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# Independent Advisory Committee on Applied Climate Assessment (IAC): Chairman's Summary of Work in Progress

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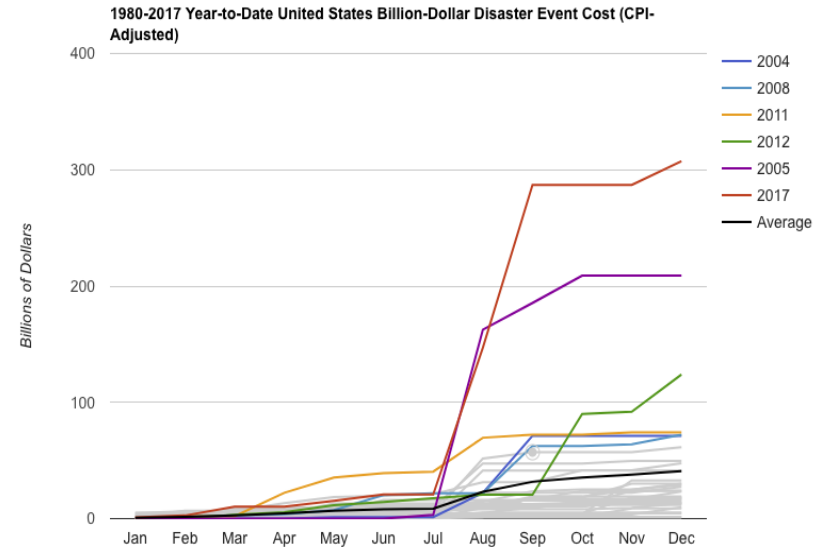
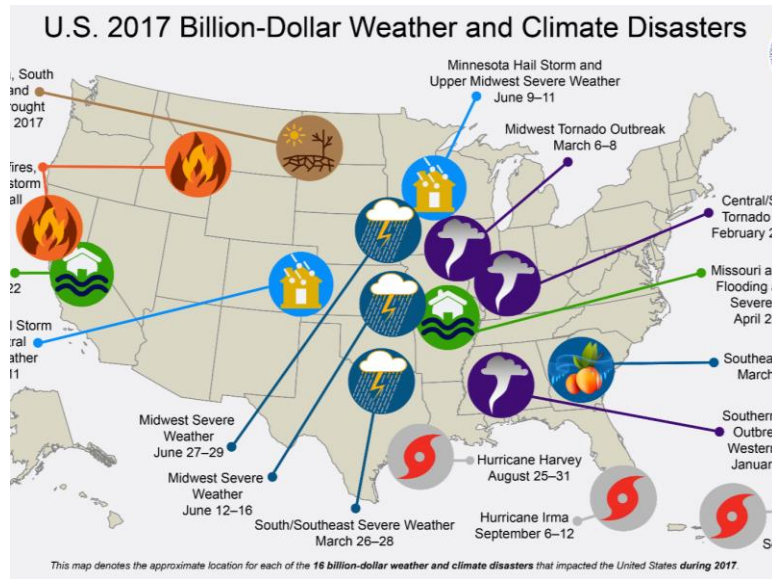
## Members

- **Richard Moss (chair)\***
  - **Susan Avery\***
  - **Kristin Baja**
  - **Maxine Burkett\***
  - **Ann Marie Chischilly\***
  - **Jan Dell\***
  - **Paul Allen Fleming\***
  - **Katharine Jacobs**
  - **Andrew Jones**
  - **Kim Knowlton\***
  - **Jay Koh**
  - **Maria Carmen Lemos\***
  - **Jerry Melillo\***
  - **Raj Pandya**
  - **TC Richmond**
  - **Lynn Scarlett**
  - **Jared Snyder**
  - **Jessica Whitehead\***
  - **Daniel Zarrilli\***
- \* Original FAC member**

# The United States is Facing the Reality of Climate Change

## 2017: Record Damages

**16 separate billion-dollar disaster events  
(1980–2017 annual average is 6.0 events;  
2013–2017 is 11.6 events)**



**\$306+ billion total damages (reported)**

**2017 was the third warmest year on record (global average) and marks the 41<sup>st</sup> consecutive year with global land and ocean temperatures above the twentieth-century average, with the six warmest years on record occurring since 2010**

(Source: NOAA)

## The State of Climate Response Measures

# Good News: Major Efforts Underway to “Mitigate” and “Adapt”

Reducing GHG concentrations is the most important way to limit future climate risks.

States, local governments, companies and citizens are still contributing to global mitigation efforts

Adaptation of systems and practices will also be essential to prepare for changes we cannot avoid

\$Billions are being spent on recovery and disaster mitigation, mostly without considering non-stationarity

# “Adaptation” Goals of Communities and Groups





HOW GREEN OR GRAY SHOULD YOUR SHORELINE SOLUTION BE?

GREEN - SOFTER TECHNIQUES
GRAY - HARDER TECHNIQUES

**Living Shorelines**



**VEGETATION ONLY** - Provides a buffer to upland areas and breaks small waves. Suitable only for low wave energy environments.

**EDGING** - Added structure holds the toe of existing or vegetated slope in place.

**SILLS** - Parallel to existing or vegetated shoreline, reduces wave energy, and prevents erosion. Suitable for most areas except high wave energy environments.

**Coastal Structures**



**BREAKWATER** - (vegetation optional) - Offshore structures intended to break waves, reducing the force of wave action, and encourage sediment accretion. Suitable for most areas.

**REVETMENT** - Lays over the slope of the shoreline and protects it from erosion and waves. Suitable for sites with pre-existing hardened shoreline structures.

**BULKHEAD** - Vertical wall parallel to the shoreline intended to hold soil in place. Suitable for areas highly vulnerable to storm surge and wave forces.





**Water Reuse**  
POTENTIAL FOR EXPANDING THE NATION'S WATER SUPPLY THROUGH REUSE OF MUNICIPAL WASTEWATER



**BEAT THE HEAT: Extreme Heat**  
Heat related deaths are 100% preventable

**WHAT:** Extreme heat or heat waves occur when the temperature reaches extremely high levels or when the combination of heat and humidity causes the air to become oppressive.

**WHO:** Children, Elderly, Construction workers

**WHERE:** Homes with little to no AC, Construction work sites, Cars

**HOW TO AVOID:** Stay hydrated with water, avoid sugary beverages, Stay cool in an air conditioned area, Wear light weight, light colored, loose fitting clothes



**sustainable agriculture**

Other terms in cloud: community, system, family, exorbitant, price, local, renewable, nitrogen, steam, technology, management, upstream, deforestation, measure, reduces, rainfall, global, transportation, slash, farm, agriculture, cultivated, pest, sustainable, expressed, products, water, carbon, nutrient, price, local, renewable, nitrogen, steam, technology, management, upstream, deforestation, measure, reduces, rainfall, global, transportation, slash, farm, agriculture, cultivated, pest, sustainable, expressed, products, water, carbon, nutrient.

- Build weather-ready infrastructure (transportation, housing, etc.)
- Manage development for future wildfire risk
- Reduce inland flooding (green and traditional infrastructure?)
- Protect coastal properties from erosion and manage coastal storms
- Maintain or improve electric service
- Locate public or private facilities
- Invest in water supply infrastructure
- Maintain water quality in rivers/lakes
- Protect vulnerable populations during extreme heat events
- Plan and implement conservation projects (maintain biodiversity)
- Promote sustainable agricultural practices

# A New Approach: “Applied Assessment”

**There are many possible ways to assess climate science and make it available for application**

National Assessments predominantly focus on the “state of science” of future climate conditions or impacts in three broad ways:

- By exposures
- By sector
- By region

**Recommendation: Assess how science is applied to inform adaptation and mitigation objectives**

- Need to explore different approaches to applied assessment
  - Topical organization? What to assess? Data?
  - Key issue: what’s generalizable?
- Advisory committee explores one approach:
  - Based on adaptation and mitigation goals of communities
  - Compare and assess different cases in a category (sourced from ongoing work; expand data collection)

**Build on Ongoing Activities, Create Communities of Practice Around Goals/Challenges**

# A New Institution: Civil Society Climate Assessment Consortium

## Benefits:

- Incorporate knowledge of people working on the ground
- Develop tested practices
- Scale up support for adaptation and mitigation

## Building blocks:

- Subnational governments
- Professional societies
- Civic groups
- Research organizations (academic centers, universities, regional science and assessment hubs),
- Private sector (corporations and other businesses)

## Challenges:

- Foster collaborations that improve decision support
- Balance needs of array of users and interests of network members
- Establish collaborative governance, transparency, and scientific integrity
- Funding

## Possible next steps:

- Convene an organizing process in fall 2018 to establish a board and secretariat and agree on overall purposes, functions, and principles
- Launch early 2019

## Table of Contents of the IAC Report

# IAC Report: Assessing Climate Science for Climate Action

Executive Summary

Guide to the Report

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2: Practitioner Perspectives and Needs

3: Assessing Science to Support Goals and Actions

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5: Sustained Assessment Network Functions, Design, and Governance

6: Recommendations for an Applied, Sustained Climate Assessment Process