

Climate Change

Newsletter



USACE
CLIMATE
PREPAREDNESS
AND RESILIENCE

5 December 2013

IN THIS ISSUE

[MESSAGE](#)

[SPOTLIGHT FEATURE](#)

[RESPONDING AND ADAPTING](#)

[ONLINE TOOLS](#)

[WORKING TOGETHER](#)

[POLICY AND GUIDANCE](#)

DEADLINES

➤ By Aug. 31, 2014 -

Complete an inventory and assessment of proposed and completed changes to land- and water-related policies, programs, and regulations [with Department of Defense (DoD), Department of the Interior (DOI), U.S. Department of Agriculture (USDA), US Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), Federal Emergency Management Agency (FEMA)]



WELCOME

The U.S. Army Corps of Engineers (USACE) water resources missions and operations are very sensitive to changes in climate and weather. For this reason, we have been actively addressing climate change impacts for a number of years. With the release of the new Executive Order on Preparing the United States for the Impacts of Climate Change, I'd like to begin sharing information about USACE climate change adaptation activities through this periodic newsletter. Welcome to the first edition!

*Mr. James C. Dalton, P.E., SES
Chief of Engineering and Construction
Chair, USACE Climate Change Adaptation Steering Committee*

MESSAGE

During the past few months, I've had many opportunities to engage with groups and talk about the role of the Corps of Engineers in providing vital water resources infrastructure to the Nation. Without fail, I am always asked a question about how we are dealing with climate change. I am very proud that USACE is on the leading edge of important research and projects that will help ensure our infrastructure and operations are prepared for future conditions. Climate Change and Climate Adaptation issues are shared responsibilities... it's going to take a team of teams throughout the government and private sector. In fact, just a few weeks ago two of our USACE professionals, Dr. Kate White and Mr. Mark Huber, were recognized with the President's GreenGov Climate Champion Award as part of an interagency team that developed a Sandy Sea Level Rise Tool. Together with our partners, we are not only Building Strong, but we are building for the 21st century. Thank you for what you do in support of these initiatives!

*Thomas P. Bostick
Lieutenant General, US Army
Commanding General and Chief of Engineers*

SPOTLIGHT FEATURE

Executive Order 13653 on Preparing the United States for the Impacts of Climate Change was released 1 Nov 2013. Overall the message was consistent with expectations set from previous drafts and other guidance provided from the Executive Office. Highlights include USACE being named among 30 agencies in new Council on Climate Preparedness and Resilience targeted to replace the existing Interagency Climate Change Adaptation Task Force. The executive order was sub-divided in eight key sections.



USACE
CLIMATE
PREPAREDNESS
AND RESILIENCE

IN THIS ISSUE:

[MESSAGE](#)

[SPOTLIGHT FEATURE](#)

[RESPONDING AND ADAPTING](#)

[ONLINE TOOLS](#)

[WORKING TOGETHER](#)

[POLICY AND GUIDANCE](#)

Climate Change Newsletter is an online newsletter produced by the U.S. Army Corps of Engineers as an unofficial newsletter under the provisions of AR 360-1. The purpose of this newsletter is to provide information about Corps climate change adaptation issues, policies, tools, and methods. Opinions expressed are not necessarily those of the U.S. Army. Inquiries can be addressed to U.S. Army Corps of Engineers, Attn: White, CEIWR-GW, 72 Lyme Rd., Hanover, NH 03755-1290. Phone: 603-646-4187.

Lt. Gen. Thomas P. Bostick
**Commanding General
Publisher**

W. Curry Graham
Director of Public Affairs

Stephen L. DeLoach
Executive Editor

Candice Walters
Managing Editor

Kate White
Editor

Submissions

The *Climate Change Newsletter* welcomes submissions. Please send your articles, photos, events, letters or questions to kathleen.d.white@usace.army.mil

Whenever possible, please enjoy The *Climate Change Newsletter* without using paper

Section 1: Policy

Identifies impacts and states that deliberate preparation, close cooperation, and coordinated planning is required by all levels of government and others.

Agencies should promote:

- engaged and strong partnerships and information sharing at all levels of government
- risk-informed decision making and the tools to facilitate it
- adaptive learning, in which experiences serve as opportunities to inform and adjust future actions
- preparedness planning

Section 2: Modernizing Federal Programs to Support Climate Resilient Investment

Agencies should work with Council on Climate Preparedness and Resilience to:

- Identify and seek to remove or reform barriers that discourage investments or other actions to increase the Nation's resilience to climate change while ensuring continued protection of public health and the environment;
- Reform policies and programs that could increase the vulnerability of natural or built systems, economic sectors, natural resources, or communities to climate change related risks;
- Identify opportunities to support and encourage smarter, more climate-resilient investments by States, local communities, and tribes, including by providing incentives through agency guidance, grants, technical assistance, performance measures, safety considerations, and other programs, including in the context of infrastructure development;
- Report on their progress in achieving the requirements identified above, including accomplished and planned milestones, in the Agency Adaptation Plans

Agencies should consider the recommendations of the State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience (Task Force) established in section seven of the executive order and the National Infrastructure Advisory Council established by Executive Order 13231 and 13652. This Executive Order charges specific Interagency groups with coordinating and modernizing Federal processes shall be responsible for ensuring that climate change related risks are accounted for in their activities.

Section 3: Managing Lands and Waters for Climate Preparedness and Resilience.

USACE to participate in team with Department of Defense (DoD), Department of the Interior (DOI), U.S. Department of Agriculture (USDA), US Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), Federal Emergency Management Agency (FEMA) with Council on Environmental Quality (CEQ) and Office of Management and Budget (OMB) to:

- **(Within nine months)** complete an inventory and assessment of proposed and completed changes to their land- and water-related policies, programs, and regulations necessary to make the Nation's watersheds, natural resources, and ecosystems, and the communities and economies that depend on them, more resilient in the face of a changing climate;
- Focus on program and policy adjustments that promote the dual goals of greater climate resilience and carbon sequestration, or other reductions to the sources of climate change.

Section 4: Providing Information, Data, and Tools for Climate Change Preparedness and Resilience

Department of Defense (DoD), Department of the Interior (DOI), U.S. Department

IN THIS ISSUE:

[MESSAGE](#)

[SPOTLIGHT FEATURE](#)

[RESPONDING AND ADAPTING](#)

[ONLINE TOOLS](#)

[WORKING TOGETHER](#)

[POLICY AND GUIDANCE](#)



Inventory and assessment must include a timeline and plan for making changes to policies, programs, and regulations. **USACE currently has a three-year plan.**

Intended to build on efforts already completed or underway as outlined in agencies' Adaptation Plans and interagency climate strategies.

of Agriculture (USDA), Commerce, Department of Health & Human Services (HHS), US Department of Housing and Urban Development (HUD), Department of Transportation (DOT), Department of Energy (DOE), Department of Homeland Security (DHS), US Environmental Protection Agency (EPA), National Aeronautics and Space Administration (NASA), supported by United States Global Change Research Program (USGCRP), work together to develop and provide authoritative, easily accessible, usable, and timely data, information, and decision-support tools on climate preparedness and resilience. In addition Council on Environmental Quality (CEQ) and Office of Science and Technology Policy (OSTP) are going to establish a web portal on Data.gov to share information and tools relevant to climate decision making.

Section 5: Federal Agency Planning for Climate Change Related Risk

Adaptation Plans submitted to CEQ and OMB (**first update due NLT March 3, 2014**, thereafter updates are required no later than one year after the publication of each quadrennial National Climate Assessment report) shall:

- Identify and assess climate change impacts on and risks to missions, operations, and programs;
- Describe programs, policies, and plans the agency has already put in place, as well as additional actions the agency will take, to manage climate risks in the near term and build resilience in the short and long term;
- Describe how any climate change related risk identified as impairing an agency's statutory mission or operation will be addressed;
- Describe how the agency will consider the need to improve climate adaptation and resilience, including the costs and benefits of such improvement, with respect to agency suppliers, supply chain, real property investments, and capital equipment purchases;
- Describe how the agency will contribute to coordinated interagency efforts to support climate preparedness and resilience at all levels of government.

Section 6: Council on Climate Preparedness and Resilience

The council will designate a Steering Committee, which shall help determine priorities and strategic direction for the Council. The Co-Chairs and Steering Committee may establish working groups as needed, and may re-charter working groups of the Interagency Climate Change Adaptation Task Force, as appropriate. The current Interagency Climate Change Adaptation Task Force will sunset no later than 30 days after first meeting of Council

The mission and function of the council is to:

- Develop, recommend, coordinate interagency efforts on, and track implementation of priority Federal Government actions related to climate preparedness and resilience
- Support regional, State, local, and tribal action to assess climate change related vulnerabilities and cost-effectively increase climate preparedness and resilience of communities, critical economic sectors, natural and built infrastructure, and natural resources, including through the activities as outlined in sections two and three of this order
- Facilitate the integration of climate science in policies and planning of government agencies and the private sector

Section 7: State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience

The executive order establishes a State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience. The task force within one year will provide

IN THIS ISSUE:

[MESSAGE](#)

[SPOTLIGHT FEATURE](#)

[RESPONDING AND ADAPTING](#)

[ONLINE TOOLS](#)

[WORKING TOGETHER](#)

[POLICY AND GUIDANCE](#)

Section 8 of the Executive Order – Preparing the United States for the Impacts of Climate Change defines the following important concepts:

Preparedness:

Actions taken to plan, organize, equip, train, and exercise to build, apply, and sustain the capabilities necessary to prevent, protect against, ameliorate the effects of, respond to, and recover from climate change related damages to life, health, property, livelihoods, ecosystems, and national security

Adaptation:

Adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative effects

Resilience:

Ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions

recommendations to:

- Remove barriers, create incentives, and otherwise modernize Federal programs to encourage investments, practices, and partnerships that facilitate increased resilience to climate impacts, including those associated with extreme weather
- Provide useful climate preparedness tools and actionable information for States, local communities, and tribes, including through interagency collaboration as described in section 6 of this order; and
- Support State, local, and tribal preparedness for and resilience to climate change.

RESPONDING AND ADAPTING

Adaptation Steering Committee

The Adaptation Steering Committee, chaired by Chief of Engineering and Construction Mr. James C. Dalton, Professional Engineer and Senior Executive Service, has actively promoted the development of policy and guidance to improve the resilience and decrease the vulnerability of our missions, operations, programs, projects, and systems of projects to the effects of climate change and variability. USACE has been working actively with its partners and stakeholders to develop consistent national policy and guidance based on the best available and actionable science.

FY 2012 Adaptation Plan and Report

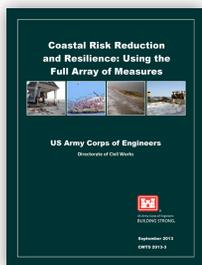


Adaptation strategies and policies are needed to support the continuing ability of water resources infrastructure to reduce the risks posed by climate change.

USACE prepared and submitted a [2012 Climate Change Adaptation Plan and Report](#) to the White House Council on Environmental Quality (CEQ) and the Office of Management and Budget (OMB) in accordance with March 2011 Implementing Instructions. It also answers the guiding questions posed by the Council in the Implementing Instructions and describes our progress and future priorities.

The USACE 2012 Climate Change Adaptation Plan and Report is included as an appendix to the [USACE FY12 Sustainability Plan](#). The report is a product of the USACE Adaptation Steering Committee in support of the USACE Senior Point of Contact for Adaptation, the Honorable Jo-Ellen Darcy, Assistant Secretary of the Army (Civil Works), and represents an update to the [2011 Adaptation Report](#). It was released for public comment on Feb. 7, 2013.

Coastal Risk Reduction and Resilience: Using the Full Array of Measures



Coastal areas are especially vulnerable to hazards, now and in the future, posed by waves and surges associated with sea level change and coastal storms. There are a variety of approaches that can be used to reduce the risks of these hazards to coastal areas, including natural or nature-based features (e.g., wetlands and dunes), nonstructural interventions (e.g., policies, building codes and emergency response such as early warning and evacuation plans), and structural interventions (e.g., seawalls and breakwaters). This topic is the subject of intense interest following Hurricane Sandy.

[“Coastal Risk Reduction and Resilience: Using the Full Array of Measures.”](#) a recently published paper, discusses USACE guidance on how to help reduce risks to coastal areas and improve resilience to coastal hazards through an integrated

IN THIS ISSUE:

[MESSAGE](#)

[SPOTLIGHT FEATURE](#)

[RESPONDING AND ADAPTING](#)

[ONLINE TOOLS](#)

[WORKING TOGETHER](#)

[POLICY AND GUIDANCE](#)



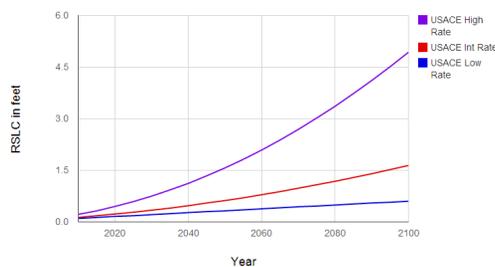
The U.S. Global Change Research Program (USGCRP) is a Federal program that coordinates and integrates global change research across 13 government agencies to ensure that it most effectively and efficiently serves the Nation and the world.

planning approach. The USACE approach to coastal risk reduction measures considers the engineering attributes of the various measures (how do these help reduce vulnerabilities) and dependencies among features (how do they impact each other) over both the short- and long-term. The effective implementation of an integrated coastal systems-based approach to flood and coastal flood hazard mitigation relies on a collaborative, shared responsibility framework between Federal, state, and local agencies and the public. Matrices depicting the details regarding [Natural and Nature-based Features, Nonstructural Measures](#), and [Structural Measures](#) can be found on the USACE Climate Change website.

ONLINE TOOLS

Sea-Level Change Calculator

The USACE Climate and Global Change team has developed a [sea-level change calculator](#) to assist in developing information to support its [sea-level change policy](#) (*pdf*), which supports the USACE overarching climate change [adaptation policy](#). This tool has been modified to NOAA scenarios to help people rapidly assess what the coming changes could look like.



The calculator uses three local relative sea level change scenarios that were updated from [Engineering Circular 1165-2-212](#), which provides guidance for incorporating direct and indirect physical effects of projected future sea-level change across the project life cycle in managing,

planning, engineering, designing, constructing, operating, and maintaining USACE projects and systems of projects.

This guidance was extended to March 2014, to allow for a new ER takes its place, ER 1100-2-8162, "Incorporating Sea Level Change in Civil Works Programs."

The on-line Sea-Level Change Calculator produces the amount of predicted sea level change from 1992 forward.

WORKING TOGETHER

Integrated Tool to Estimate Potential Future Sea-Levels for Consideration in Sandy Recovery

The USACE and several Federal agencies through their partnership within the USGCRP have jointly developed tools using the best available science and data to help state and local officials, community planners, and infrastructure managers understand possible future flood risks from sea level rise and use that information in planning decisions. IWR's Climate and Global Change Team has been participating in these efforts.

USACE developed a Sea-Level Change Calculator to assist in developing information to support its sea-level change policy, which supports the USACE overarching climate change adaptation policy. This tool has been modified to support the interagency tool using NOAA and New York City Panel on Climate Change (NPCC 2013) scenarios to help people rapidly assess what the coming changes could look like. The tool uses Federal Emergency Management Agency (FEMA Base Flood Elevations (BFEs) to provide additional flood risk information for certain communities affected by Hurricane Sandy. NOAA has produced a set of

IN THIS ISSUE:

[MESSAGE](#)

[SPOTLIGHT FEATURE](#)

[RESPONDING AND ADAPTING](#)

[ONLINE TOOLS](#)

[WORKING TOGETHER](#)

[POLICY AND GUIDANCE](#)

maps that present the FEMA BFEs plus the NOAA sea-level rise scenarios to the years 2050 and 2100 in all areas except New York City. The NPCC has developed sea level rise projections for the five boroughs of New York City to the year 2050 using methods from the 2013 NPCC report.

Together, these comprise the U.S. Government's [sea level rise planning tool](#), which provides information on future risk of coastal flooding in parts of New York and New Jersey impacted by Sandy. The tool does not tell communities or individuals how to rebuild. It helps inform decisions on how to balance the cost of rebuilding stronger and safer with the amount of risk a community can tolerate over the long term.

POLICY AND GUIDANCE

[New Guidance Available for Use of Non-NOAA Tide Gauge Records to Compute Relative Sea Level Change](#)

[The Engineering and Construction Bulletin \(ECB\) 2013-27](#) (pdf, 96 KB), issued Sept. 9, 2013 and expiring Sept. 9, 2015, outlines concepts and goals, provides guidance and introduces a tool, available on the Responses to Climate Change website, that can be used to estimate relative sea level change using long-term tide gauge records other than NOAA National Water Level Observation Network tide gauges.



Observed Relative Sea Level Trends for USACE gages in Southeast Louisiana. Source: *Atlas of U.S. Army Corps of Engineers Historic Daily Tide Data in Coastal Louisiana*

The bulletin establishes a procedure to develop future relative sea-level rise scenarios from non-NOAA tide gauges approved for use by USACE in coastal areas where necessary to augment NOAA gauges. Examples of such long-term non-NOAA tide gauges are those operated by the USACE or the U.S. Geological Survey (USGS). At this time, all such gauges are located in the state of Louisiana, but the area covered by the gauges is expected to increase during the next several years.

The guidance applies to all coastal Civil Works designs and studies that require

computations of relative sea level change through augmentation of NOAA's National Water Level Observation Network tide gauges. The accompanying [web tool](#) helps to compute relative sea level. The bulletin also includes an appendix with instructions for computing relative sea level change from long-term non-NOAA tide gauges that are not yet included in the web tool. This guidance alters instructions found in [EC 1165-2-212](#)

Adaptation to sea level change is a critical component of USACE climate change resilience. Methods and tools such as the one introduced here help reduce uncertainty, improve consistency and simplify work processes. IWR's Climate and Global Change team played an instrumental role in the development.