ESF

STATE UNIVERSITY OF NEW YORK

Northeast Regional Climate Center

nyserda

Energy. Innovation. Solutions.

CLIMATE CHANGE SCIENCE CLEARINGHOUSE

Cornell University

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September 16, 2015

NESCAUM

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

UNITED STATES DEPARTMENT OF COMMERCE

Why are we talking about this and how did we get here?

- Currently there are ~16 various regional efforts and counting
- NESCAUM Needs Assessment – survey efforts to id needs and priorities
- Identified High Priority Needs:
  - Undertake/identify vulnerable infrastructure/conduct vulnerability assessments.
  - Provide information to help convince the public that climate change is "happening"
  - Provide additional resources: financial and staffing
  - Increase staff capacity with limited effort
  - Provide leadership to change barriers created by federal regulations

CCSC creates a central access point for data, information, and tools

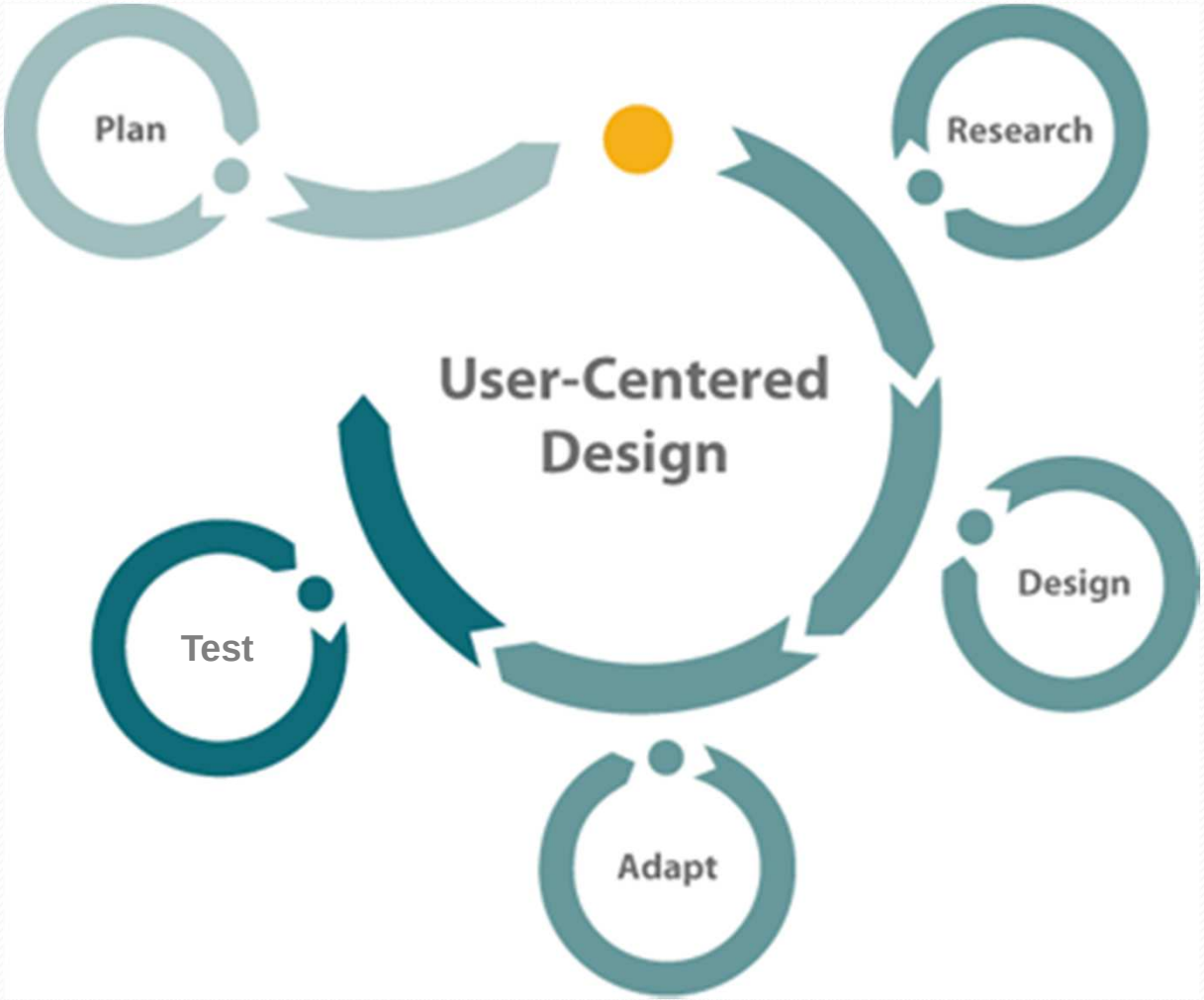
- 16 various regional efforts and counting
- climate work spans sectors and government agencies
- building resiliency will require involvement by additional sectors and groups

As climate and environmental coordinators, we need to provide these disparate groups with meaningful and consistent data, information, and tools.

Need for Clearinghouse

- Put necessary science and technical information into hands of practitioners
  - Create coordinated access to knowledge base
  - Create accessible, personalized and user-friendly climate science info
  - Build linkages with existing data; portal serves as an interface
- Focus on technical and science needs to enable effective planning and implementation of resiliency efforts in the region
- Identify vulnerable infrastructure/conduct vulnerability assessments.

How are we doing it?



http://www.sapdesignguild.org/

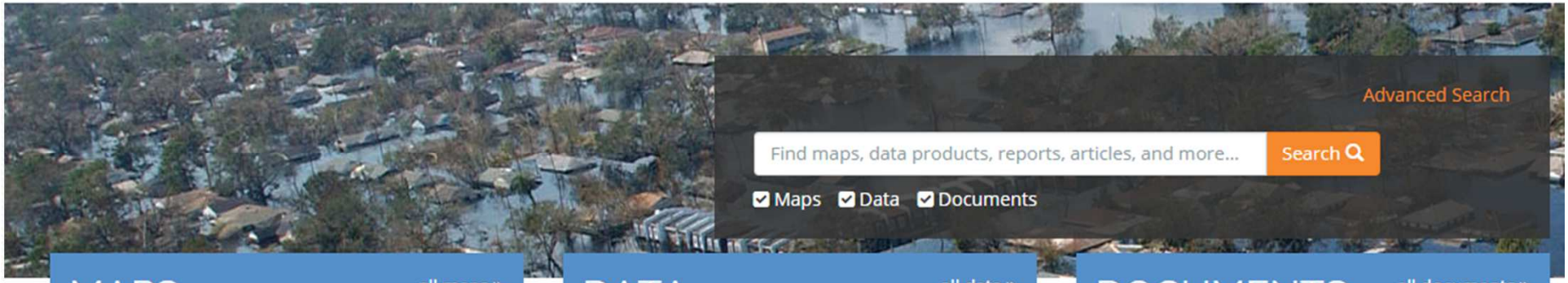
CCSC learned from other sites

- Reviewed EPA, NOAA, USDA, CalAdapt, CAKEx, ESIP, StormSmart
- Determined that:
  - resources need to be curated
  - search functions need to be more intuitive
  - maps need to be more interactive, contain more layer options, and incorporate multiple scenarios
- There is also a need to put resources into the planning context.

NYCCSC

New York Climate Change Science Clearinghouse

Identify Problems | Investigate Solutions | Take Action



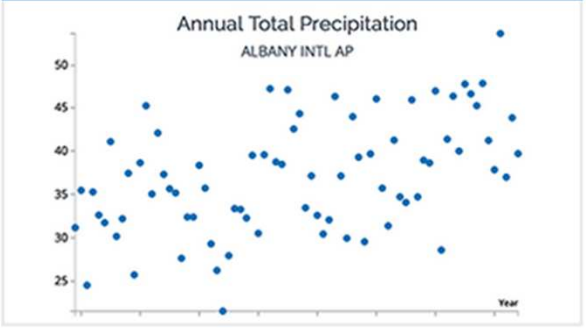
MAPS

all maps »

Use **maps** to identify climate impacts and assess

DATA

all data »



Explore New York State climate information through

DOCUMENTS

all documents »

Discover **reports, articles, plans,** and other climate-

Identify the Problem

- Coastal Flooding
- Heat Waves
- Heavy Downpours
- Summer Drought
- Extreme Weather
- Snowpack Decline

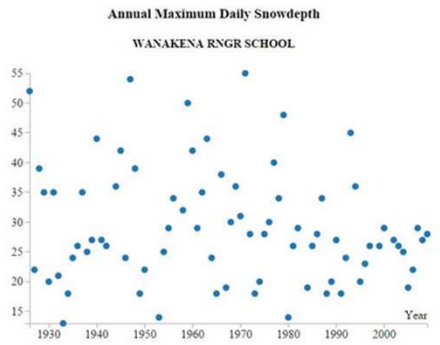
Identify Problems

Temperatures are increasing, precipitation patterns are changing, and sea level is rising. These climatic changes are projected to occur at much faster than natural rates because of increased amounts of greenhouse gases in the atmosphere. Some types of extreme weather and climate events have already increased in frequency and intensity, and these changes are projected to continue.

These climate changes are already having impacts in some aspects of society, the economy, and natural ecosystems and these impacts are expected to increase. Not all of these changes will be gradual. When certain tipping points are crossed, impacts can increase dramatically. Past climate is no longer a reliable guide to the future. This affects planning for water, energy, and all other social and economic systems.

Furthermore, interactions between climate change and other stresses such as pollution and increasing demand for resources will create new challenges.

Snowpack Decline



Time series plot of snow depth from Wanakena Ranger School weather station,Wanakena, NY (Adirondacks). *Source: Climate Data Grapher - Station Precipitation and Snow*

The accumulation of winter snow is expected to decline sharply by the end of this century. This decline has implications for New York's water supply and for tourism. Skiing and snowmobiling contribute close to $2 billion to New York State's economy each year, and the success of these recreational industries depends directly on a healthy snowpack.

Highlighted Resources:

- Climate Change Vulnerability of the US Northeast Winter Recreation - Tourism Sector
- Dynamically Downscaled Projections of Lake-Effect Snow in the Great Lakes Basin
- An Economic Analysis of Climate Change Impacts and Adaptations in New York State (ClimAID Annex III)
- Assessing possible changes in flood frequency due to climate change in mid-sized watersheds in New York State, USA

All resources associated with Snowpack Decline

CCSC Sectors

Water Resources Sector

The Water Resources sector encompasses four major themes: flooding in non-coastal regions, drinking water supply, water availability for non-potable uses (primarily agriculture and hydropower), and water quality. Potential climate change vulnerabilities for water resources and related infrastructure include flooding, an increase in duration and/or frequency of dry periods affecting drinking water supplies, changes in demand for commercial and agricultural water, and declines in water quality due to higher water temperatures and decreased stream flows in summer. Climate change may bring New York State opportunities as a potentially water-rich area under future climate conditions. Water resource adaptation strategies include phased withdrawal of infrastructure from high-risk, floodprone areas, implementation of an automatic gauging and reporting network to provide improved early-warning systems for supply shortages, mechanisms for better coordination of water use in shared water bodies, and establishment of minimum flow requirements for water withdrawals.

Climate Changes associated

Hydrology
- evaporation
- lake level
- streamflow

Precipitation
- annual precipitation
- drought
- heavy precipitation events

Storm
- coastal flooding

Temperature
- annual temperature

AGRICULTURE

The Agriculture sector includes livestock, dairy, and crop production, as well as the economically important flower...

Learn more »
Go to resources »

WATER RESOURCES

The Water Resources sector encompasses four major water resource themes: 1) flooding in non-coastal regions, 2...

Learn more »
Go to resources »

COASTAL ZONES

The Coastal Zones sector focuses on the regions close to the ocean. Climate hazards related to coastal zones encompass...

Learn more »
Go to resources »

ECOSYSTEMS

Ecosystems encompass the plants, fish, wildlife, and resources of all natural and managed landscapes (e.g., forests...

Learn more »
Go to resources »

BUILDINGS

The Buildings sector encompasses residential, commercial, and government buildings.

Go to resources »

TRANSPORTATION

The Transportation sector consists of the built assets, operations, services, and institutions that serve public and...

Go to resources »

TELECOMMUNICATIONS

The Telecommunications sector involves infrastructure systems and the technological sophistication, availability...

Go to resources »

ENERGY

The Energy sector encompasses energy supply, demand, transmission, distribution, fuel sources, and technologies...

Go to resources »

PUBLIC HEALTH

The Public Health sector includes New York State's and New York City's public health systems, services, and...

Go to resources »

Take Action

The final step in building resilience is to take action. Put your plan into place, establish benchmarks, and track progress. Revise at regular intervals as necessary. Understanding how to communicate your plan with stakeholders can help build and maintain support.

Create a Plan

Decide on an approach, formulate an implementation plan, and set up aprocess to monitor and reassess.

Climate Smart Resiliency Planning: A Planning Evaluation Tool for New York State Communities, Version 2.0

Climate Action Planning Guide

Find Funding

Successful implementation depends on finding funding opportunities to support your project.

Community Based Public-Private Partnerships (CBP3s) and Alternative Market-Based Tools for Integrated Green Stormwater Infrastructure

Communicating with Stakeholders

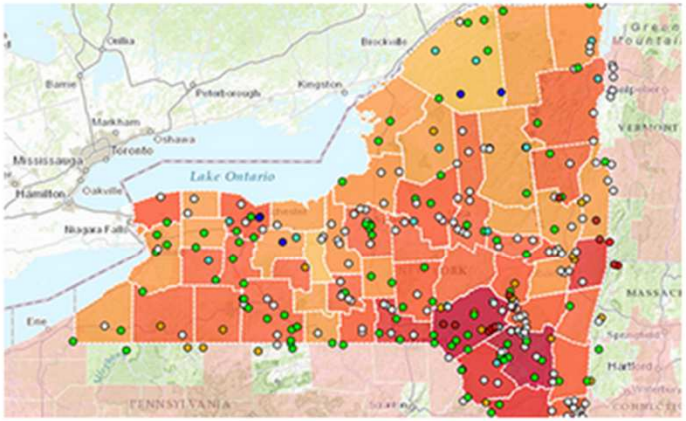
Communicating with the stakeholders needs to begin early in the process of identifying problems and investigating solutions, and continues through developing your plan, implementing it, and monitoring and reassessing it.

Highlighted Resources:

Talking Climate

George Mason University Center for Climate Change Communication

Yale Project on Climate Change Communication



Map and GIS Viewer

An interactive map of climate change and related data for New York State. Data layers currently include historical and projected climate data, FEMA flood hazard zones and historic declared emergencies, infrastructure, and ecosystem data. Users can select layers to display from a menu, filter layers by sector, vary parameters within certain layers, and select from a variety of base layers and regional boundaries. For each layer, links are available to metadata and the original source.

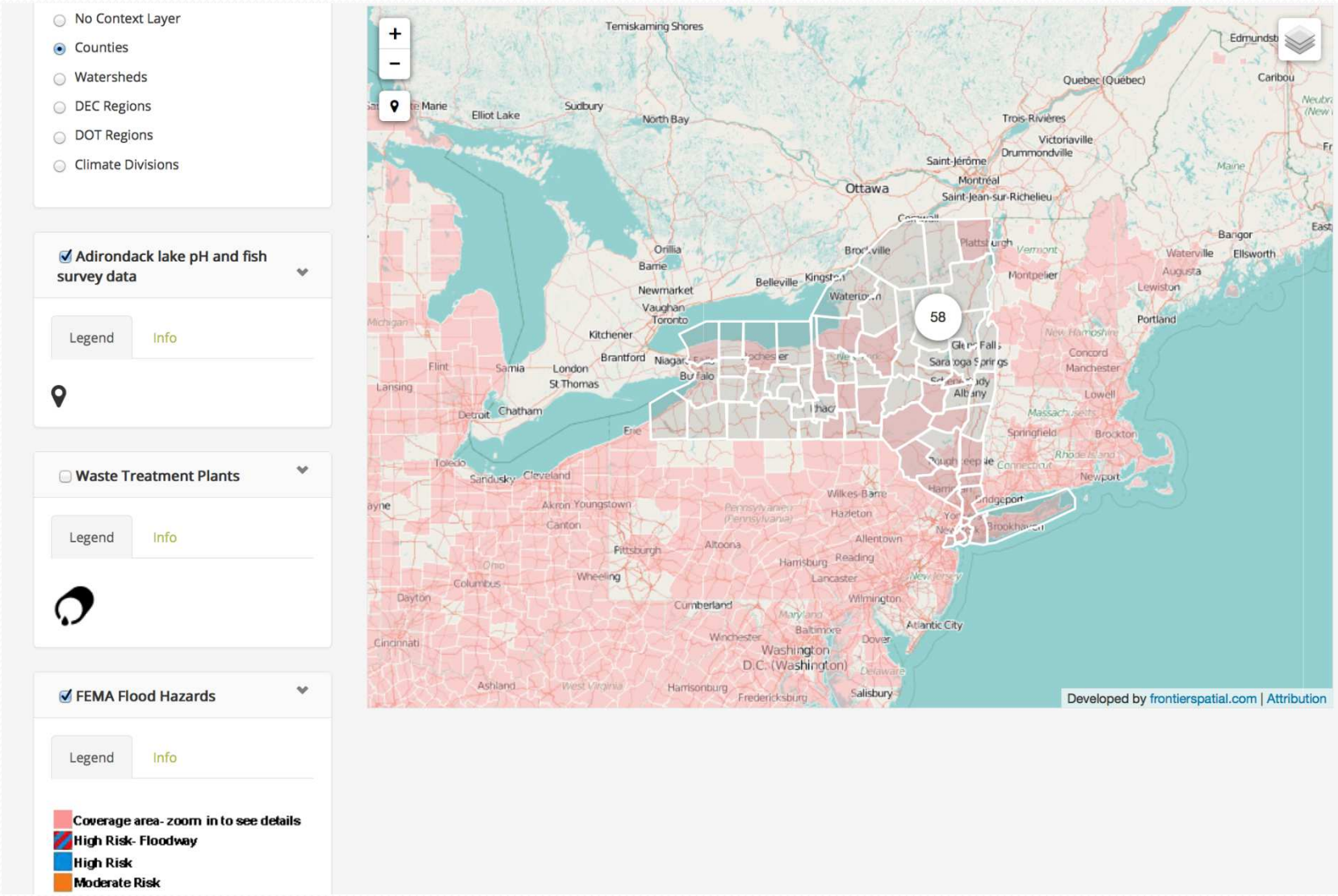
Interactive Map

Sea Level Rise Viewer

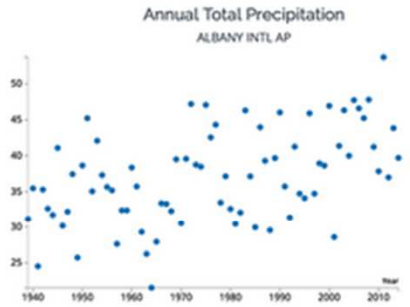
A mapping tool that allows users to visualize potential impacts from sea level rise along the New York coast. Users can adjust sea level rise up to 6 feet above the current Mean Higher High Water (MHHW) point, and include map layers such as infrastructure and FEMA flood hazard zones in addition to sea level rise. Currently the mapper uses the latest NOAA sea level rise model; future updates will include the ability to display results from two other sea level rise models.

Interactive Map

CCSC Build-Your-Own Map



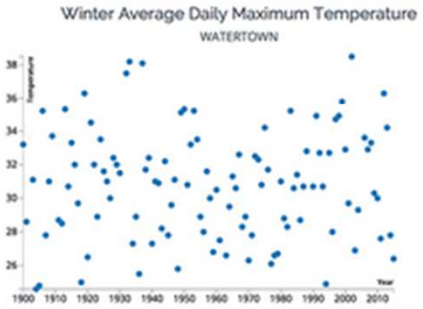
CCSC Data Products



ACIS Precipitation Station Data

Time series graphs of precipitation data from New York State stations in the U.S. Historical Climatology Network. The length of the data record varies by station, with the oldest data going back to 1900. The user can choose from a list of stations. Variables include monthly, seasonal, and annual total precipitation, and monthly, seasonal, and annual averages of daily snowfall and daily snow depth.

Interactive Chart



ACIS Temperature Station Data

Time series graphs of temperature data from New York State stations in the U.S. Historical Climatology Network. The length of the data record varies by station, with the oldest data going back to 1900. The user can choose from a list of stations. Variables include monthly, seasonal, and annual averages of daily maximum, daily minimum, and daily average temperatures, in °F.

Interactive Chart

Other Featured Data Products

Extreme Precipitation in New York and New England

Coastal County Snapshots – Flood Exposure

State and Local Energy Data

Storm Events Database

All Data Products

Document Repository

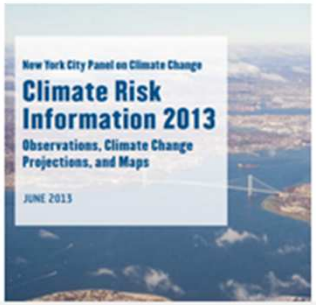
Climate Change in New York State - Updating the 2011 ClimAID Climate Risk Information Supplement to NYSERDA Report 11-18

2014 Supplement - Updated Climate Projections Report

Climate change projections for New York State that have been updated since the 2011 ClimAID Report, based on up-to-date datasets, improved baseline scenarios, and the latest generation of climate models and emissions projections.

New York State Energy Research and Development Authority (NYSERDA) | September 2014

PDF | WEBLINK | Learn More »



Climate Risk Information 2013: Observations, Climate Change Projections, and Maps

Updated climate change projections and future coastal flood risk maps for New York City

New York City Panel on Climate Change (NPCC) | June 2013

PDF | WEBLINK | Learn More »

Other Featured Documents

- Assessing Flood Risk in a Changing Climate in the Mohawk and Hudson River Basins
- A Comparative Cost Analysis of Ten Shore Protection Approaches at Three Sites Under Two Sea Level Rise Scenarios
- Adaptation Strategies Guide for Water Utilities
- Climate Change Challenges and Opportunities in New York Municipalities: Assessing the Perceptions of and Actions to Local Climate Change
- Guide to Ecologically-Based Stream Restoration in New York's Coastal Watersheds

All Documents

CCSC Search Function

Browse Maps and Find Data

Limit your search

Resource Types

Sectors

Water Resources ✖	295
Ecosystems	146
Coastal Zones	141
Transportation	124
Energy	115
Buildings	106
Public Health	105
Agriculture	98
Telecommunications	83

Climate Changes

Effects

All Fields | Search... | Search

You searched for: Sectors › Water Resources ✖ Start Over

« Previous | **1 - 10** of **295** | Next »

10 per page

1. State and Local Adaptation Plans

URL (Website)

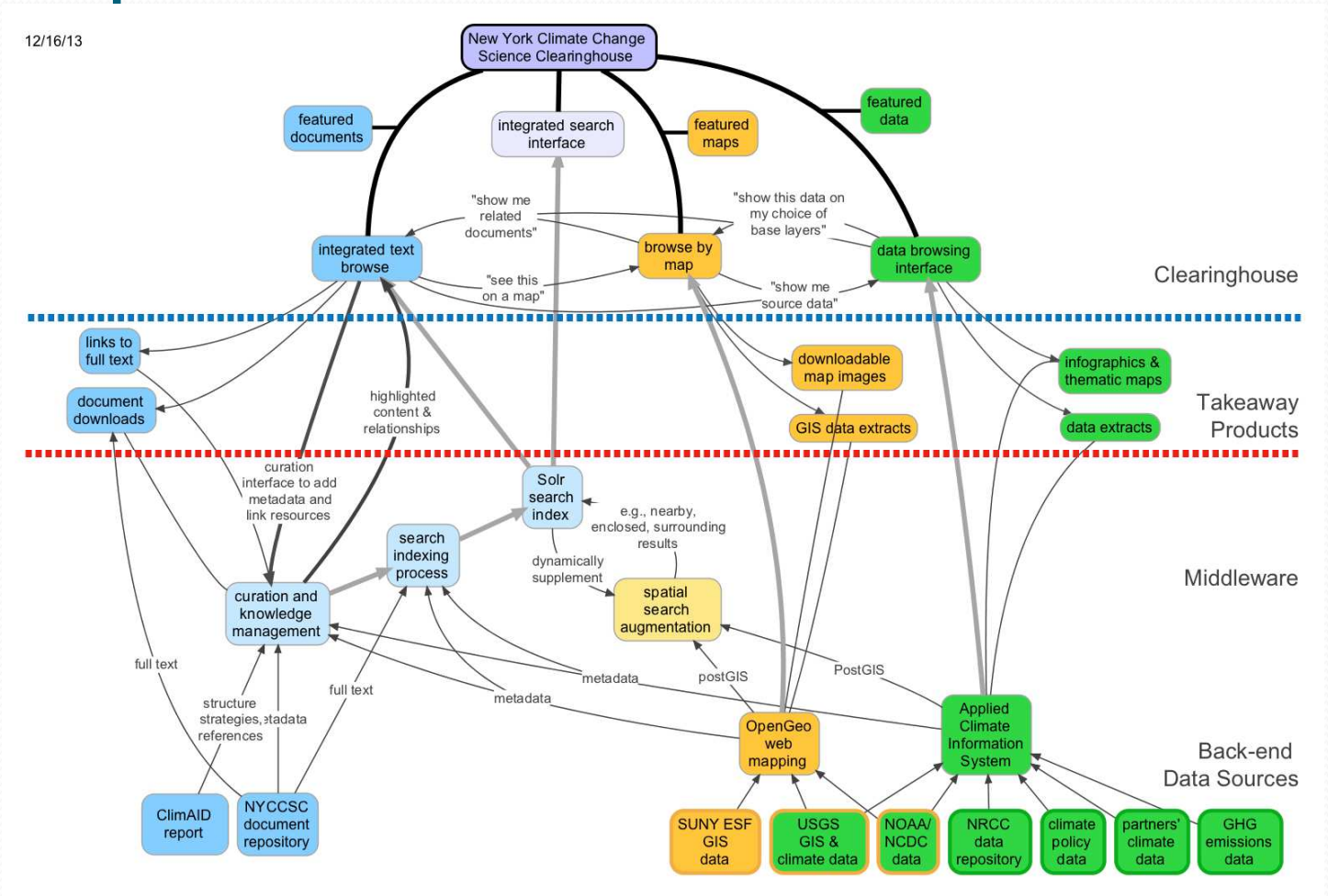
Abstract: An interactive map that highlights the status of state adaptation efforts in the United States. Users can click on a state to view a summary of its progress to date and to access its full profile page. State profile pages include a detailed breakdown of each state's adaptation work and links to loc...

Types: Visualization Site ,Web Mapping (data ,GIS)

Sectors: Transportation, Telecommunications, Buildings, Water Resources, Energy, Agriculture, Coastal Zones, Public Health, Ecosystems

2. Extreme Precipitation in New York & New England

CCSC builds linkages with existing data; portal serves as an interface



CCSC continually soliciting and incorporating feedback

- Sector Expert groups
- End-user testing
- Beta phase with full site functionality as we continue to build content

CCSC could be a regional resource with state specific portals

- Current website focus in solely on New York but the site creates a template and develops functionality that could be used outside New York.
- Many aspects are relevant across the region
- Back end and middleware are flexible enough to accommodate tailored front-ends
- Other states have invested in tools that could be linked/leveraged in this site