

Climate Change Vulnerability Assessments: What's Applicable (Now) at the Federal Level?

CEQ Workshop on
Climate Change Adaptation for Federal Infrastructure

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White House Conference Center



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What's in a Vulnerability Assessment?

VULNERABILITY ASSESSMENT



Exposure

- Exposure to key hazards or threats
 - health and safety hazards
 - economic & environmental threats
- Exposure of key populations & resources
 - people in harm's way
 - infrastructure in high risk areas
 - natural resources at risk



Sensitivity

- Sensitivity to potential effects of hazards
 - increased flood frequency or depths
 - changing resource demands & supplies (water, energy)
 - habitat migration
- Sensitivity of populations & resources
 - demographic strength & vulnerability factors
 - infrastructure condition & codes
 - ecosystem health and stressors



Adaptive Capacity

- Adaptive capacity of populations and resources to respond to impacts
 - plans, policies, strategies in place
 - monitoring & evaluation
 - flexible strategies

Impact Assessment

slide courtesy: Sandy Eslinger, NOAA



What's Intended with the CEQ High-level Vulnerability Analysis?

- ✓ help identify priorities for future assessment and implementation actions
- ✓ provide initial or increased awareness of potential climate change impacts to agency operations, policies, and programs
- ✓ emphatically **NOT** a detailed vulnerability assessment of specific programs, projects, or regions

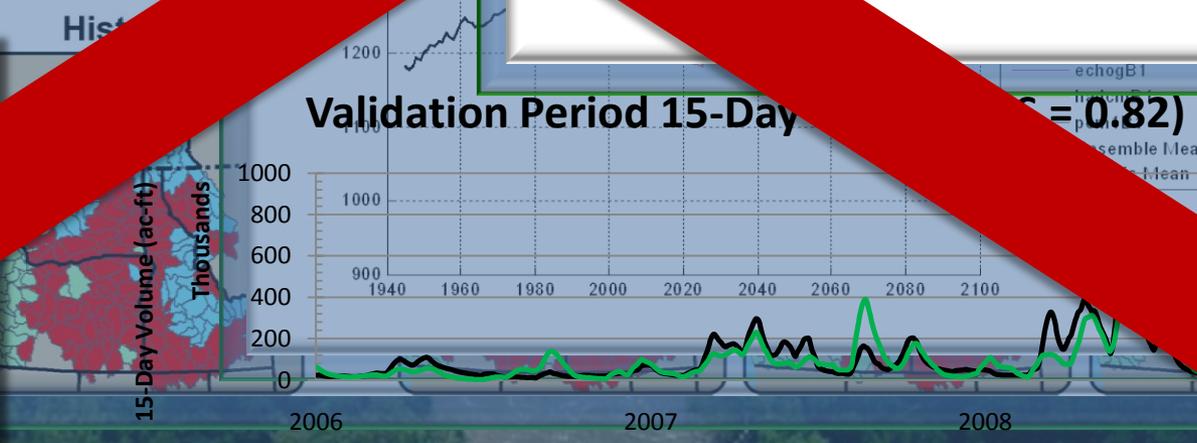
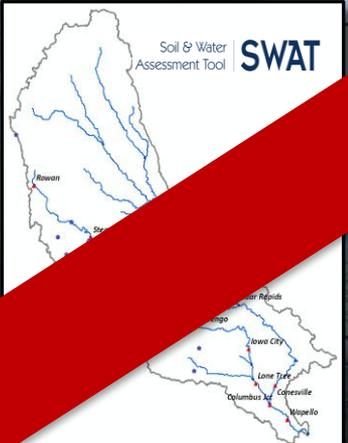
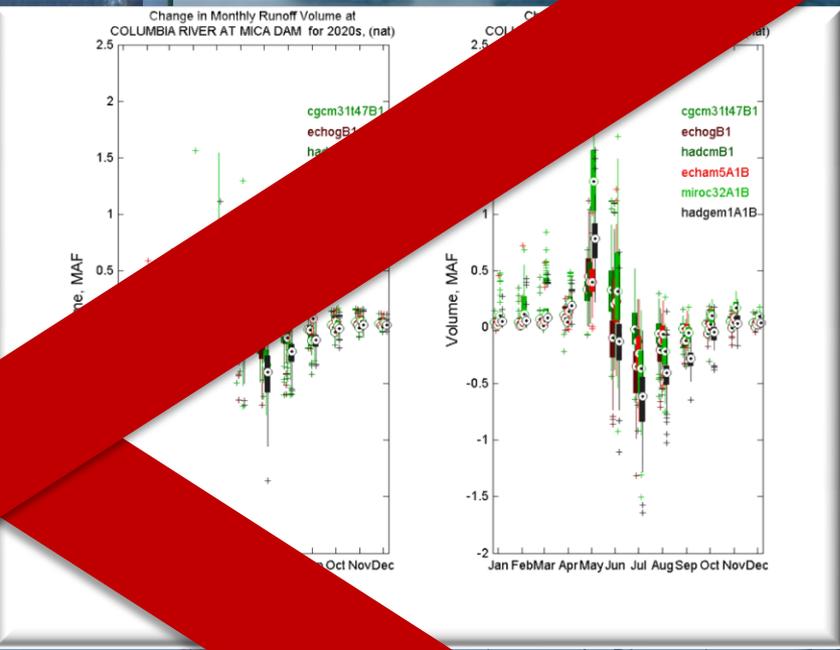


What's Intended with the CEQ High-level Vulnerability Analysis? *(cont'd)*

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What's Applicable (Now)?

Climate Impacts

Assess how climate trends are most likely to affect programs & issues given current & future conditions



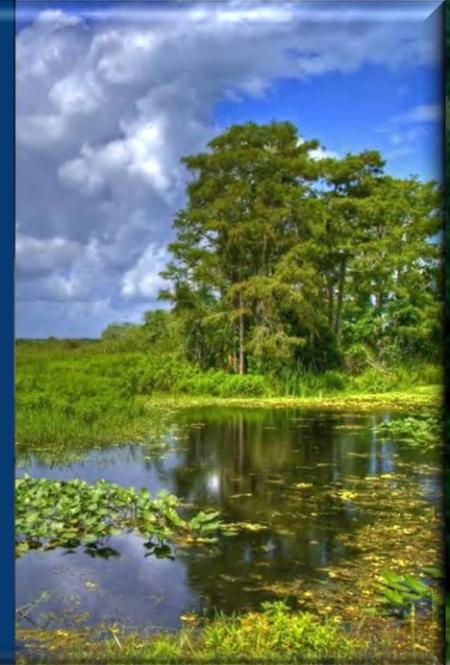
Consider vulnerabilities for all types of infrastructure

- Transportation
- Utilities
- Water and wastewater
- Housing
- Business and industry



Consider the protective functions of key natural resources

- Storm buffering
- Flood protection
- Stormwater management
- Erosion control
- Climate regulation



Heat-Related Health Issues

Precipitation Issues

Hurricane and Storm Impacts

Coastal Land Loss Impacts



slides courtesy: Sandy Eslinger, NOAA



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What's Applicable (Now)? (cont'd)

NOAA ncdc.noaa.gov & csc.noaa.gov

World's Largest Archive of Climate Data
National Climatic Data Center



RECLAMATION Managing Water in the West

SECURE Water Act Section 9503(c) - Reclamation Climate Change and Water 2011



U.S. Department of the Interior
Policy and Administration
Bureau of Reclamation
Denver, Colorado

Weather/Climate,
Events,
Information &
Assessments

Flood Exposure Study Quick look at county-level exposure

Continuous States Hawai'i Alaska



USGS science for a changing world

Woods Hole Science Center

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National Assessment of Coastal Vulnerability to Sea-Level Rise

E. Robert Thieler, Jeff Williams, Erika Hammar-Klose
Woods Hole Field Center, Woods Hole, MA

National Assessment of Coastal Vulnerability to Sea-Level Rise
U.S. Atlantic, Pacific, and Gulf of Mexico Coasts

state to zoom in.
Counties with Snapshots
Doesn't my county have a snapshot?
a state Select a county

USBR usbr.gov/WaterSMART

USGS nccwsc.usgs.gov & woodshole.er.usgs.gov



National Climate Change and Wildlife Science Center Delivering Science to Help the Nation's Fish, Wildlife, and Ecosystems Cope with Climate Change

The earth's climate, including changes in temperature, weather patterns, and precipitation, will likely result in significant effects on our nation's fish and wildlife resources now and in the future. Relatively little scientific information exists on which to base management strategies to help fish and wildlife adapt to climate change. The U.S. Geological Survey (USGS) is meeting this challenge through the National Climate Change and Wildlife Science Center (NCCWSC) and the Center's partnerships with the Department of the Interior's Climate Science Centers.

The Center was established by Congress in 2008 to help deliver scientific and technical information to help natural resource managers cope with a changing climate.

Working in partnership with both resource managers and scientists at national, regional, and landscape levels, including Interior's eight Climate Science Centers and federal, tribal, state, local, university, NGO, and other partners, the NCCWSC will:

- Forecast fish and wildlife population and habitat changes in response to climate change.
- Assess the vulnerability and risk of species and habitats to climate change.
- Link models of physical climate change (such as temperature and precipitation) with models that predict ecological, habitat, and population responses.



Service) will be poised to support and leverage these centers. Centers in Alaska, the Northwest and Southeast will be established in 2010, with additional centers added in 2011 and 2012 as resources permit.

Regional Climate Science Centers will be housed at host institutions with substantial climate change expertise and partnerships. Expected benefits from the host institutions include access to supercomputing capability, as well as, for universities, faculty and graduate student expertise. Each CSC will also have a regional science-management advisory committee, which will establish the Center's strategic priorities and will work closely with the Department's Landscape Conservation Cooperatives to ensure strong links to management needs and applications.

Climate Science Centers will work closely with Landscape Conservation Cooperatives management-science partnerships resource management actions address other stressors within and across link science and conservation deliverables, formed and directed by land, natural resource managers and interested organizations. Federal, state, tribal, local governmental management organizations partners in their development. Each by a steering committee representative that region. CSCs will also be setup advisory committees for each CSC. cscs.usgs.gov/strategy/index.cfm

Climate Science Centers and the Land Cooperatives, NCCWSC staff and funding biological and biological response models



wave height, coastal slope, shoreline change, geomorphology, and historical rate of relative sea-level rise.



Thanks for your invitation & interest

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