



DEQ Resilience Synergies

NC DEPARTMENT OF ENVIRONMENTAL QUALITY

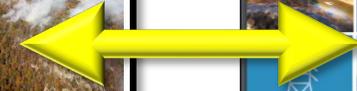
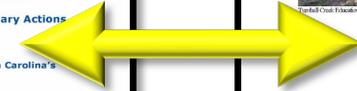
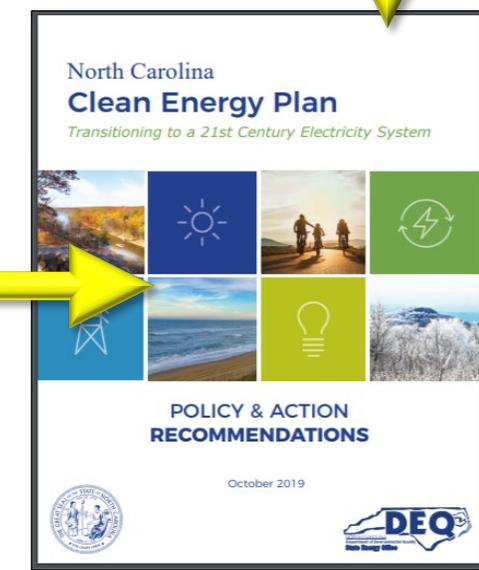
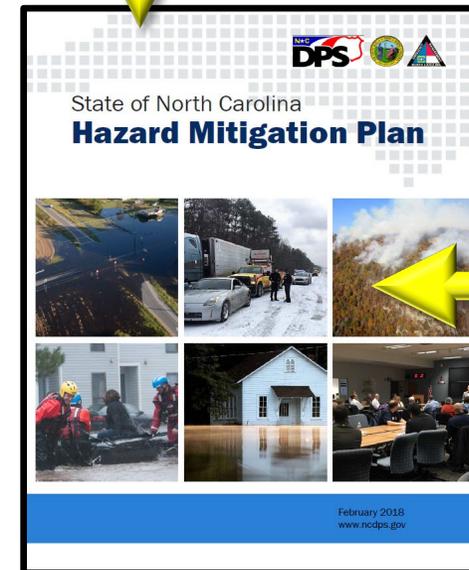
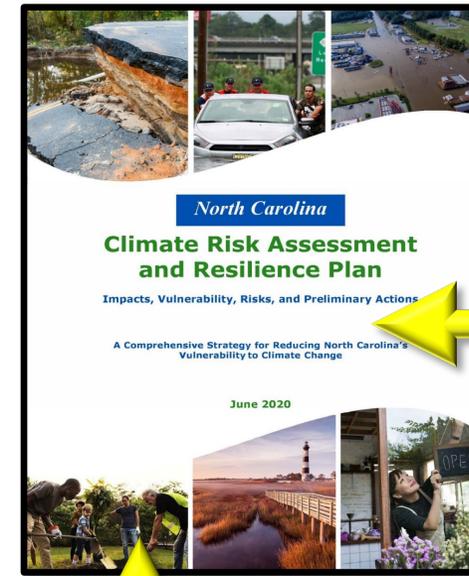
Jacob Boyd | NC Division of Marine Fisheries

Wow Stormwater Webinar | September 21, 2022



EO80 Resilience Synergies

- **EO80** - Committed NC to address climate change by incorporating **mitigation and adaptation** practices in their programs, policies, and operations
- **Protect** human life and health, property, natural and built infrastructure, cultural resources, and other valuable assets



CHPP & EO80 Resilience Synergies

- **EO80** - Committed NC to address climate change by incorporating **mitigation and adaptation** practices in their programs, policies, and operations
- **Protect** human life and health, property, natural and built infrastructure, cultural resources, and other valuable assets

• **CHPP** - Prioritize actions for coastal habitats that will increase **resilience, carbon sequestration, and environmental justice**



What is the CHPP?

Summarizes the latest science to aid in management of fish habitat and water quality

Habitats

- Description
- Ecological significance
- Status

Threats

- Physical
- Hydrological
- Water Quality

Priority Issues and Recommendations

- Supported by science
- Organized under 4 goals

- Developed by DEQ staff
- Reviewed by the CHPP Steering Committee
- Adopted by the commissions (MFC, CRC, EMC)

Implement recommended actions!



CHPP GOALS

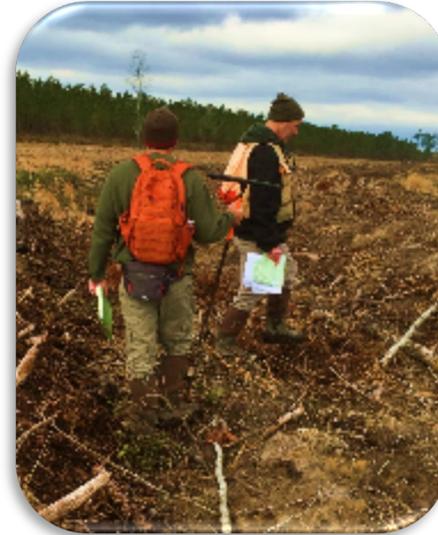


- 1) Improve effectiveness of existing rules and programs protecting coastal fish habitats
- 2) Identify and delineate strategic habitat areas
- 3) Enhance and protect habitats from adverse physical impacts
- 4) Enhance and protect water quality

2021 CHPP Amendment: Priority Habitat Issues



SAV Protection and Restoration, with Focus on Water Quality



Environmental Rule **Compliance** to Protect Habitat



Wetland Protection and Enhancement with Nature-Based Solutions



Reducing Inflow and Infiltration associated with **Wastewater Infrastructure**



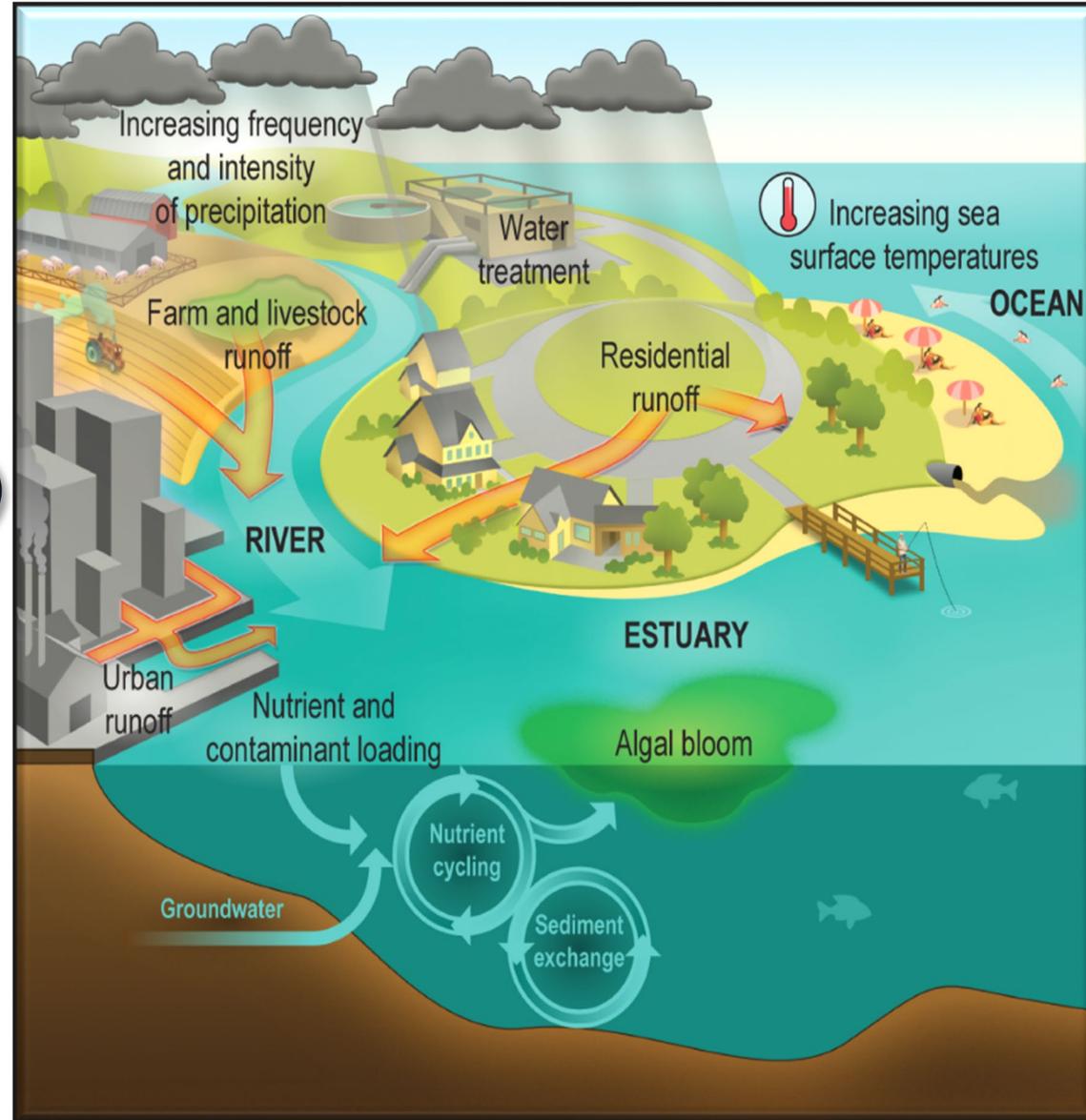
Habitat **Monitoring** to Assess Status and Regulatory Effectiveness

Water Quality

Dissolved
Oxygen

Temperature

pH

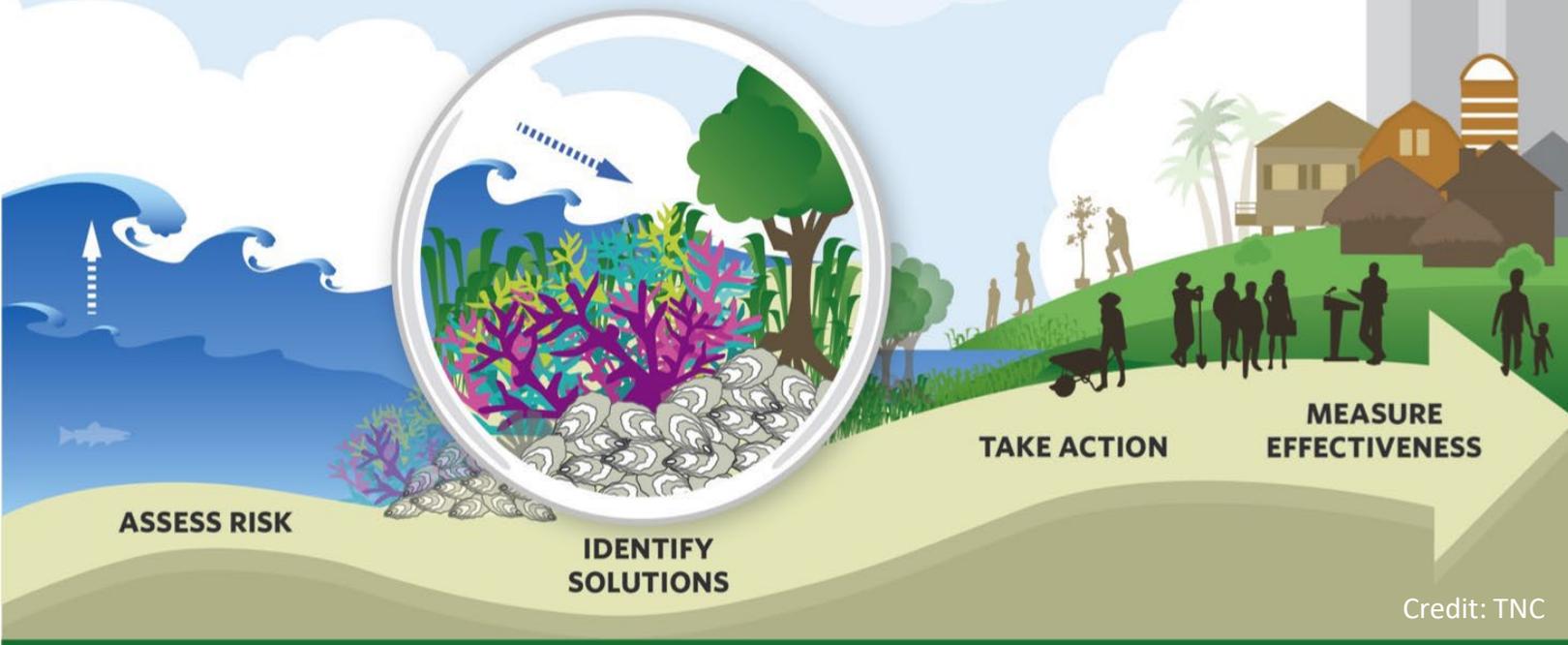


Turbidity

Nutrients
(N, P, Chl *a*)

Bacteria

Coastal Resilience



CHPP

Intersection of **Community** and **Ecosystem** Resilience

Identifying **nature-based or green infrastructure solutions**, where coastal communities can increase their resilience by effectively **protecting, restoring and sustainably managing their natural resources** while strengthening local capacity for climate adaptation

- Nature-Based Solutions

- Strengthen local capacity

Ecosystem Resilience

Community Resilience

CHPP & EO80 Synergies

Climate Change Adaptation

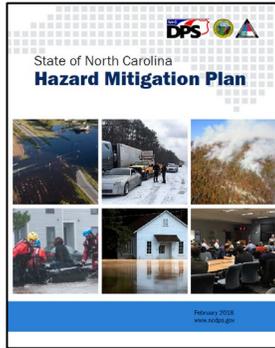
Carbon Sequestration

- Protect and restore **wetlands** and **oysters**
- Increase **SAV**
- Improve **water quality**
- Flood-proof **wastewater infrastructure**
- **Monitor** coastal habitats to prioritize actions

- Policy

- Natural & Working Lands

Incorporating CHPP & EO80 Recommendations Into Existing Efforts



- Collaborating with multiple agencies, NGOs, and other organizations
 - RCCP, RISE, SAV GHG inventory, **NC Resilience Clearinghouse**
- **Recommendations Database: NC Resilience Plan & NWL Action Plan**
- Southeast Regional Partnership for Planning and Sustainability (SERRPAS)
 - South Atlantic Salt Marsh Initiative (SASMI) - Conservation Plan

Recommendations Database: NC Resilience Plan & NWL Action Plan

Tracking/Progress

Recommendations

Strategies

Overlapping efforts

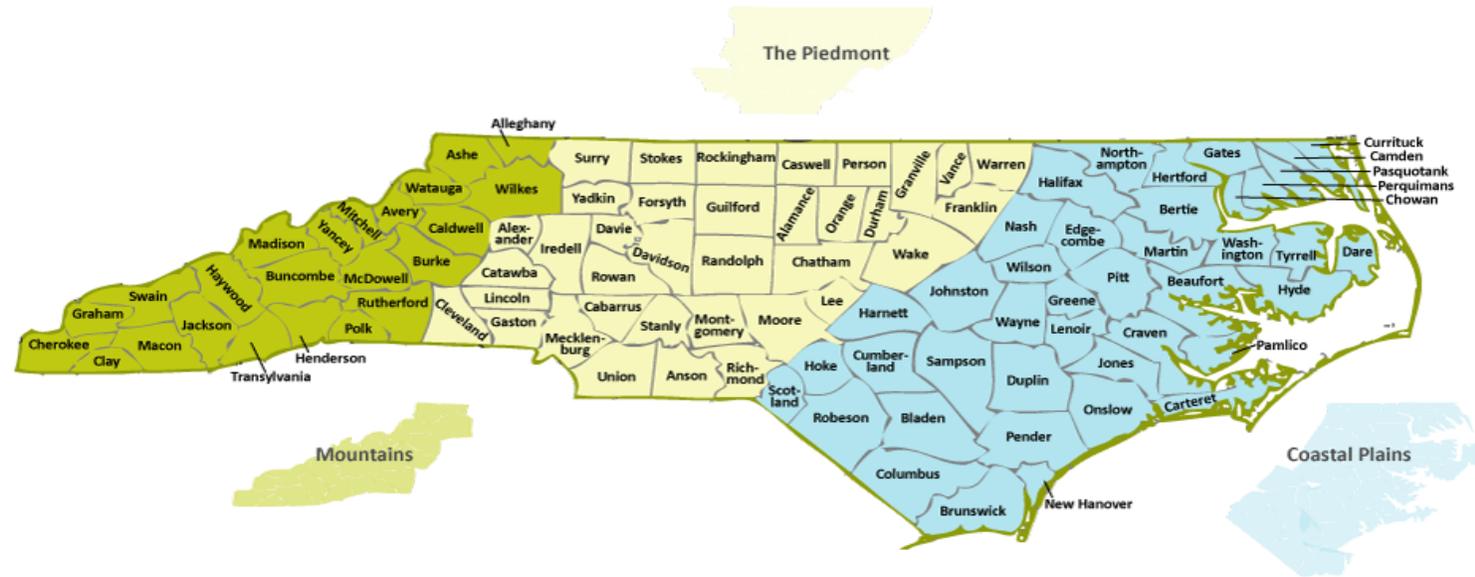
Efficiencies

#	Action	Page	Chapter
379	Provide incentives to stakeholders for coastal habitat protection.	6-9	Chapter 6: Nature Based Solutions to Resilience
380	Facilitate salt marsh migration through protection of migration corridors.	6-9	Chapter 6: Nature Based Solutions to Resilience

NC Resilience Clearinghouse



- NC Risk and Resilience Plan 2020
 - **Recommendation:** Develop an online Climate Resilience Clearinghouse and Toolbox
- NWL Action Plan 2020
 - **Recommendation:** Build a Natural and Working Lands Solutions Toolbox



NC Resilience Clearinghouse

- DEQ and NCORR partnering
- All-encompassing climate resilience and NWL resources hub
- Collaborating with numerous agencies and organizations
- Local decision-makers, regional councils of government, state government agencies, other organizations, universities, and the public
- USCA funding for technical support



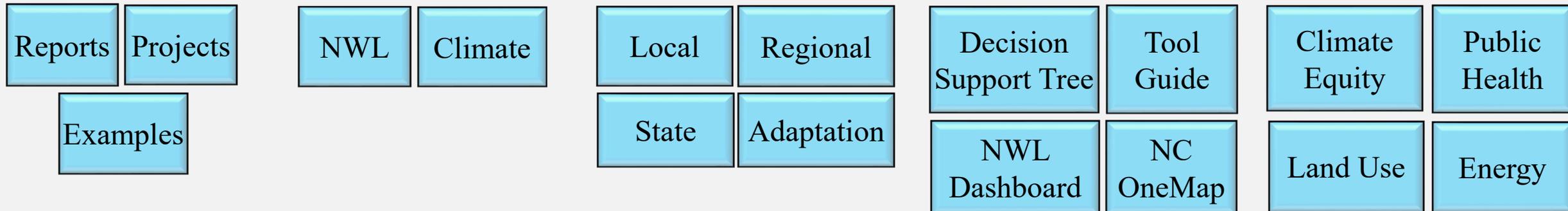
NC Resilience Clearinghouse

- All-encompassing climate resilience & NWL information/resources **Hub**
- Incorporate environmental justice throughout: **D**iversity, **E**quity, and **I**nclusion

Portals (Tier I): *high-level*



Portals (Tier II): *subportals*



Example Portals (Tier I)

California Adaptation Clearinghouse

- Portals Tier I (high-level):
 - Adaptation Planning Guide
 - Case Studies
 - Resources by Topic
 - Tools & Data
 - About

The screenshot displays the ResilientCA.org website. At the top, the logo for ResilientCA.org is visible, along with navigation icons for home, social media, and a glossary. The main navigation menu includes links for "Adaptation Planning Guide", "Case Studies", "Resources by Topic", "Tools & Data", and "About". A prominent search bar is located in the top right corner, with buttons for "Search All Resources" and "Suggest A Resource".

The main content area features a large banner image of a beach with people. Overlaid on this is a dark box with the text "Adaptation Clearinghouse" and a sub-header: "The Adaptation Clearinghouse is the State of California's consolidated searchable database of resources for local, regional and statewide climate adaptation planning and decision-making. Search and explore resources for adaptation and resiliency efforts in California. Learn more." Below this text is a search input field with a green search button.

Below the banner, there is a section titled "Tour the site" with a video player thumbnail and a description: "Watch our three-minute video to learn how to navigate and use the California State Adaptation Clearinghouse." Below the video is a link to "Explore our complete Video Playlist".

The "Featured State Guidance Resources" section includes four tiles: "Adaptation Planning Guide" (with a circular diagram showing Phase 2 and Phase 3), "General Plan Guidelines" (with a green grid background), "Cal-Adapt" (with a dark background and colorful icons), and "Climate Change Research Assessments" (with a landscape background).

The "Popular Adaptation Resources" section includes five tiles: "Coastal Plan Alignment Compass" (with a compass icon), "Find a Tool" (with a gear icon), "Case Studies, Examples, and Projects" (with a magnifying glass icon), "Explore by Topic" (with a grid of colored circles), and "The ResilientCA Adaptation Planning Map (RAP-Map)" (with a map of California icon).

Example Portals (Tier I)

Adapt VA

- Portals Tier I (high-level):
 - Forecasts
 - Adaptations
 - Tools
 - Resilience Resources
 - Planning & Policy

The screenshot shows the homepage of the Adapt VA website. At the top, there is a navigation bar with a home icon and the date "Thursday, October 14, 2021". The main navigation menu includes "FORECASTS", "ADAPTATIONS", "TOOLS", "RESILIENCE RESOURCES", and "PLANNING & POLICY". The central header features the "ADAPTVA" logo and the tagline "Evidence-based planning for changing climate". Below the header, there are five vertical panels, each representing a category: "FORECASTS" (with a globe icon), "ADAPTATIONS" (with a lightbulb icon), "TOOLS" (with a wrench icon), "RESILIENCE RESOURCES" (with a bar chart icon), and "PLANNING & POLICY" (with a gavel icon). Each panel contains a brief description of the resources available in that category.

Thursday, October 14, 2021

FORECASTS ADAPTATIONS TOOLS RESILIENCE RESOURCES PLANNING & POLICY

ADAPTVA

Evidence-based planning for changing climate

- FORECASTS**
Forecasting water levels, temperature, and precipitation helps mitigate impacts and plan resilient communities. Access a tide forecast & sea level projections for Virginia
- ADAPTATIONS**
Case studies and story maps illustrate how adaptation works, and can be financed, through zoning, planning, engineering, and policy practices.
- TOOLS**
Tools assess risk and inform preparation and response to a changing environment. Access flood risk maps, shoreline recommendations, and an interactive comprehensive map of adaptation strategies.
- RESILIENCE RESOURCES**
Data, websites, and other resources important for community adaptation. Including: social and equity issues, climate outlooks and resilience projects.
- PLANNING & POLICY**
Management strategies from local and State code to the Community Rating System. Learn about FEMA National Flood Insurance Program, relevant local ordinances, state legislation, and access legal analyses.

Example Portals (Tier II)

California Adaptation Clearinghouse

- Portals Tier II (subportals):
 - Resources by Topics
 - Adaptation Planning Guide

The screenshot displays the ResilientCA.org website. The header includes the ResilientCA.org logo, navigation links for 'Adaptation Planning Guide', 'Case Studies', 'Resources by Topic', 'Tools & Data', and 'About', and buttons for 'Search All Resources' and 'Suggest A Resource'. The main content area features a title 'The Adaptation Planning Guide provides guidance to local governments on local adaptation and resiliency planning.' followed by a list of bullet points describing the guide's purpose and updates. To the right is a circular diagram of the four phases: Phase 1 (Explore, Define, and Initiate), Phase 2 (Assess Vulnerability), Phase 3 (Define Adaptation Framework & Strategies), and Phase 4 (Implement, Monitor, Evaluate, and Adjust). Below the diagram are buttons for 'Explore APG Online' and 'Download APG'. A list of questions with expandable answers follows, such as 'What is adaptation and resilience?' and 'What are the requirements for local general plans?'. Further down, there are sections for 'Explore Adaptation Planning Phases' with color-coded buttons for each phase, and 'Explore Supporting Resources' with four resource categories: 'ADAPTATION PLANNING RESOURCES', 'ADAPTATION PATHWAYS', 'EXPLORE BY TOPIC', and 'EQUITABLE PLANNING & COMMUNITY ENGAGEMENT'.

Example Portals (Tier II)

- Portals Tier II (subportals):
 - Data portal (**Cal-Adapt**)
 - State and local adaptation plans (**Georgetown Climate Center**)

Climate Tools

New to climate data? Start with the [Local Climate Change Snapshot Tool](#)

All Temperature Precipitation Snowpack Sea Level Rise Wildfire

Local Climate Change Snapshot

A starting point to get climate impacts for your location.

[EXPLORE](#)

Annual Averages

Projected annual averages of maximum & minimum temperatures and precipitation.

[EXPLORE](#)

Extreme Weather

Extreme weather events for baseline and future climates.

[EXPLORE](#)

Maps of Projected Change

Maps depicting long-term (30 years) changes in annual average temperature and precipitation.

[EXPLORE](#)

Extreme Precipitation Events

Changes in intensity and frequency of extreme precipitation events.

[EXPLORE](#)

Extreme Heat Days & Warm Nights

Projected frequency and duration of extreme heat days and warm nights.

[EXPLORE](#)

Sea Level Rise - CalFloD-3D

Maps of inundation during 100 year storm events with projected Sea Level Rise scenarios.

[EXPLORE](#)

Snowpack

Timelapse animation and monthly averages of projected Snow Water Equivalent.

[EXPLORE](#)

GEORGETOWN LAW

GU Home | Law Home

GEORGETOWN CLIMATE CENTER

A Leading Resource for State and Federal Policy

Home About Adaptation Transportation Clean Energy Reports News & Updates Accessibility

Search this site [go](#)

State and Local Adaptation Plans

Select a State

Select State

States and communities around the country have begun to prepare for the climate changes that are already underway. This planning process typically results in a document called an adaptation plan.

Below is a map that highlights the status of state adaptation efforts. Click on a state to view a summary of its progress to date and to access its full profile page. State profile pages include a detailed breakdown of each state's adaptation work and links to local adaptation plans and resources. Please move the map to view Alaska and Hawaii.

Map Satellite

Map data ©2022 Google, INEGI | Terms of Use

Examples Functionality

- Checkbox and/or Dropdown Filtering

CLIMATE IMPACTS

PLANNING PHASES

RESOURCE TYPES

TOPICS

PUBLIC AGENCIES

REGIONS

Adaptation + Mitigation = Innovation + Resilience

Blue Lake Rancheria Tribe | 2018

The Blue Lake Rancheria Tribe is a federally recognized Tribal Government located in Humboldt County. The Tribe began developing its Adaptation + Mitigation policy and programs in 2008 to mitigate climate change and prepare for increased...[show more](#)

CLIMATE IMPACT TAGS

Drought Extreme storms Flooding

RESOURCE TYPE TAGS

ICARP Case Study

Adaptation Strategies for Agricultural Sustainability in Yolo County, California

CA Energy Commission (CEC) | 2012

This paper examines biophysical and socioeconomic issues related to mitigation of greenhouse gas (GHG) emissions and adaptation to climate change for agriculture in Yolo County, California. This paper provides a science-based exploration of...[show more](#)

CLIMATE IMPACT TAGS

Drought Extreme heat Flooding Temperature

RESOURCE TYPE TAGS

Assessment Planning and policy guidance Project or example

Area of Interest

Pick one or more interests:

Air Quality

Indoor Air

Outdoor Air

Ground Level Ozone

Particulate Matter

Water Management

Water Utility Facility Operations

Drought

Saltwater Intrusion

Sea-level Rise

Storms & Flooding

Waste Management & Emergency Response

Contaminated Site Management

Disaster Debris Management

Public Health

Air Quality

Water Quality

Extreme Heat

Adaptation Planning

Getting Started

Comprehensive

Sector-Based

INDIANA UNIVERSITY

Menu

region. For each search, only one area of interest may be selected within each dropdown box.

Select Area of Interests

Select Level of Governments

Select Region

Select Area of Interests

- Air Quality > Indoor Air
- Air Quality > Outdoor Air
- Critical Infrastructure > Buildings and Housing
- Critical Infrastructure > Communications
- Critical Infrastructure > Energy Generation, Procurement and Transmission
- Critical Infrastructure > Transportation Systems
- Critical Infrastructure > Waste and Wastewater
- Ecosystem Protection > Estuaries
- Ecosystem Protection > Invasive Species and Pests
- Ecosystem Protection > Lakes, Rivers and Streams
- Ecosystem Protection > Maintaining Biodiversity
- Ecosystem Protection > Parks, Trees and Forests
- Ecosystem Protection > Urban Ecosystems
- Ecosystem Protection > Wetlands

[Site Reduces Climate Exposure](#)

[Water Treatment Plant for Climate](#)

- Open Search

Adaptation Clearinghouse

POWERED BY THE GEORGETOWN CLIMATE CENTER AND USERS LIKE YOU

SITE SEARCH

Enter a keyword

RESOURCES SECTORS NETWORKS MY CLEARINGHOUSE ABOUT

Welcome to the Adaptation Clearinghouse

An online database and networking site that serves policymakers and others who are working to help communities adapt to climate change

Search the Clearinghouse

By Keyword By State

SEARCH FOR: RESOURCES ORGANIZATIONS USERS ALL

Enter a keyword

SEARCH

ADAPTATION PLANS & PROGRESS

FIND STATE AND LOCAL ADAPTATION PLANS

The Georgetown Climate Center tracks progress states are making in implementing their adaptation plans and provides quick access to local plans in every state on their main website.

VIEW MAP

OR

SELECT A STATE

ECOSYSTEMS

ENERGY

PUBLIC HEALTH

Featured Resource

Resource

2022 California Climate Adaptation Strategy

April 4, 2022

The 2022 California Climate Adaptation Strategy presents six state priorities and relevant actions to increase climate resilience at the state, regional, and local levels. The 2022 Strategy updates the conclusions and innovations put

Adaptation Clearinghouse

The Adaptation Clearinghouse is the State of California's consolidated searchable database of resources for local, regional and statewide climate adaptation planning and decision-making. Search and explore resources for adaptation and resiliency efforts in California. [Learn more.](#)

Search all resources

Benefits

- Efficiencies short- and long-term
- Justification of future resources (i.e., community)

Next Steps

- Continue integrating ecosystem and community resilience (i.e., CHPP recommendations)
- Feedback



Questions?



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