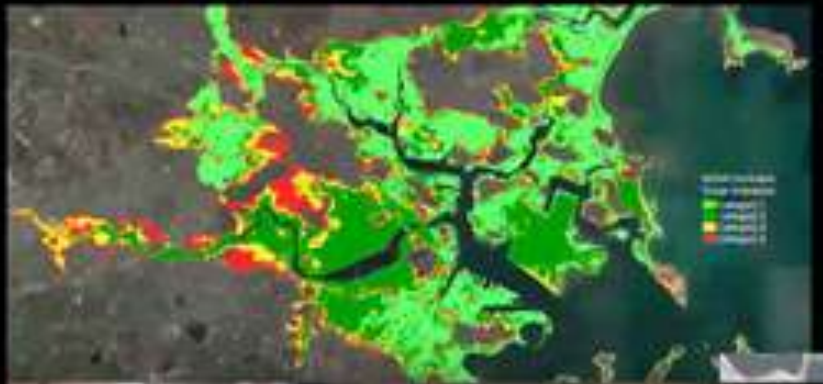
HUBweek: Coping with Climate Change: How Will Boston Adapt?

Posted on [October 21, 2015](#) | [Leave a comment](#) | [Edit](#)



In the absence of national leadership, local communities are taking action....

Adapting to Climate Change **Now:** Climate Experts, Civic Society & Plans for the Transition to a Sustainable Boston



We should pay particular attention to public health insights...



Jennifer Leaning, MD, SMH

*FXB Professor of the Practice of Health and Human Rights
T. H. Chan School of Public Health, Harvard University*

We need to keep the long view in mind...
.... and build our response-ability locally



We need to keep the long view in mind...
.... and build our response-ability locally
The moonlight sonata might help....



There is no “Planet B.”



There is no “Planet B.”

We only have one Earth.



There is no “Planet B.”

We only have one Earth.

We only get one chance.



There is no “Planet B.”

We only have one Earth.

We only get one chance.



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Earth's Changing Climate: What is Causing It? What Will It Mean for You?

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Thank you....

Earth's Changing Climate: What is Causing It? What Will It Mean for You?

Thank you....

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Session 2 – Climate and Sea Level Change



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