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Climate Preparedness and Resilience: To Reduce Vulnerability and Improve Resilience to a Changing Climate

Water resources can be extremely sensitive to climate variability and change that affect temperature, soil moisture; precipitation frequency, intensity, seasonality, form (snow vs. rain), and sea levels. The U.S. Army Corps of Engineers (USACE) Civil Works program is focused on the operation, maintenance, repair and replacement of major commercial navigation and flood risk management infrastructure, as well as on the restoration of aquatic ecosystems and the stewardship of the land and related water resources of USACE projects. Changes to hydrologic processes and coastal water levels can impact these missions with potential adverse impacts on project beneficiaries and the public. Increasing variability in recent years is demonstrated, for example, by the record floods of 2011 along the Mississippi River that were followed just one year later by record low water levels in the drought of 2012. Similarly, southwestern states affected by drought from 2012 through 2015 received record rainfall in May and June of 2015, resulting in record reservoir inflows.

Funding

We know that preparedness is often more cost-effective than response and recovery. Climate preparedness and resilience activities in the President's Budget for Fiscal Year 2017 (FY17) affect all USACE missions, including flood risk management, commercial navigation, aquatic ecosystem restoration, hydropower, water supply, environmental stewardship, and recreation. These efforts support more detailed vulnerability assessments of both existing and proposed water resources projects with respect to sea level changes, altered hydrology, more frequent or intense drought, and changes in reservoir sediment processes, including those resulting from more severe wildland fires. The President's Budget supports development of necessary policy and technical guidance and tools that facilitate impacts and adaptation analyses. The resulting guidance and tools will be publicly available for use by stakeholders. During FY17, we are also producing downscaled climate and hydrology data and modeling for use in vulnerability assessments for Alaska, Hawaii, the Pacific Islands, and the Caribbean areas, where existing downscaled climate and hydrology data are sparse compared to the contiguous United States. The Budget includes funds to incorporate climate adaptation and resilience principles in project planning and implementation in order to reduce risks where climate variability and change have the highest consequences on economic and environmental returns to the Nation, including public safety. Additional funding supports work that translates science into actionable information for water resources management decision makers, including our federal agency partners, project sponsors, and the public. FY17 emphasis areas are coastal climate resilience, impacts due to extreme heat and the effects of climate variability and change to the Nation's supply chain, primarily through impacts to our commercial navigation mission.

Key Messages	Facts & Figures
• USACE focuses its FY17 climate preparedness and resilience funding on climate variability and change regarding impacts from coastal flooding, extreme precipitation, and drought. • Through phased screening assessments of vulnerability to climate change for coastal projects, watersheds, drought-impacted areas, and reservoirs, we can help improve resilience in critical areas. • Translating science into actionable information for decision-makers is key to USACE climate preparedness and resilience efforts.	• USACE conducted a screening-level analysis of the vulnerability of 5,500 of our coastal projects. This is part of a phased effort to identify projects requiring more detailed assessments or adaptation. Based on the screening, 1,430 require a simple vulnerability assessment. Of these, only one-third were classified as vulnerable to changing sea level now or in the future, and only about 100 projects have high or very high vulnerability. We are looking at these in more detail now. • For more information about USACE's efforts, visit http://www.corpsclimate.gov