



Evolving the U.S. Climate Resilience Toolkit to Support a Climate-Smart Nation

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Acknowledgments: James Fox, LuAnn Dahlman, Nina Hall, Ned Gardiner, Jamie Herring, Toni Parham, & John Keck



Our society will not make decisions based solely on Climate Threats

- People must be able to integrate climate information with their other **value drivers** (**things they care about**)
- Information must be **relevant** to their values & motivations
- They must **trust** the information source
- Adaptation is easiest understood through a **resilience** frame and successful **paths walked by others**



Water Resources

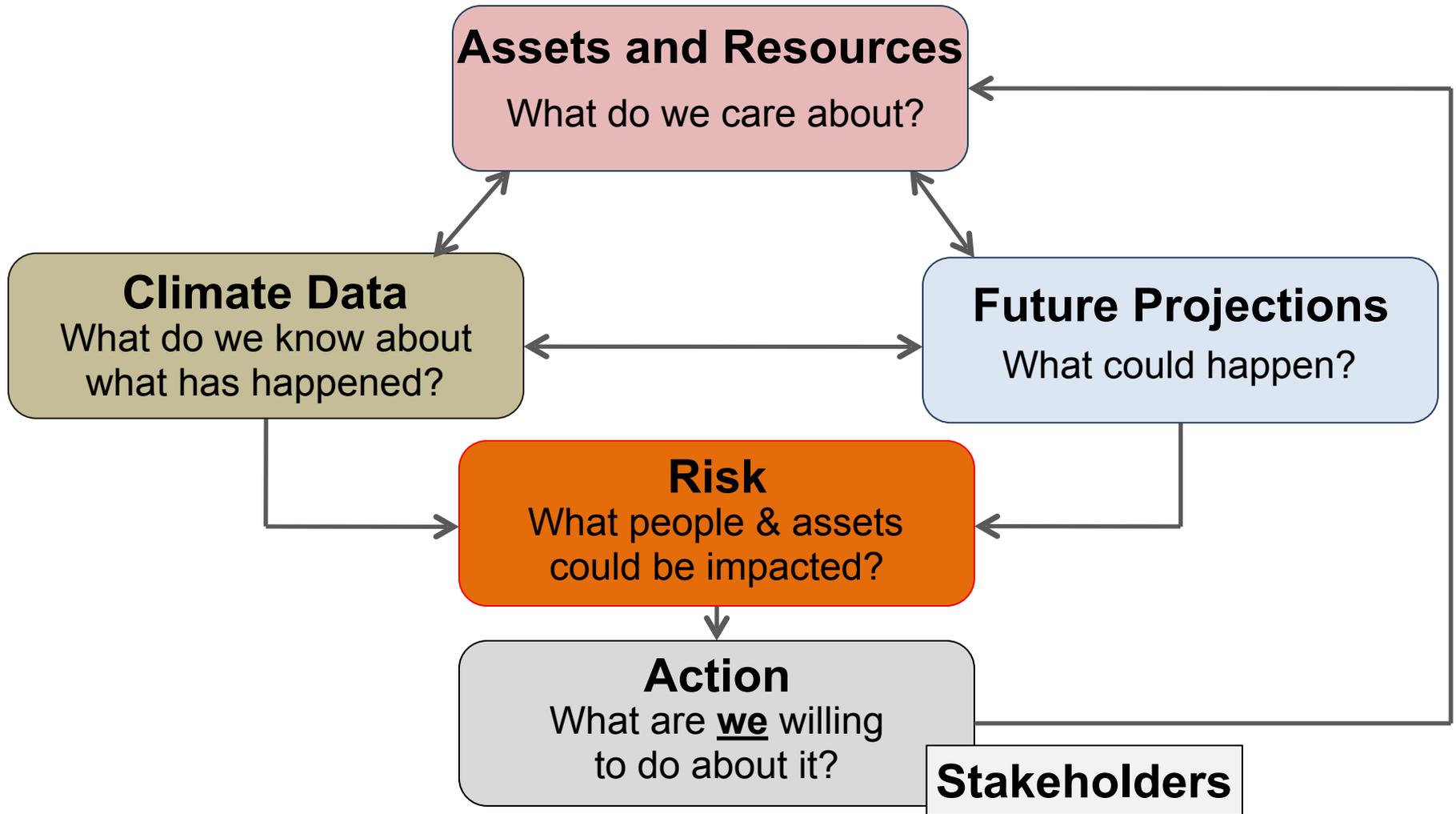


Development Pressure

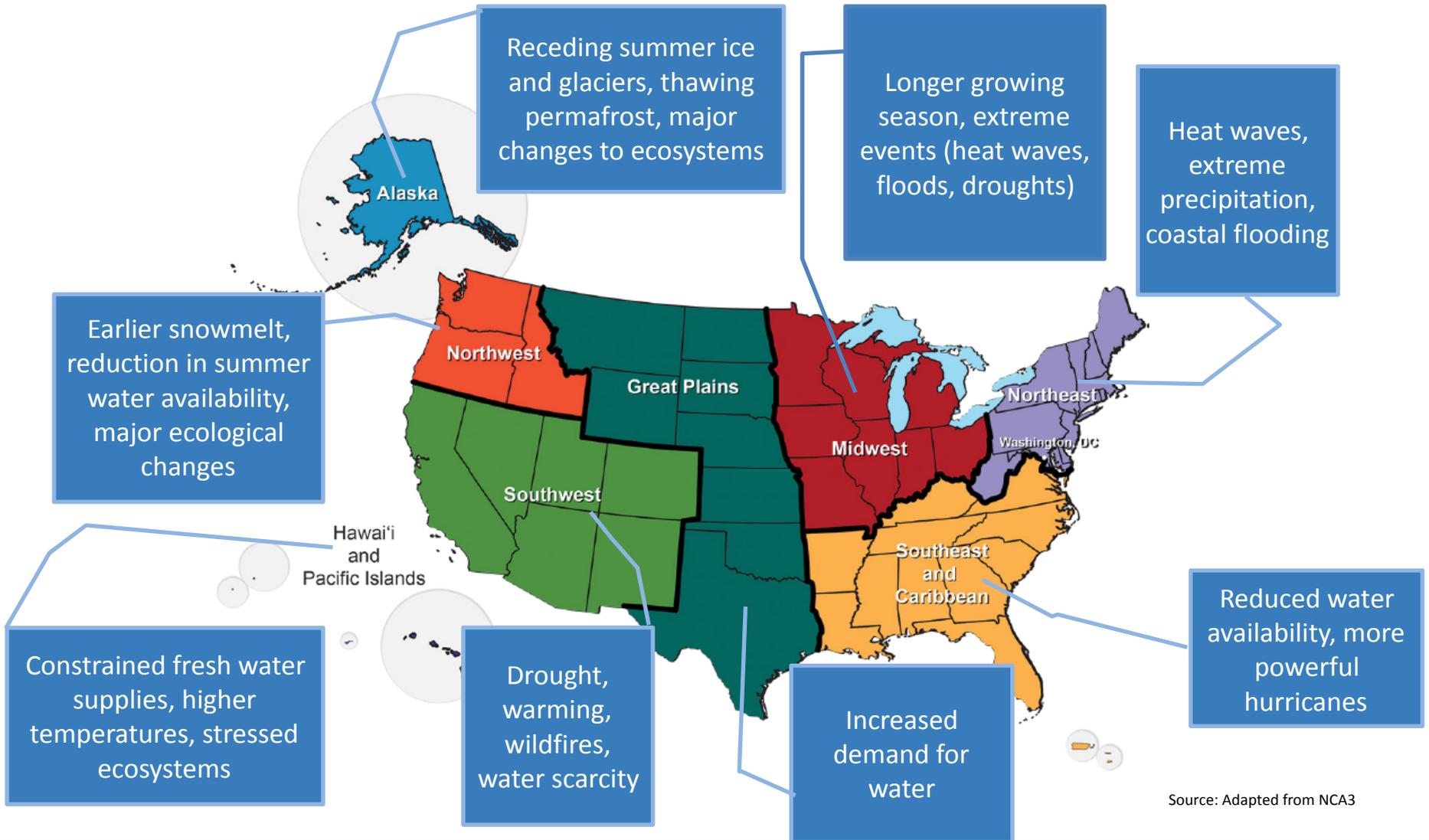


Energy Costs

Adaptation isn't totally a linear process



We are adding a Regions Section to the CRT



5-Step Adaptation Workflow (Getting Started Steps)

from the U.S. Climate Resilience Toolkit

Step 1 : Identify the Problem

Did you know?

Step 2 : Assess your vulnerability

Why should we care?

Step 3 : Identify options to build resilience

Step 4 : Evaluate the risk and choose the best option

What can we do about it?

Step 5 : Implement – Take Action!

toolkit.climate.gov

The CRT v1.0 was first published in Nov 2014.

The front page offers multiple entry points for finding & exploring climate-related decision-support tools, information, & subject matter expertise.

The screenshot shows the homepage of the U.S. Climate Resilience Toolkit. At the top left is the logo with the text "U.S. Climate Resilience Toolkit". To its right is a navigation menu with links: "Get Started", "Taking Action", "Tools", "Topics", and "Expertise". Further right is a search bar with the word "Search" and a magnifying glass icon. Below the navigation is a large banner with a satellite-style map background. The banner text reads: "Meet the Challenges of a Changing Climate" and "Find resources and a framework to understand and address climate issues that impact people and their communities." To the right of the banner is a vertical list of five numbered steps: 1. Identify the Problem, 2. Determine Vulnerabilities, 3. Investigate Options, 4. Evaluate Risks & Costs, and 5. Take Action. Below the banner is a section titled "Find Out How People Are Building Resilience" which contains four video thumbnails with titles and durations: "Transitions and Traditions: Adaptation on Tribal Lands (0:44)", "Preview: Conserving Sky Islands (0:26)", "Watching for Wind (0:37)", and "Adapting to Climate Change: A Water Utility's Approach (1:27)". At the bottom, there are three sections: "Climate Explorer" with a map interface, "Site Overview" with a photo of two people at a laptop, and "Featured" with text about an "Adaptation Workbook for Natural Resources" and "Climate Adaptation Knowledge Exchange (CAKE)".

U.S. Climate Resilience Toolkit

About | Contact | Funding Opportunities | FAQ

Search

Get Started Taking Action Tools Topics Expertise

Meet the Challenges of a Changing Climate

Find resources and a framework to understand and address climate issues that impact people and their communities.

- 1 Identify the Problem
- 2 Determine Vulnerabilities
- 3 Investigate Options
- 4 Evaluate Risks & Costs
- 5 Take Action

Find Out How People Are Building Resilience

Transitions and Traditions: Adaptation on Tribal Lands (0:44)
[Watch video >](#)

Preview: Conserving Sky Islands (0:26)
[Watch video >](#)

Watching for Wind (0:37)
[Watch video >](#)

Adapting to Climate Change: A Water Utility's Approach (1:27)
[Watch video >](#)

Climate Explorer

Climate Explorer lets you access map overlays

Site Overview

For many Americans, adapting to new climate

Featured

Adaptation Workbook for Natural Resources
Forest managers, natural resource professionals, and motivated landowners can use this structured process to consider the...
[Read more >](#)

Climate Adaptation Knowledge Exchange (CAKE)

The CRT addresses nine climate-related **topics** & **sub-topics**.

This page acts as a table of contents & point-of-entry for topic-based exploration of climate-related hazards.

There's an interagency virtual team of subject experts behind each of these topic sections.

U.S. Climate Resilience Toolkit | About | Contact | Funding Opportunities | FAQ

Get Started | Taking Action | Tools | **Topics** | Expertise

Search

Topics

Select a topic of interest below to learn about climate-related risks and opportunities.

- Arctic**
 - Arctic Oceans, Sea Ice, and Coasts
 - Melting Glaciers, Snow, and Ice
 - Arctic Weather and Extreme Events
 - Permafrost and Arctic Landscapes
 - Arctic Development and Transport
 - Arctic Peoples and Ecosystems
 - Arctic-Global Linkages
- Coastal Flood Risk**
 - Sea Level Rise
 - Coastal Erosion
 - Storm Surge
 - Tsunami
 - Inland Flooding
 - Shallow Coastal Flooding (Nuisance Flooding)
 - Building Resilience in Coastal Communities
- Ecosystem Vulnerability**
 - Fire Regimes
 - Water Resources
 - Carbon Balance
 - Invasive Species
 - Biodiversity Conservation
 - Protecting and Enhancing the Resilience of Ecosystems
- Energy Supply and Use**
 - Energy Consumption
 - Energy Production
 - Energy Facilities
 - Building Resilience in Energy Supply and Use
- Food Resilience**
 - Food Production
 - Food Distribution
 - Food Safety and Nutrition
 - International Food Security
 - Building Food Resilience
- Human Health**
 - Extreme Heat
 - Extreme Events
 - Increased Levels of Air Pollutants
 - Food- and Water-Related Threats
 - Changing Ecosystems and Infectious Diseases
 - Building Health Care Sector Resilience
- Transportation and Supply Chain**
 - Land-Based Transportation
 - Waterborne Transportation
 - Aviation
 - Supply Chain Security
- Tribal Nations**
 - Assessment and Planning
 - Adaptation
 - Mitigation
 - Disaster Risk Reduction
 - Relocation
 - Capacity Building
- Water Resources**
 - Municipal Water Supply
 - Flooding
 - Drought
 - Ecosystems



Topics > Coastal Flood Risk >



Coastal Flood Risk

Key points:

- *The risk of flooding has increased in most coastal regions of the United States and its island territories since 1900, and that risk is projected to grow even more this century.*
- *Coastal lifelines, such as water and energy infrastructure, and nationally important assets, such as ports, tourism, and fishing sites, are increasingly vulnerable to sea level rise, storm surge, erosion, flooding, and related hazards. Socioeconomic disparities create uneven vulnerabilities.*
- *Coastal ecosystems are particularly vulnerable to climate change because many have already been dramatically altered by human stresses; climate change will result in further reduction or loss of the services that these ecosystems provide, including potentially irreversible impacts.*
- *There is no one-size-fits-all solution to reduce risk and improve resilience. Every community should develop its own plan of action, but can learn from other communities about effective approaches.*

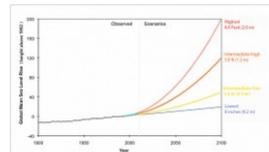
Adapted from the Third National Climate Assessment.

Increased Impacts

Every year, at multiple locations along the coast of the United States, events such as storm surges, high tides, strong waves, heavy precipitation, increased river flow, and tsunamis cause damaging coastal floods. As global sea level rises, higher water levels will exacerbate the impacts of these incidents, resulting in deeper floods that last longer and extend further inland. Additionally, as climate changes, some coastal hazards are projected to increase. For instance, coasts may see more severe or more frequent storms and heavier rainfall events.



View of inundated areas in New Orleans following the breaking of the levees surrounding the city as the result of Hurricane Katrina.



Observed global mean sea level rise for 1900 to the present, and projected global mean sea level rise for four scenarios from the present to 2100.

Average global sea level rose eight inches

during the last century, and scientists are highly confident that it will continue rising in the future. By 2100, global sea level is projected to be between 8 inches and 6.6 feet higher than it was in 1992. At regional and smaller scales, relative sea level is also affected by vertical land movement and ocean currents, but any amount of global sea level rise will increase the frequency and magnitude of coastal flooding impacts, posing an increasing threat to people, infrastructure, and coastal

Browse Topics

- ▼ **Coastal Flood Risk**
 - Sea Level Rise
 - Coastal Erosion
 - Storm Surge
 - Tsunami
 - Inland Flooding
 - Shallow Coastal Flooding
 - Building Resilience in Coastal Communities
- ▶ Ecosystem Vulnerability
- ▶ Food Resilience
- ▶ Human Health

Each Topic section has a main narrative page, excerpted from the 3rd U.S. National Climate Assessment, to help people understand where, how, & why our nation is experiencing climate-related stressors.

The purpose of the topic section is to provide science-based information to help people identify, understand, & communicate about climate stressors in their communities & businesses.

Subtopic pages provide additional information about a particular facet of the topic.

Note the 'Taking Action' and 'Tools' sections in the righthand navigation, where all of our case studies and tools are cross-walked with all of our subtopics throughout the CRT — i.e., a “no wrong door” approach to navigation.

The screenshot displays the U.S. Climate Resilience Toolkit website. The main navigation bar includes 'Get Started', 'Taking Action', 'Tools', 'Topics', and 'Expertise'. The breadcrumb trail shows 'Topics > Coastal Flood Risk > Storm Surge'. The page title is 'Storm Surge'. The main content area features a paragraph explaining storm surge, a photo of flooding in New York City subway stations, and a diagram illustrating water levels during a storm surge. The right-hand navigation menu lists 'Browse Topics' with 'Storm Surge' circled in orange, and 'Taking Action:' also circled in orange, with a list of case studies below it. The 'Tools:' section is also circled in orange, listing various tools like 'Sea Level Rise and Coastal Flooding Impacts Viewer'.

U.S. Climate Resilience Toolkit

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Get Started Taking Action Tools Topics Expertise

Topics > Coastal Flood Risk > Storm Surge

Storm Surge

Storm surge refers to abnormally high water levels generated by severe storms such as hurricanes, cyclones, and nor'easters. A surge forms when strong winds over the ocean combine with low pressure to drive water onshore. Storm surges can produce sea levels much higher than normal high tide, resulting in extreme coastal and inland flooding. Sometimes called "storm tides," storm surges can cause tremendous damage; if they coincide with high tide, they can raise water levels by 20 feet or more above mean sea level. As a result of global sea level rise, storm surges that occur today are eight inches higher than they would have been in 1900. By 2100, storm surges will happen on top of an additional 8 inches to 6.6 feet of global sea level rise.

Hurricane Sandy Causes Flooding in New York City Subway Stations

Increased flooding is projected to occur in the United States, with heavy precipitation and sea level rise leading to more frequent and severe coastal flooding. Additionally, projected increases in sea level rise will exacerbate flooding in deeper coastal areas.

Water weighs about 1,700 pounds per cubic yard, so extended pounding by wind- and tide-driven waves moving at 10 to 15 mph can damage or destroy any structure not built to withstand such forces. Storm surges driven by strong hurricanes or extra-tropical storms can cause deaths and extensive property loss, including erosion of beaches, damage to coastal habitats, and undermining the foundations of vital infrastructure like roads, railroads, bridges, buildings, and pipelines. Hurricane Katrina (2005) is a prime example of the damage and devastation that is possible. At least 1,500 people lost their lives during Katrina, and many of those deaths occurred either directly or indirectly because of storm surge. Katrina also caused well over \$100 billion in damage from its surge and winds.

Hurricane Katrina was one of the most

Take Action:

- Climate Resilience Workshops Provide a Head Start toward Resilience >
- Grand Isle: Louisiana's First Line of Defense from Coastal Flooding >
- Quantifying Risk Shows Value of Replacing Highway >
- Waterfront Restaurant Rebuilds to Remain Open Through Future Storms >
- Training Sessions Build Capacity for Recovery and Planning >

1 of 2 next >

Tools:

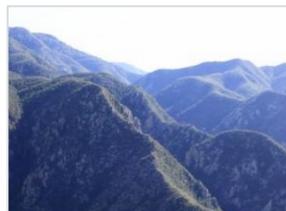
- Sea Level Rise and Coastal Flooding Impacts Viewer >
- Delaware Community Flood Map Visualizations >
- Wave Exposure Model >
- Getting to Resilience >
- Hazard Education and Awareness Tool >

1 of 5 next >

Taking Action

[Filter by climate threat/stressor: ▼](#) |
 [Filter by parent topic: ▼](#) |
 [Filter by steps to resilience: ▼](#) |
 [Filter by region: ▼](#)

Communities and businesses are taking action to reduce their vulnerability to climate-related impacts and to build resilience to extreme events. The stories below illustrate the application of the process and tools featured in this Toolkit. Browse the stories, or filter by topic, step to resilience, and/or region in the boxes above. To expand your results, click the Clear Filters link.



Boosting Ecosystem Resilience in the Southwest's Sky Islands

Conservation organizations teamed up to document the climate vulnerability of mountain springs that support unique ecosystems. Now, the Alliance they formed facilitates restoration work to enhance habitats and improve resiliency.

[Read more >](#)



Addressing Short- and Long-Term Risks to Water Supply

In 2012, water managers in Fredericktown, Missouri, saw their city's main source of water dwindle. They used the EPA's Climate Ready Water Utilities program to consider options and develop plans to protect their water source.

[Read more >](#)



Exploring Adaptation Options for Water Infrastructure at Sea Level

In Massachusetts, Manchester-by-the-Sea's wastewater treatment plant is located right on the coast. The town's water utility is working with the EPA's Climate Ready Water Utilities program to consider its adaptation options.

[Read more >](#)



Assessing a Tropical Estuary's Climate Change Risks

Puerto Rico's San Juan Bay Estuary faces multiple threats, including heavy use by urban populations and impacts of climate change. A workbook from the EPA's Climate Ready Estuaries program helped them catalog risks so they can be prioritized and addressed.

[Read more >](#)



Yukon Delta Villages Document Baseline Environmental Data

Students and community residents of four remote Alaskan villages measure environmental data to identify their climate vulnerabilities.



Looking to the Future on Alaska's North Slope

As ice retreats and energy resources along Alaska's North Slope become more accessible, diverse stakeholders consider potential futures and develop a science-informed view of the implications



Quinault Indian Nation Plans for Village Relocation

As the threats of tsunami and sea level rise are joined by real and potential climate impacts, the Quinault community looks to move the lower village of Taholah to higher ground.



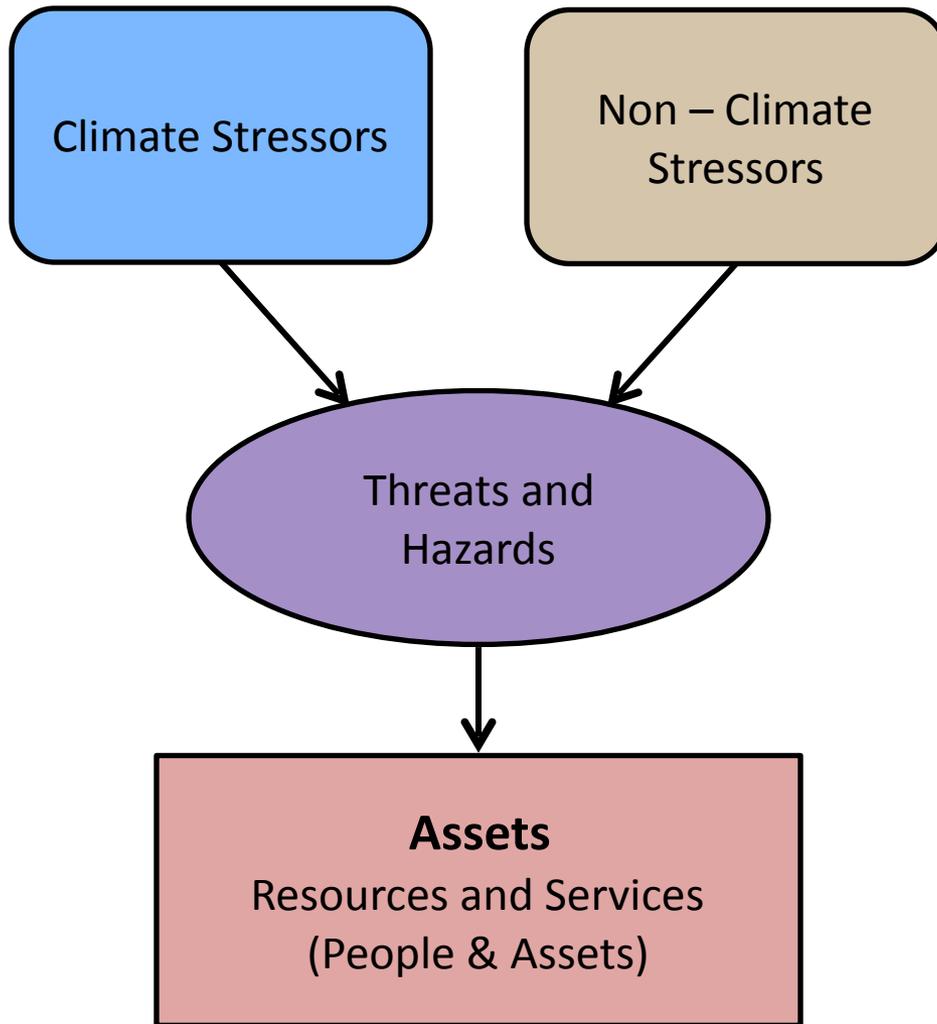
Watching for Wind: An Effort to Get the Upper Hand on Wildfire

After Santa Ana winds contributed to devastating wildfires in 2007, San Diego Gas & Electric worked with partners to monitor threats

The **Taking Action** section now has 96 case studies relating to every CRT topic, and from every region in the United States.

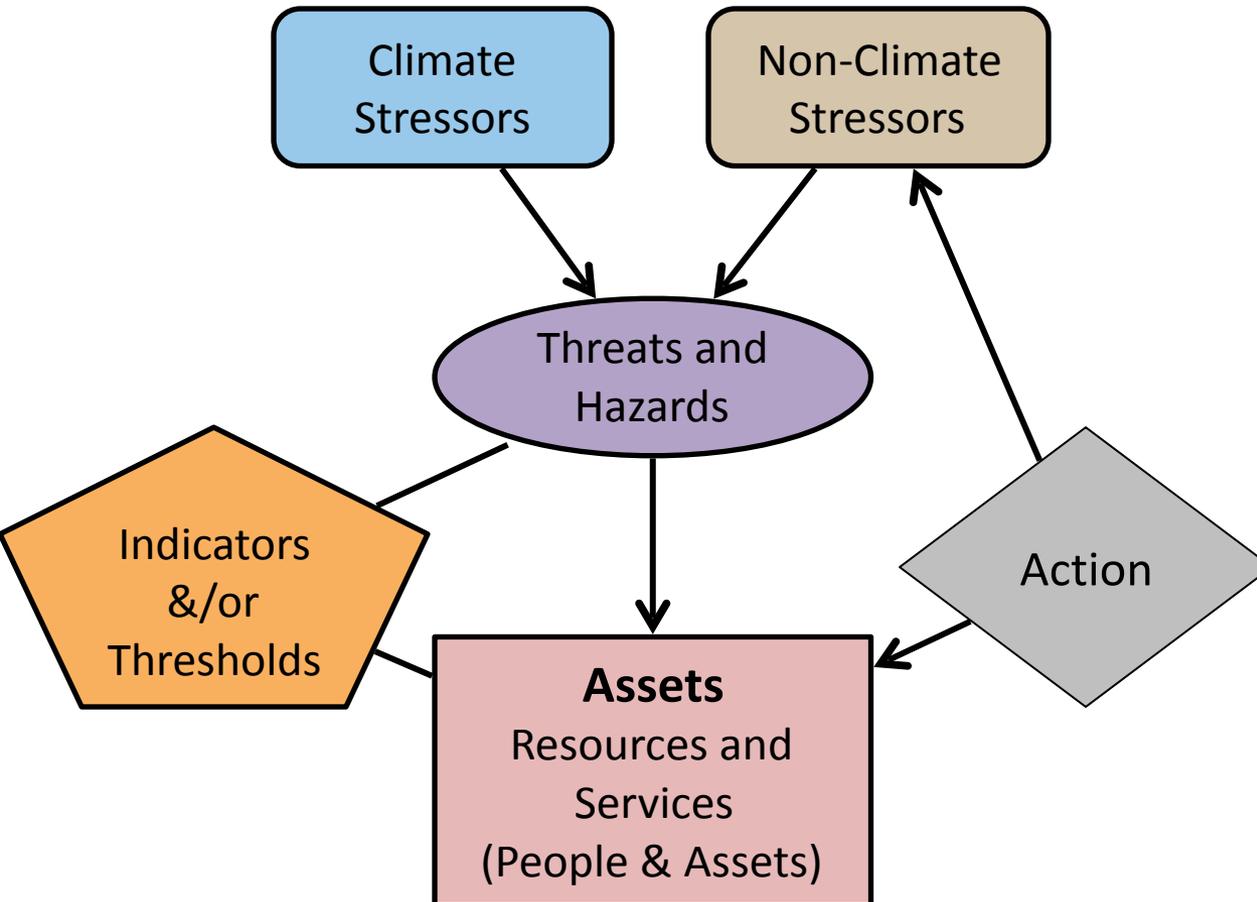
Use the menus (upper right) to quickly filter by climate stressor, parent topic, the 5 steps to resilience, and/or by region.

A Conceptual Model for Building Resilience

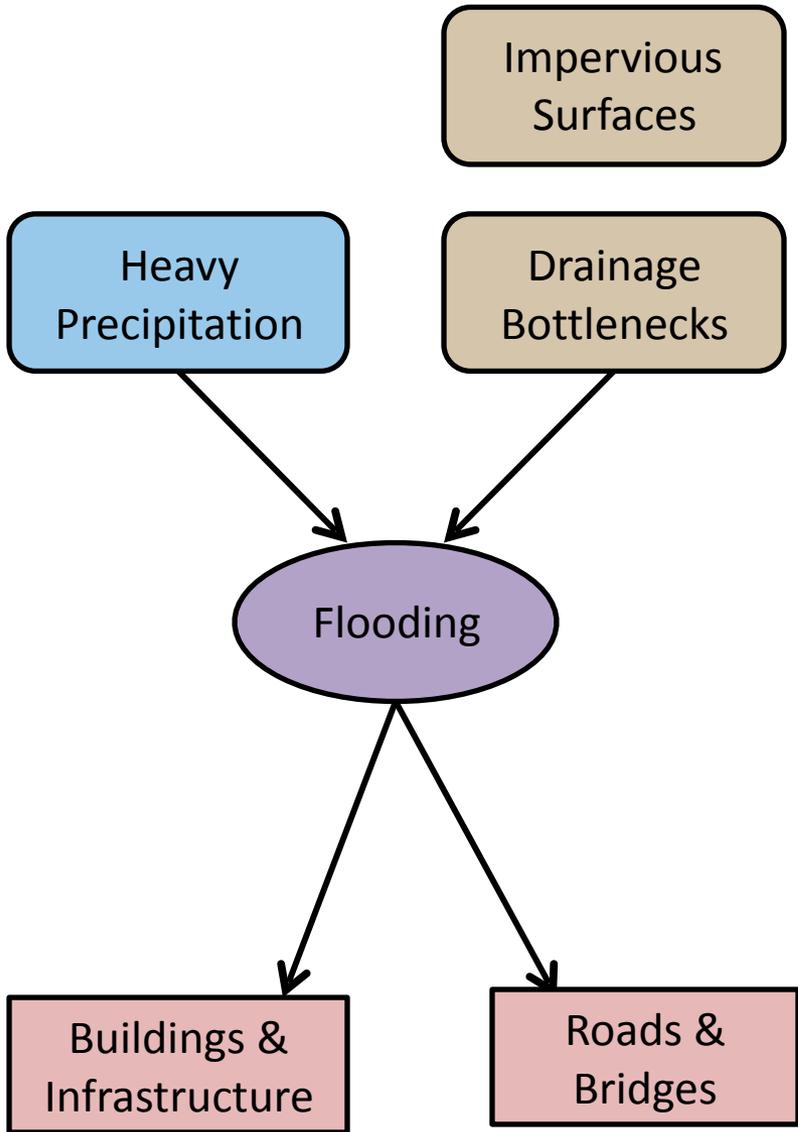


- Decisions are driven by **Assets (Resources and Services)**
- When these assets are impacted, those impacts effect our quality of life and livelihoods.
- Remember, stressors are both climate and non-climate related

A Conceptual Model for Building Resilience



- In Step Two, we start quantifying the model
- For each Asset, look at primary Threats that are impacting. We want to look at each “Impact Pair” Separately
- Do we have data to quantify the relationships? Are there indicators or thresholds?
- Based on understanding of cause-and-effect relationships, we can assess costs & benefits of possible actions.



Considering culverts

Laura Sager is the Executive Director of the Soil and Water Conservation District in Columbia County, New York. Among a range of important topics that occupy her days, Sager spends an increasing amount of time on a topic that many people consider mundane: she's thinking about culverts.

Culverts—simple tubes or tunnels that channel water beneath roads, railroads, and trails—are a hallmark of the developed world. Wherever humans can engineer relatively small amounts of water to flow through a tube beneath a roadway, the road is smoother and travel speeds along it are higher. Culverts serve as miniature bridges, keeping roadways high and dry, just above flowing water that could erode them away.



Culvert on Lake Creek in Rensselaerville, NY.

Heavy precipitation

The reason culverts are commanding Sager's attention is rain. Across the contiguous United States, and especially in the Northeast, the amount of precipitation falling in very heavy events has increased significantly over the last century. During heavy rains, huge volumes of water fill drainage systems quickly, and can overwhelm installed culverts.



When a culvert cannot convey the amount of water attempting to flow through it, water typically backs up on the upstream side, causing localized flooding. The accumulated water may overflow across the roadway, disrupting transportation and increasing erosion that can wash out the culvert. Sediment and debris from an upstream failure may cause additional failures downstream, flooding other roads, houses, and cropland. Even small-scale flooding at undersized culverts can damage water quality, roads, and structures.

Steps to Resilience:

- ✓ Step 1: Identify the Problem
- ✓ Step 2: Determine Vulnerabilities
- ✓ Step 3: Investigate Options
- ▶ Step 4: Evaluate Risks & Costs
- Step 5: Take Action

Tools:

[Precipitation Frequency Data Server \(PFDS\)](#) >

Topic:

- [Human Health](#) >
- [Building Health Care Sector Resilience > Element 2: Land Use, Building Design, and Regulatory Frameworks](#) >
- [Transportation and Supply Chain > Land-Based Transportation](#) >
- [Water Resources > Flooding](#) >

Additional Resources:

[Extreme Precipitation in a Changing Climate Project](#) >

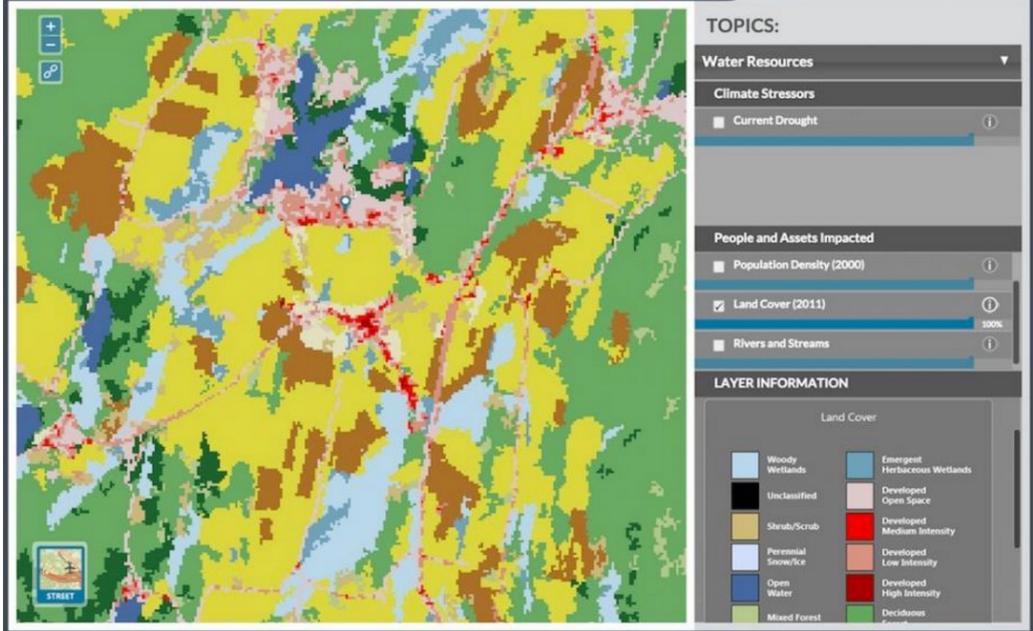
Partners:

- [Columbia County Soil and Water Conservation District](#) >
- [Cornell University | Northeast Regional Climate Center](#) >
- [New York State Department of Environmental Conservation | Hudson River Estuary Program](#) >

Datasets Used:

[Global Historical Climatology Network \(GHCN\) Daily](#) >

CLIMATE EXPLORER



This image shows a screenshot from the interactive Climate Explorer tool. The map shows land cover categories for a portion of Columbia County, New York, centered on the town of Copake. To explore land use and precipitation in this region, click the image above to launch Climate Explorer in a new window. You can explore on your own, or come back to this window to read the suggestions below.

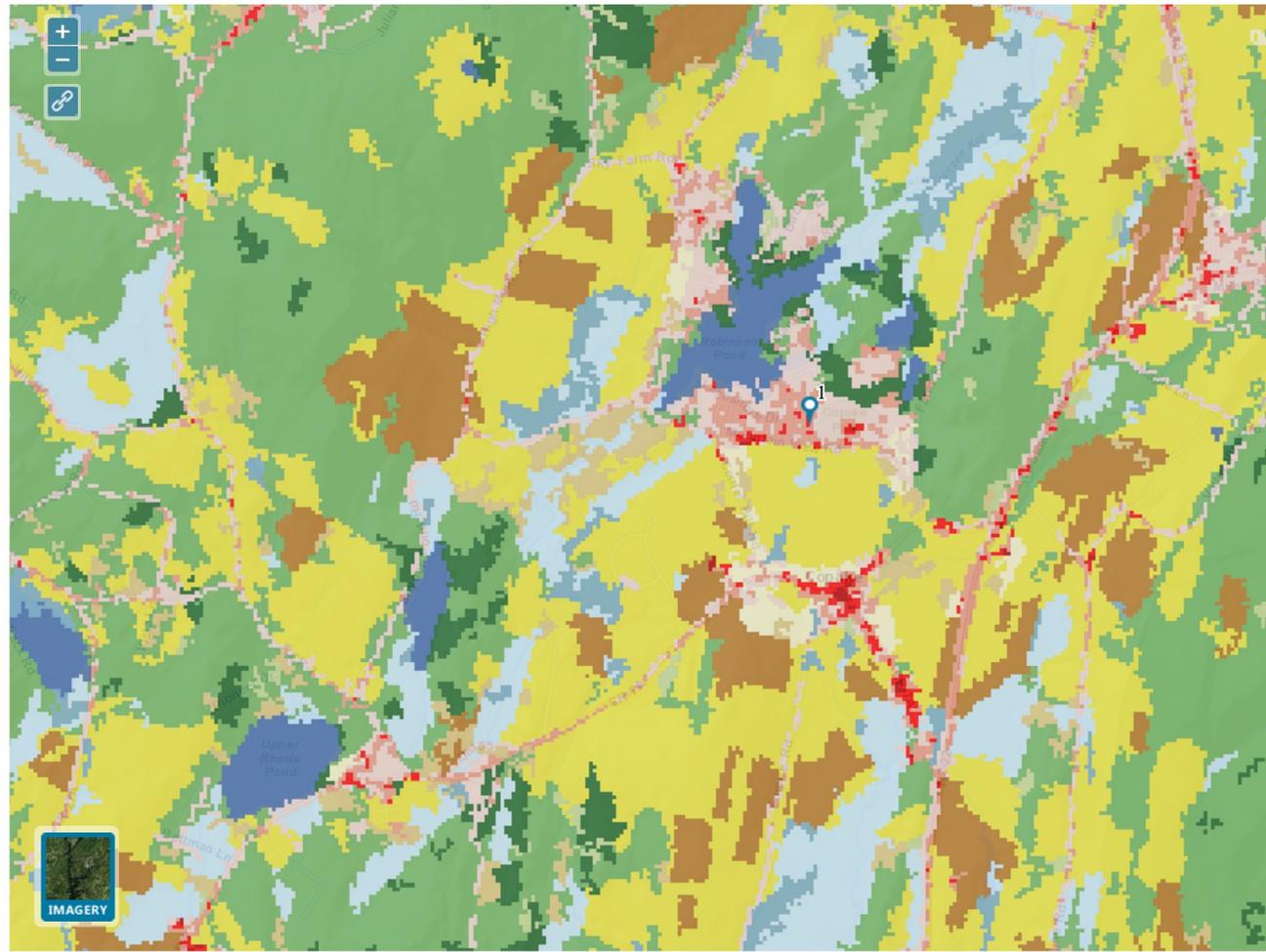
In the Climate Explorer window:

- Turn on the legend for the Land Cover map by clicking the "i" symbol to the right of the layer's name. Examine the map and the legend to get a sense of the different land uses in the area.

Note that Open Water, Woody Wetlands, and Emergent Herbaceous Wetlands surround Developed Areas in the region. Additionally, the area has many fields for Hay/Pasture and Cultivated Crops. In this area of mixed land use, culverts help keep developed areas relatively dry by giving water a path to move downhill to fields or ponds.

- To see how the area looks from above, make the Land Cover layer transparent by sliding the blue bar under the layer name to the left. Move the transparency slider back and forth to compare features in the land cover layer with the aerial view.
- Turn the Rivers and Streams layer on and examine its legend. Use the locations of the watershed boundaries (which generally follow ridges) and the pattern of streams and ponds to visualize the directions water flows across different parts of the map.
- To get an idea of how much water might fall during precipitation events in this region, click the Historical Data tab in the upper right of the Climate Explorer. The graph's dark red lines show the long-term average cumulative precipitation for each year. The red shading shows actual precipitation measured each year. Can you find evidence of heavy precipitation events in the graphs? What would you need to know to tell if larger culverts could improve the region's resilience to flooding?
- To view precipitation records for other years at Copake, click within the graph area and drag to the right. You can also view precipitation

CLIMATE EXPLORER



LAYERS

HISTORICAL DATA

TOPICS:

Water Resources

Climate Stressors

Current Drought

Flood Hazard Zones

People and Assets Impacted

Social Vulnerability Index

Population Density (2000)

Land Cover (2011)



82%

LAYER INFORMATION

Land Cover

	Woody Wetlands		Emergent Herbaceous Wetlands
	Unclassified		Developed Open Space
	Shrub/Scrub		Developed Medium Intensity
	Perennial Snow/Ice		Developed Low Intensity
	Open Water		Developed High Intensity
	Mixed Forest		Deciduous Forest

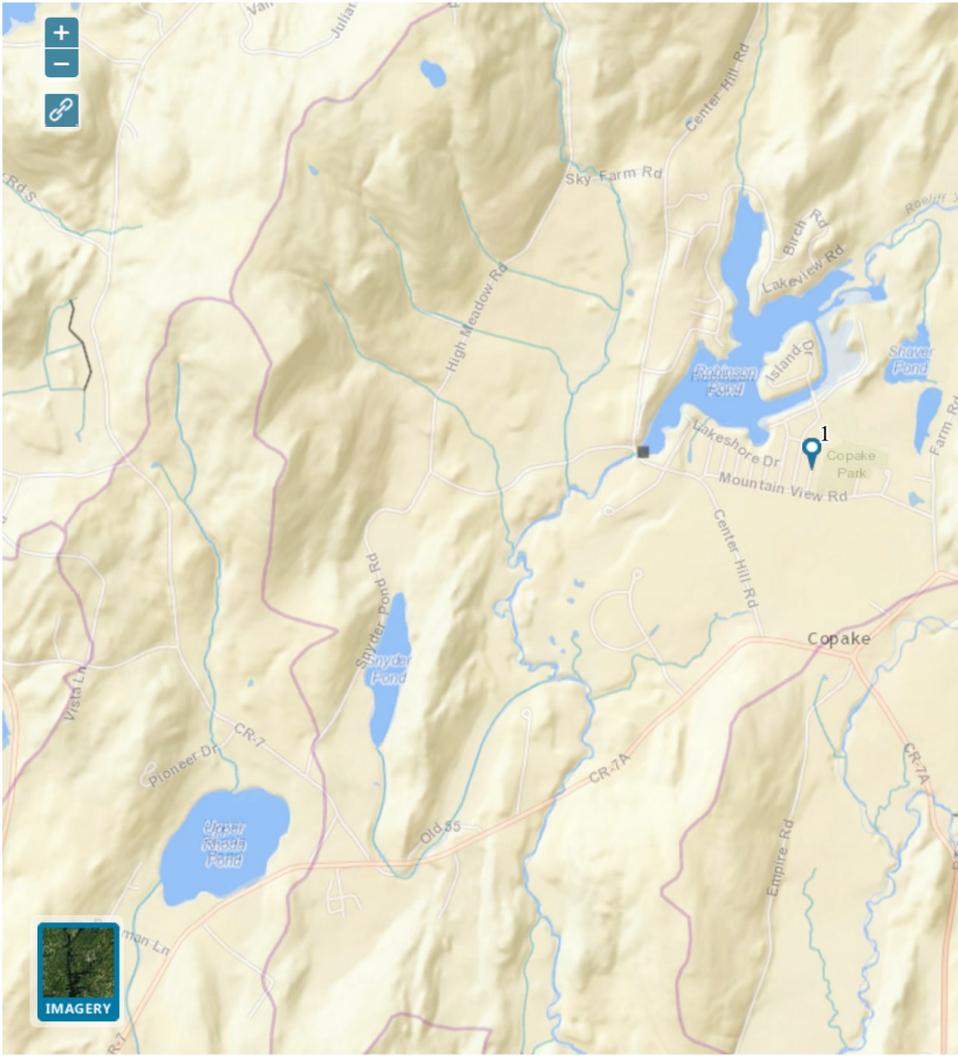
Climate Explorer. The graph's dark red lines show the long-term average cumulative precipitation for each year. The red shading shows actual precipitation measured each year. Can you find evidence of heavy precipitation events in the graphs? What would you need to know to tell if larger culverts could improve the region's resilience to flooding?

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CLIMATE EXPLORER

LAYERS

HISTORICAL DATA



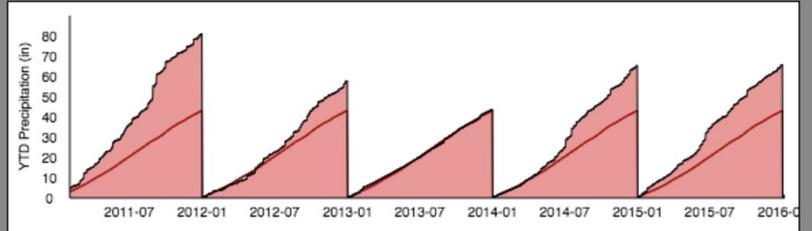
STATION DETAIL:

TEMPERATURE

PRECIPITATION

(1) COPAKE NY

PRECIPITATION



know to tell if larger culverts could improve the region's resilience to flooding?

- To view precipitation records for other years at Copake, click within the graph area and drag to the right. You can also view precipitation

Tools

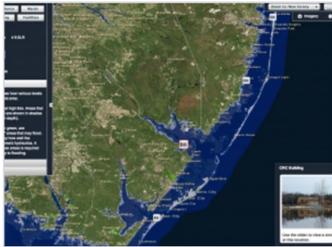
Clear Filters

Filter by parent topic:

Filter by category: ▲

Tools are available to help you manage your climate-related risks and opportunities, and to help guide you in building resilience below, or filter by topic and/or tool functionality in the boxes above. To expand your results, click the Clear Filters link.

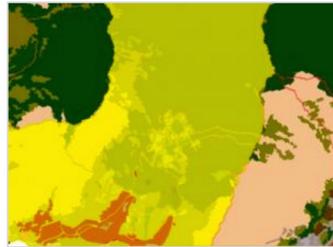
- Identify Vulnerabilities
- Check Applied Forecasts (24)
- View Past/Current Conditions (16)
- Analyze/Download Data (12)
- Engage/Communicate (10)
- Find Adaptation Planning Support (6)
- Recover/Rebuild (4)



NJ Flood Mapper

View detailed maps and photos of New Jersey communities as they look today, and compare them to visualizations showing one to six feet of sea level rise. This tool provides information for people who need to make individual or community decisions about local flooding hazards.

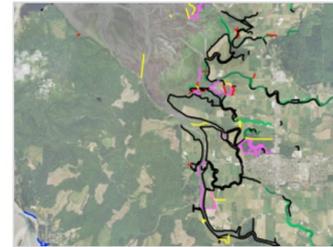
[Read more >](#)



OpenNSPECT

GIS users can use this open-source version of the Nonpoint-Source Pollution and Erosion Comparison Tool (N-SPECT) to investigate potential water quality impacts from development, other land uses, and climate change.

[Read more >](#)



Oregon Estuary Data Viewer

This map viewer helps users find, overlay, and evaluate estuary data within the Coastal Atlas. The viewer supports tasks for statewide and local estuary management plans.

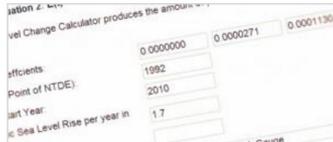
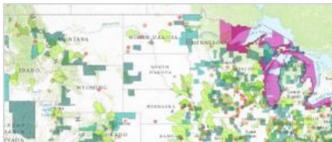
[Read more >](#)



Our Coast, Our Future

Coastal resource managers and planners in the San Francisco Bay region can use locally relevant, online maps and tools to explore, visualize, and anticipate vulnerabilities related to sea level rise and storms.

[Read more >](#)



Every tool has a landing page with these details:

- » Summary overview
- » Web address
- » All relevant topics and subtopics
- » Add'l documentation about the tool
- » Links to training and tutorials (where available)
- » Agencies & entities who provide & maintain tool

U.S. Climate Resilience Toolkit

Get Started | Taking Action | **Tools** | Topics | Expertise

About | Contact | Funding Opportunities | FAQ | Search

Tools > Wave Exposure Model >

Wave Exposure Model

Analysts use this downloadable software with ArcGIS to quantify wave energy and its effects on ecosystem functions.

Understanding the hydrodynamics of the coast, especially the waves associated with storms, is essential to managing the fragile coastal environment. The Wave Exposure Model (WEMo) is a free and easy-to-use tool that helps coastal managers, ecologists, and physical hydrologists alike by estimating wave energy and its effects on ecosystem functions, as well as on developed coastal and inland-water areas.

Features

- Forecasts and "hindcasts" wind wave energy and the movement of seafloor sediment in enclosed water bodies such as lakes, coastal bays, and estuaries
- Provides a foundation for studying or modeling restoration efforts, seafloor and shoreline erosion, and the tolerance limits of habitats
- Works well with standard data formats and factors such as shoreline erosion, fauna, and landscape patterns
- Guides the classification of wave data into wave energy patterns useful for choosing sampling regimes
- Adjusts to wind events that are chronic, extreme, or combined with storm surge
- Adapts for use by non-specialists in hydrodynamics
- Requires basic knowledge of geographic information systems

Last modified: 14 May 2015 - 9:53am

URL:
<http://products.coastalscience.noaa.gov/wemo/download.aspx>

Webpage:
[Digital Coast: Wave Exposure Model](#)

Topic:
[Coastal Flood Risk > Sea Level Rise](#)
[Coastal Flood Risk > Storm Surge](#)
[Ecosystem Vulnerability > Water Resources](#)

Documentation:
[Wave Exposure Model \(WEMo\) Manual](#)

Training/Tutorials:
[Wave Exposure Model \(WEMo\) Frequently Asked Questions](#)

Partners:
[National Oceanic and Atmospheric Administration | Office for Coastal Management](#)

[Home](#) > [About](#) >

Funding Opportunities

Many of the strategies for increasing climate resilience come with a price tag. In the United States, a range of government entities and private foundations offer financial and technical resources to advance local adaptation and mitigation efforts. At the global scale, The World Bank and other organizations support financial strategies to build resilience. For your convenience, we have gathered information and links describing funding opportunities that may be relevant for building climate resilience. Please follow the external links to learn about any program.

- **[NOAA 2015 Regional Coastal Resilience Grant Program](#)**

The Regional Coastal Resilience Grant program will support regional approaches to undertake activities that build resilience of coastal regions, communities, and economic sectors to the negative impacts from extreme weather events, climate hazards, and changing ocean conditions. Eligible applicants include nonprofit organizations, institutions of higher education, regional organizations, private (for profit) entities, and local, state, and tribal governments. Up to \$5 million will be available; award amounts will range from \$500,000 to \$1 million. **Proposals are due by July 24, 2015.**

- **[NOAA Habitat Conservation: Coastal Ecosystem Resiliency Grants](#)**

The Coastal Ecosystem Resiliency awards will fund projects that develop healthy and sustainable coastal ecosystems through habitat restoration and conservation. NOAA anticipates that \$4 million will be available in 2015 for 1-3 year projects. Projects will primarily be funded through cooperative agreements; typical awards will range from \$500,000 to \$1 million. **Applications are due by July 2, 2015.**

- **[Building Blocks for Sustainable Communities](#)**

The EPA's Building Blocks for Sustainable Communities provides quick, targeted technical assistance to selected communities using a variety of tools that have demonstrated results and widespread application.

- **[Partnership for Sustainable Communities](#)**

The U.S. Department of Housing and Urban Development (HUD), U.S. Department of Transportation (DOT), and the U.S. Environmental Protection Agency (EPA) work together to help communities nationwide improve access to affordable housing, increase transportation options, and lower transportation costs while protecting the environment. The site's [map of grants](#) shows information on awards already made through Partnership programs.

- **[FEMA \(Federal Emergency Management Agency\) Preparedness \(Non-Disaster\) Grants](#)**

FEMA provides state and local governments with preparedness program funding to enhance the capacity of their emergency responders to prevent, respond to, and recover from a range of hazards.

- **[FEMA Hazard Mitigation Assistance](#)**

FEMA's Hazard Mitigation Assistance grant programs provide funding to protect life and property from future natural disasters.

- [Hazard Mitigation Grant Program \(HMGP\)](#) assists in implementing long-term hazard mitigation measures following a major disaster.
- [Pre-Disaster Mitigation \(PDM\)](#) provides funds for hazard mitigation planning and projects on an annual basis.
- [Flood Mitigation Assistance \(FMA\)](#) provides funds for projects to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP) on an annual basis.

- **[FEMA Disaster Survivor Assistance](#)**

Disaster survivors can find step-by-step instructions for preparing to apply for assistance, completing an application for assistance, and following up after receiving disaster assistance.

Our **Funding Opportunities** page presents a curated list of about two dozen grant funding mechanisms offered by the federal government and non-profit foundations.

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FACT SHEET: Strengthening the Climate Resilience of the Health Care Sector - The White House

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