Congressional Briefing:

“Federal Action for Resilient Coasts”

Thursday, October 29, 2020
About EESI...

**NON-PROFIT**
Founded in 1984 by bipartisan Congressional caucus as independent (i.e., not federally-funded) non-profit organization

**NON-PARTISAN**
Source of non-partisan information on environmental, energy, and climate policies

**DIRECT ASSISTANCE**
In addition to full portfolio of federal policy work, EESI provides direct assistance to utilities to develop “on-bill financing” programs

**SUSTAINABLE SOCIETIES**
Focused on win-win solutions to make our energy, buildings, and transportation sectors sustainable, resilient, and more equitable
BRIEFING WEBCASTS
Live and archived video recordings of public briefings and written summaries

CLIMATE CHANGE SOLUTIONS
Bi-weekly newsletter with all you need to know including a legislation tracker

SOCIAL MEDIA (@EESIONLINE)
Follow us on Twitter, Facebook, LinkedIn, and YouTube

FACT SHEETS
Timely, objective coverage climate and clean energy topics
A Resilient Future for Coastal Communities
Coastal Resilience Briefing Series...

- Localizing Sea Level Rise Projections for Decision-Makers
- Assessing National Park Asset Flood Risk: Retreat, Adapt, Fortify?
- Cultural Heritage and Climate Change
- Bridging the Gap Between Science and Decision-Making
- Weather and Social Data to Inform Participatory Planning Initiatives

Coastal Resilience in Alaska

Resilience along the West Coast

Financing Climate Mitigation and Resilience: Lessons from Hawaii

Coastal Resilience in the Great Lakes Region

Improving Coastal Resilience in the Northeast

Coastal Resilience in the Southeast

Nature-based Resilience for Gulf Coast Communities

Community-Centered Resilience: Lessons from Louisiana

Puerto Rico the U.S. Virgin Islands Miniseries
- Federal Support and Local Action
- Resilient Housing and Communities
- Sustainable, Democratic Energy and Public Health
A Resilient Future for Coastal Communities
...Coastal Resilience Briefing Series...

Mary Austerman, New York Sea Grant
Patrick Barnard, USGS Pacific Coastal and Marine Science Center
Samuel Belknap, The Island Institute
Donald Bogan, Bayou Interfaith Shared Community Organizing
Kate Boicourt, Waterfront Alliance
Adam Borrello, North Shore Community Land Trust of Hawaii
Derek Brockbank, American Shore & Beach Preservation Association
Samantha Brooke, U.S. Fish and Wildlife Service
Sara Burns, The Nature Conservancy
Rob Croll, Great Lakes Indian Fish & Wildlife Commission
Ernesto Diaz, Puerto Rico Department of Natural and Environmental Resources
Nicole Faghin, Washington Sea Grant
Jessica Fain, San Francisco Bay Conservation and Development Commission
Beth Gibbons, American Society of Adaptation Professionals
Greg Guannel, University of the Virgin Islands
Anukriti Hittle, Hawaii Department of Land and Natural Resources
Aimee Kinney, Puget Sound Institute
Justin Kozak, Center for Planning Excellence
Alex Kragie, Coalition for Green Capital
Charles Lester, UC Santa Barbara
Jeremy Littell, Alaska Climate Adaptation Science Center
Gwen Yamamoto Lau, Hawaii Green Infrastructure Authority
Scudder Mackey, Ohio Department of Natural Resources
Arturo Massol-Deyá, Casa Pueblo de Adjuntas and University of Puerto Rico
Ian Miller, Washington Sea Grant
Sarah Murdock, The Nature Conservancy
Raymond Paddock III, Central Council of the Tlingit and Haida Indian Tribes of Alaska
Aaron Poe, Aleutian Bering Sea Initiative
Rhonda Price, Mississippi Department of Marine Resources and Gulf of Mexico Alliance
Marcy Rockman, International Council on Monuments and Sites and Co-Equal
Liz Williams Russell, Foundation for Louisiana
Mathew Sanders, Louisiana Office of Community Development
Ruth Santiago, El Puente-Latino Climate Action Network and Comité Dialogo Ambiental, Inc.
Laurie Schoeman, Enterprise Community Partners
Amy Snover, Northwest Climate Adaptation Science Center
Brody Stapel, Edge Dairy Farmer Cooperative and Double Dutch Dairy
Heidi Stiller, National Oceanic and Atmospheric Administration
Margarita Varela, U.S. House of Representatives Committee on Natural Resources
Joanna Walczak, Florida Department of Environmental Protection
Lexia Weaver, North Carolina Coastal Federation
Ross Weaver, Wetlands Watch
Rob Young, Western Carolina University
A Resilient Future for Coastal Communities
...Coastal Resilience Briefing Series

A RESILIENT FUTURE FOR COASTAL COMMUNITIES

Federal Policy Recommendations from Solutions in Practice

- Six Guiding Principles
- 30 Policy Recommendations (with Examples) Across Six Themes
- Eight Policy Levers
- Organized by Category and Policy Lever
- Definitions, References, and Program Catalog
Federal policies and programs must be designed and implemented based on the climate of the future rather than the climate of the present or past. Climate justice and equity must be fully embedded into new policies and programs and incorporated into ongoing efforts. The federal government should take a leadership role in connecting science with practice, and support and expand collaborations with state, local, and tribal efforts. The federal government should take a leadership role to ensure that intra- and inter-agency coordination helps states, local governments, and tribes to access available coastal resilience resources. Federal investments in coastal communities must be leveraged to create local jobs and help develop a workforce trained in adaptation and resilience. Climate adaptation and resilience work should complement and, when possible, contribute to a decarbonized, clean energy economy.
A Resilient Future for Coastal Communities
Federal Policy Recommendations

- Community at the Forefront
- Land Use and Development
- Cultural Heritage
- Climate Adaptation and Resilience Data
- Disaster Preparedness
- Financing Adaptation and Resilience

**TABLE 1**
RECOMMENDATIONS ORGANIZED BY CATEGORY

<table>
<thead>
<tr>
<th>Category</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>Federal agencies should provide funding within adaptation and resilience grant opportunities for local leader training.</td>
</tr>
</tbody>
</table>

**TABLE 2**
RECOMMENDATIONS ORGANIZED BY FEDERAL POLICY LEVER

- **Capacity Building**
  - 1.1 In order to establish and strengthen long-term relationships, federal agencies should consult with communities to ensure that projects and programs are designed with the community and specifically address community needs.
  - 1.2 Federal agencies should provide funding within adaptation and resilience grant opportunities for local leader training.
  - 1.3 Federal government funding for adaptation and resilience should be designed so that communities have more decision-making authority in project implementation.
  - 2.1 Congress should ensure that all land use planning is designed— and all infrastructure is built—to anticipate and withstand future climate conditions.
  - 2.2 The federal government should encourage, fund, and provide technical assistance for all coastal areas to conduct climate vulnerability assessments.
  - 2.3 Federal agencies should use climate vulnerability assessments to efficiently allocate resources.
  - 2.4 Federal agencies should ensure nature-based solutions are given equal, or preferential, consideration to gray infrastructure as long-term coastal resilience infrastructure solutions.
  - 2.6 Federal agencies should extend the work of Department of Agriculture (USDA) conservation districts to include climate resilience services for private landowners, or use USDA conservation districts as a model for a ‘climate resilience districts’ program.
  - 2.7 Federal agencies should account for environmental and social impacts in benefit-cost analysis (BCA) tools.

- **Amend an existing agency, office, or program authorization**
A Resilient Future for Coastal Communities

“Federal Action for Resilient Coasts”

Briefing Series Panelists—Joining Us Today!

Mary Austerman, New York Sea Grant
Greg Guannel, University of the Virgin Islands
Anukriti Hittle, Hawaii Department of Land and Natural Resources

Patrick Barnard, USGS Pacific Coastal and Marine Science Center
Aimee Kinney, Puget Sound Institute
Justin Kozak, Center for Planning Excellence

Samuel Belknap, The Island Institute
Alex Kragie, Coalition for Green Capital

Donald Bogan, Bayou Interfaith Shared Community Organizing
Charles Lester, UC Santa Barbara

Kate Boicourt, Waterfront Alliance
Jeremy Littell, Alaska Climate Adaptation Science Center

Adam Borrello, North Shore Community Land Trust of Hawaii
Gwen Yamamoto Lau, Hawaii Green Infrastructure Authority

Derek Brockbank, American Shore & Beach Preservation Association
Scudder Mackey, Ohio Department of Natural Resources

Samantha Brooke, U.S. Fish and Wildlife Service
Arturo Massol-Deyá, Casa Pueblo de Adjuntas and University of Puerto Rico

Sara Burns, The Nature Conservancy
Ian Miller, Washington Sea Grant

Rob Croll, Great Lakes Indian Fish & Wildlife Commission
Sarah Murdoch, The Nature Conservancy

Ernesto Diaz, Puerto Rico Department of Natural and Environmental Resources
Raymond Paddock III, Central Council of the Tlingit and Haida Indian Tribes of Alaska

Nicole Faghin, Washington Sea Grant
Aaron Poe, Aleutian Bering Sea Initiative

Jessica Fain, San Francisco Bay Conservation and Development Commission
Rhonda Price, Mississippi Department of Marine Resources and Gulf of Mexico Alliance

Beth Gibbons, American Society of Adaptation Professionals
Marcy Rockman, International Council on Monuments and Sites and Co-Equal

Rob Croll, Great Lakes Indian Fish & Wildlife Commission
Liz Williams Russell, Foundation for Louisiana

Ernesto Diaz, Great Lakes Indian Fish & Wildlife Commission
Mathew Sanders, Louisiana Office of Community Development

Arturo Massol-Deyá, Casa Pueblo de Adjuntas
Ruth Santiago, El Puente-Latino Climate Action Network and Comité Dialogo Ambiental, Inc.

Nicole Faghin, Washington Sea Grant
Laurie Schoeman, Enterprise Community Partners

Sarah Murdock, The Nature Conservancy
Amy Snover, Northwest Climate Adaptation Science Center

Jessica Fain, San Francisco Bay Conservation and Development Commission
Brody Stapel, Edge Dairy Farmer Cooperative and Double Dutch Dairy

Beth Gibbons, American Society of Adaptation Professionals
Heidi Stiller, National Oceanic and Atmospheric Administration

Rob Croll, Great Lakes Indian Fish & Wildlife Commission
Margarita Varela, U.S. House of Representatives Committee on Natural Resources

Arturo Massol-Deyá, Casa Pueblo de Adjuntas
Joanna Walczak, Florida Department of Environmental Protection

Nicole Faghin, Washington Sea Grant
Lexia Weaver, North Carolina Coastal Federation

Sarah Murdock, The Nature Conservancy
Ross Weaver, Wetlands Watch

Samantha Brooke, U.S. Fish and Wildlife Service
Rob Young, Western Carolina University

Jessica Fain, San Francisco Bay Conservation and Development Commission

Beth Gibbons, American Society of Adaptation Professionals

Rob Croll, Great Lakes Indian Fish & Wildlife Commission
What is GLIFWC?

An intertribal natural resource agency exercising authority delegated by its 11 Ojibwe member tribes to implement federal court orders and interjurisdictional agreements related to their ceded territory treaty rights.
Map of GLIFWC Bands and Ceded
Climate adaptation and resilience data

4.1 Federal agencies should encourage, through funding and program design, scientists and tribes to co-produce climate adaptation and resilience knowledge.
Land use and Development

2.10 Federal agencies should include tribal and indigenous communities early in the adaptation or relocation planning process so that concerns can be raised regarding tribal sovereignty.
How will climate change affect tribes?

Tribes depend on treaty resources to meet spiritual, ceremonial, medicinal, subsistence, and economic needs.
Many beings are highly or extremely vulnerable

**Highly Vulnerable**
(range likely to decrease significantly by mid-century)
- Northern pike, yellow perch, lake trout, walleye
- Fisher
- Wild leek, black ash, wild ginger, paper birch, sugar maple, balsam fir, American ginseng
- Wood duck, trumpeter swan, common loon, cave bats, sharp-tailed grouse
- Wood turtle

**Extremely Vulnerable**
(range extremely likely to decrease or disappear by mid-century)
- Lake whitefish, tullibee
- American marten, moose, snowshoe hare
- Wild rice, labrador tea, northern white cedar, tamarack

GLIFWC Vulnerability Assessment
Dibagijnjigaadeg Anishinaabe Ezhitwaad: A Tribal Climate Adaptation Menu

Need for an adaptation planning tool that integrates indigenous knowledge, culture, science and perspective with western science and perspectives

Need to facilitate culturally appropriate climate adaptation between tribes and non-tribal partners
Cultural Practices and Community Engagement

Strategy 1: Consider cultural practices and seek spiritual guidance.
1.1. Consult cultural leaders, key community members, and elders.
1.2. Consider mindful practices of reciprocity.
1.3. Understand the human and landscape history of the community.
1.4. Hold respect for all of our relations, both tangible and intangible.
1.5. Maintain dynamic relationships in a changing landscape.

Strategy 2: Learn through careful and respectful observation (gikinawaahi).
2.1. Learn from beings and natural communities as they respond to changing conditions over time.

Strategy 3: Support tribal engagement in the environment.
3.1. Maintain and revitalize traditional relationships and uses.
3.2. Establish and support language revitalization programs.
3.3. Establish, maintain, and identify existing inventory and monitoring programs.
3.4. Establish and maintain cultural, environmental education, and youth programs.
3.5. Communicate opportunities for use of tribal and public lands.
3.6. Participate in local- and landscape-level management decisions with partner agencies.
Climate Action Towards Justice

Climate justice works toward comprehensive, adaptive and regenerative solutions for each sector of our lives that the climate crisis touches.

Climate Justice in Louisiana requires:
- An account of the land’s history
- An understanding of the systems of oppression
- The power to dismantle the harmful influence of destructive practices
- An offering of policies, practices, and resources that affirm our collective humanity
- The influence to promote policies beneficial to our people
Everyday people have the opportunity to connect their personal experience to larger scientific analyses, are informed about land loss, flood risk, and climate change, and empowered to take action to support change in their communities.

Community-based organizations have the space and resources to collaborate, design, and deliver results on concrete climate, racial and economic justice goals to create inclusive economies and resilient environments.

Government leaders understand the implications of a changing climate and genuinely work with impacted communities to develop practices responsive to the needs of all Louisianans, beginning with and centering marginalized and disadvantaged communities.

Businesses thrive and create good, stable jobs for all Louisianans, contributing to the restoration of our ecology and cultivating inclusive, healthy economies to ensure that talent and wealth stay in Louisiana.

A comprehensive strategy to Build People Power, Advance Just Policies, and Cultivate a New Narrative enables a healthy, vibrant and equitable future for Louisiana.
Communities at the Forefront

1.1 In order to establish and strengthen long-term relationships, federal agencies should consult with communities to ensure that projects and programs are designed with the community and specifically address community needs.

1.2 Federal agencies should provide funding within adaptation and resilience grant opportunities for local leader training.

1.3 Federal funding for adaptation and resilience should be designed so that communities have more decision-making authority in project implementation.
A Resilient Future for Coastal Communities

Federal Policy Recommendations...

LEAD
THE COAST

LEAD’S IMPACT
HOSTED 6 COHORTS
ACROSS 10 PARISHES
WITH 9 GRANTEE PARTNERS
AND OVER 125 GRADUATES
A Resilient Future for Coastal Communities

Federal Policy Recommendations...
Priority Areas

We invest to:

BUILD PEOPLE POWER
ADVANCE JUST POLICIES
CULTIVATE NEW NARRATIVES

Many worthy causes, where is the greatest potential for change?
Land use and development

2.1 Congress should ensure that all land use planning is designed—and all infrastructure is built—to anticipate and withstand future climate conditions.

2.7 Federal agencies should account for environmental and social impacts in benefit-cost analysis tools.

2.11 The federal government should encourage research into the cost of climate vulnerable communities staying in place compared to adapting through relocation.

2.12 Congress should develop national policy to prepare for the movement of people as a result of coastal hazards and climate impacts.
Disaster preparedness

5.2 Congress should update the National Flood Insurance Program to discourage construction in risk-prone areas, including by requiring that flood insurance rate maps consider climate projections and reflect actual risk, and continue to ensure the affordability of premiums.

5.4 Congress should make resilience a priority when developing and preserving safe and affordable housing.
Land use and development & Financing adaptation and resilience

2.8 Federal agencies should ensure, through provisions in federal contracts, that engineers and contractors are trained and qualified to incorporate nature-based solutions in infrastructure projects.

6.1 Congress should ensure that climate justice and equity considerations apply to adaptation and resilience programs and projects financed or leveraged with federal funds, with special attention to communities that face systemic underinvestment.

6.2 The federal government should increase support for coastal adaptation through financing mechanisms, including revolving loan funds.

6.3 Congress should establish a national green bank to deploy capital for coastal adaptation and resilience projects and carbon storage.
A Resilient Future for Coastal Communities

Federal Policy Recommendations...

Liz Russell: lwrussell@foundationforlouisiana.org
225.726.3623
A Resilient Future for Coastal Communities

Federal Policy Recommendations...

RISE TO RESILIENCE
OUR COMMUNITIES, OUR FUTURE

Photo by Nathan Kensinger
Eight years ago today

After Sandy, gas lines stretch for miles
by Aaron Smith and Tony Maglio
@CNNMoney

Sewage Flows After Storm Expose Flaws in System
by Michael Ho-Puzetz
Nov 28, 2012

Workers in this photo, taken for access at the Van Wyck expressway.

House approves $50.7 billion in Superstorm Sandy emergency victims late Tuesday
by Joseph Criden
New York Daily News
Updated: Tuesday, January 15, 2013, 11:58 PM
Context

1,000,000+

In the floodplain

TODAY
A Resilient Future for Coastal Communities

Federal Policy Recommendations...

Education...
A Resilient Future for Coastal Communities

Federal Policy Recommendations...

Design

WEDG Waterfront Edge Design Guidelines

How to Promote Resilience, Ecology, and Access at the Water's Edge

McInnis Cement

Weiss Manfredi
LIKE THE TIDES, WE ARE RISING
# A Resilient Future for Coastal Communities

## Federal Policy Recommendations...

## What unites us

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td><strong>2</strong></td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>Infrastructure and housing must be safe and resilient to future conditions.</td>
<td>Information needs to be transparent and accessible—we all have the right to know our climate risk.</td>
<td>Adaptation strategies must be based in science and community-driven.</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td><strong>5</strong></td>
<td><strong>6</strong></td>
</tr>
<tr>
<td>Public and private investments in resilience must flow to all, but especially those at greatest risk: low income communities and communities of color.</td>
<td>Well-paying, locally-hired, long-term green jobs are the basis of a resilient economy for all.</td>
<td>Solutions need to address both human needs and protect and restore wildlife and their habitats.</td>
</tr>
</tbody>
</table>
What we're fighting for

**Funding**
- WRDA 2020
- FEMA
- State revenue generators

**Management**
- State and local frameworks
- Codifying resilience

**Transparent**: Flood risk right to know

**Equitable & just**: process standards, housing strategy

**Green**: jobs + infrastructure
Land use and development

2.1 Congress should ensure that all land use planning is designed—and all infrastructure is built—to anticipate and withstand future climate conditions.
A Resilient Future for Coastal Communities

Federal Policy Recommendations...

New Jersey Protecting Against Climate Threats

Action to avoid future climate impacts, sea-level rise, and more.

WEDG Waterfront Edge Design Guidelines

Limit of Moderate Wave Action (LMA)

Future Sea Level

Elevated Electrical - Critical Systems

Elevated Building Systems

Dry Flood-Proofed Storage

Cathodic Protection

Wet Flood-Proofing
Climate adaptation and resilience data

4.2 Federal agencies should communicate climate data in a format that is accessible to non-experts, and provide avenues for state, local, and tribal entities to access technical support to interpret and apply this data to decision-making.
A Resilient Future for Coastal Communities

Federal Policy Recommendations...

SAN FRANCISCO BAY SHORELINE
ADAPTATION ATLAS

Manage Flooding and Subsidence

- Implement a range of solutions to protect vulnerable communities.
- Require state agencies to assess flood risk to their properties.
- Integrate climate action into all new developments.
- Implement comprehensive strategies to reduce floodplain density.
- Develop a comprehensive understanding of local flood risks.

Institutional considerations of future flood risk in daily operations and programs within state agencies:

Plan for Safe and Affordable Development

- Encourage eviction of homes based on current and future flood risk.
- Require new development in subaqueous areas to be built to meet new flood zones.
- Implement comprehensive strategies to reduce floodplain density.
- Require state agencies to assess flood risk to their properties.
- Develop a comprehensive understanding of local flood risks.

Plan for future developments based on risk surveys with mixed-use residential growth in low risk areas:

Incorporate Institutional考虑s of future flood risk in daily operations and programs within state agencies:

NYC Flood Hazard Mapper

- Implement a range of solutions to protect vulnerable communities.
- Require state agencies to assess flood risk to their properties.
- Integrate climate action into all new developments.
- Implement comprehensive strategies to reduce floodplain density.
- Develop a comprehensive understanding of local flood risks.

Run a solicitation to attract state investment in occupied areas.

Create a comprehensive strategy for all future development.

Ensureasaki internal to the end of the life of commercial development in high-risk areas.

Identify ways to address insurance affordability.

- Provide support and incentives to communities in risk areas for participation in FEMA’s Community Rating System (CRS).

EESI
Environmental and Energy Study Institute

NPCCATLUS 14 POINT PRECIPITATION FREQUENCY ESTIMATES:

240.16 47.299 Degrees

Search address

San Francisco Bay Operational Landscape Units overlaid with sea level rise projections
Disaster preparedness

5.2 Congress should update the National Flood Insurance Program (NFIP) to discourage construction in risk-prone areas, including by requiring that flood insurance rate maps consider climate projections and reflect actual risk, and continue to ensure the affordability of premiums.
A Resilient Future for Coastal Communities

Federal Policy Recommendations...

The Cost and Affordability of Flood Insurance in New York City

Economic Impacts of Rising Premiums and Policy Options for One- to Four-Family Homes

Lloyd Diaco, Noreen Clancy, Benjamin M. Miller, Sue Hoogberg, Michael M. Lewis, Bruce Bandier, Samantha Elbinger, Mel Hodges, Gayle M. Syck, Caroline Nagy, Scott R. Choquette
Historically adaptation projects have always received less funding than mitigation ones. The OECD estimates that adaptation only receives about a fifth of funding, with only 19% of climate finance mobilised in 2017 going to projects that helped communities adapt to climate change. The vast majority of the money went to mitigation efforts with 8% identified as serving both goals.

At the national level, too, such a balance needs to be sought.
Climate Change in Hawaii: What are the main stressors?

- Rising Sea Level
- Rising Temperature
- Less & Heavy Rain
Climate Change in Hawaii: Equity Post-Pandemic

The economic shock caused by the pandemic has caused the percentage of households considered to be ALICE — asset limited, income constrained, employed — or below, to jump from 42% to 59%.

--- Aloha United Way (June 2020)
Coastal resilience: nature-based and community-based solutions

"In an era of rising sea level, beaches need to migrate landward, otherwise they drown. Beach migration, also known as shoreline retreat, causes coastal erosion of private and public beachfront property. Shoreline hardening, the construction of seawalls or revetments, interrupts natural beach migration—causing waves to erode the sand, accelerating coastal erosion on neighboring properties, and dooming a beach to drown in place as the ocean continues to rise."
A Resilient Future for Coastal Communities

Federal Policy Recommendations...

Risk to Hawaii’s physical infrastructure and assets

We need to “climate proof” and “climate mainstream” into daily operations of government
Incorporate into resilience the complex and nuanced *moku* and *ahupua’a* systems

---(Winter, K. et al. 2018)

“...to conjure moments of past flourishing, and a future where we might flourish again.”

---Bathsheba Demuth, 2020
Anukriti (Anu) Hittle
Hawaii Climate Change Mitigation and Adaptation Coordinator
DLNR

Email: Anukriti.s.Hittle@Hawaii.gov
Phone: 808-341-8967
Website: climate.Hawaii.gov
Instagram: @Hi_Climate
Facebook: @Hi Climate
What did you think of the briefing?

Please take **two** minutes to let us know at:

www.eesi.org/survey

*MATERIALS WILL BE AVAILABLE AT:*

www.eesi.org/102920report

*Tweet about the briefing:*

#eesitalk   @eesionline
Community at the Forefront

- In order to establish and strengthen long-term relationships, federal agencies should consult with communities to ensure that projects and programs are designed with the community and specifically address community needs.
- Federal agencies should provide funding within adaptation and resilience grant opportunities for local leader training.
- Federal government funding for adaptation and resilience should be designed so that communities have more decision-making authority in project implementation.
• **Land Use and Development**
  
  - Congress should ensure that all land use planning is designed—and all infrastructure is built—to anticipate and withstand future climate conditions.
  
  - The federal government should encourage, fund, and provide technical assistance for all coastal areas to conduct climate vulnerability assessments.
  
  - Federal agencies should use climate vulnerability assessments to efficiently allocate resources.
  
  - Federal agencies should ensure nature-based solutions are given equal, or preferential, consideration to gray infrastructure as long-term coastal resilience infrastructure solutions.
  
  - The federal government should develop a comprehensive approach to managing public lands that have already started, and will continue, to erode due to sea level rise and storm surge.
• **Land Use and Development (cont’d)**
  - Federal agencies should extend the work of USDA conservation districts to include climate resilience services for private landowners, or use USDA conservation districts as a model for a ‘climate resilience districts’ program.
  - Federal agencies should account for environmental and social impacts in benefit-cost analysis tools.
  - Federal agencies should ensure, through provisions in federal contracts, that engineers and contractors are trained and qualified to incorporate nature-based solutions in infrastructure projects.
  - Congress should facilitate and provide funding to buy-out high-risk or repeatedly damaged homes and other property.
• **Land Use and Development (cont’d)**

  - Federal agencies should include tribal and indigenous communities early in the adaptation or relocation planning process so that concerns can be raised regarding tribal sovereignty.
  - The federal government should encourage research into the cost of climate vulnerable communities staying in place compared to adapting through relocation.
  - Congress should develop national policy to prepare for the movement of people as a result of coastal hazards and climate impacts.
• **Cultural Heritage**
  
  - Congress should establish a named climate heritage federal coordination office to manage research, coordination, and policy regarding cultural heritage and climate change.
  
  - NOAA and the U.S. Global Change Research Program should include research on cultural heritage in the National Climate Assessment.
  
  - Cultural heritage considerations should be integrated into federal requests for proposals for climate adaptation and resilience work.
A Resilient Future for Coastal Communities

...Federal Policy Recommendations...

- **Climate Adaptation and Resilience Data**
  - Federal agencies should encourage, through funding and program design, scientists and tribes to co-produce climate adaptation and resilience knowledge.
  - Federal agencies should communicate climate data in a format that is accessible to non-experts, and should provide avenues for state, local, and tribal entities to access technical support to interpret and apply this data to decision-making.
  - The federal government should invest in more data collection of diverse data sets to understand localized climate impacts and responses.
  - Congress should increase funding and other support for existing federal entities focused on coordinating and communicating climate information for public use.
  - Federal agencies should study the long-term efficacy, cost-effectiveness, and co-benefits of nature-based solutions as these nature-based solutions experience storms and other impacts.
• **Disaster Preparedness**
  - Congress should direct more federal disaster assistance funding to pre-disaster mitigation and require agencies to properly account for the benefits of nature-based solutions.
  - Congress should update the National Flood Insurance Program to discourage construction in risk-prone areas, including by requiring that flood insurance rate maps consider climate projections and reflect actual risk, and continue to ensure the affordability of premiums.
  - Congress should carry out robust oversight to ensure federal agencies’ timely disbursement of appropriations for disaster recovery and approval of hazard mitigation plans.
  - Congress should make resilience a priority when developing and preserving safe and affordable housing.
A Resilient Future for Coastal Communities

...Federal Policy Recommendations

- **Financing Adaptation and Resilience**
  - Congress should ensure that climate justice and equity considerations apply to adaptation and resilience programs and projects financed or leveraged with federal funds, with special attention to communities that face systemic underinvestment.
  - The federal government should increase support for coastal adaptation through financing mechanisms, including revolving loan funds.
  - Congress should establish a national “green bank” to deploy capital for coastal adaptation and resilience projects at scale.