



## CESL Initial Vulnerability Assessment (IVA)

*The purpose of this effort is to perform an initial screening-level assessment of the vulnerability of USACE projects to the effects of sea level change.*

### Background

Internal and external analyses performed after Hurricane Katrina identified the need to incorporate new and changing information into project planning, design, construction, operation, and maintenance. Combining the post-Katrina recommendations around land subsidence, tidal fluctuations, and sea level change, and to ensure sustainable performance in the future, USACE initiated the Comprehensive Evaluation of Project Datums (CEPD) to evaluate and correct projects to relate them to the current National Spatial Reference System (NSRS) and local tidal datums, and updated policy guidance related to sea level change (SLC).

### Approach

The Comprehensive Evaluation of Projects with Respect to Sea Level Change (CESL) is a phased assessment of the vulnerability of USACE coastal projects to the impacts of SLC and associated tides and surge. It is based on a web-based Geographic Information Systems (GIS) tool that allows users to enter data and view project information, including basic project data CEPD status, calculate USACE SLC scenarios for tide gauges at or near project sites, estimate Extreme Water Levels (EWL) for different recurrence intervals, and provide estimates of the consequences of vulnerability.

The first phase of CESL was an Initial Vulnerability Assessment (IVA) for USACE coastal projects to determine the impact of SLC at the 50- and 100-year planning horizons for coastal projects included in the Corps Project Notebook and within 40 miles of NOAA's tidally influenced water bodies. Using the tool, USACE district teams reviewed project information and identified the primary mission area, selected the closest compliant tidal gauge, entered a critical elevation threshold, and supplied the FEMA Base Flood Elevation for the location. Based on the intersection of the critical elevation threshold and SLC curves, the user then classified the level of consequences due to future projected SLC. The user was also asked to enter a suggested priority for a more detailed study with an explanation, and any overall comments as appropriate.

Combining input from USACE districts with parameters such as the mean sea level trend and EWLs provided by NOAA, FEMA flood risk information, USGS Coastal Vulnerability Index, and county population and population density from the Census Bureau, each project potentially impacted by SLC was given a score to help prioritize the need for a more detailed assessment.

### Preliminary Results

Based on initial results, a total of approx. 1500 projects were identified for IVA. Of these, about 1/3 of the projects were considered to be impacted by SLC, requiring more detailed assessment. Based on the scores of these potentially impacted projects, about 1/4 were classified as potentially having high or very high impacts.

### Path Forward

- QA and QC are being performed on projects included in the IVA.
- Prioritization of potentially impacted projects begins in FY15 for the next phase of CESL.
- Projects initially classified as very high or highly vulnerable will receive priority for examination in more detail.
- Modifications are under way now to support FY15 Army CESL evaluation of vulnerability to SLC for installations.
- Additional FY15 modifications will support use of CESL as part of the planning process for coastal projects.

### Additional Information:

CESL web site (general information, including links to sea level calculators): <http://www.corpsclimate.us/ccacesl.cfm>

USACE policy: [Engineer Regulation 1100-2-8162, Incorporating Sea Level Change in Civil Works Programs](#)

[Engineer Technical Letter 1100-2-1, Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation](#)

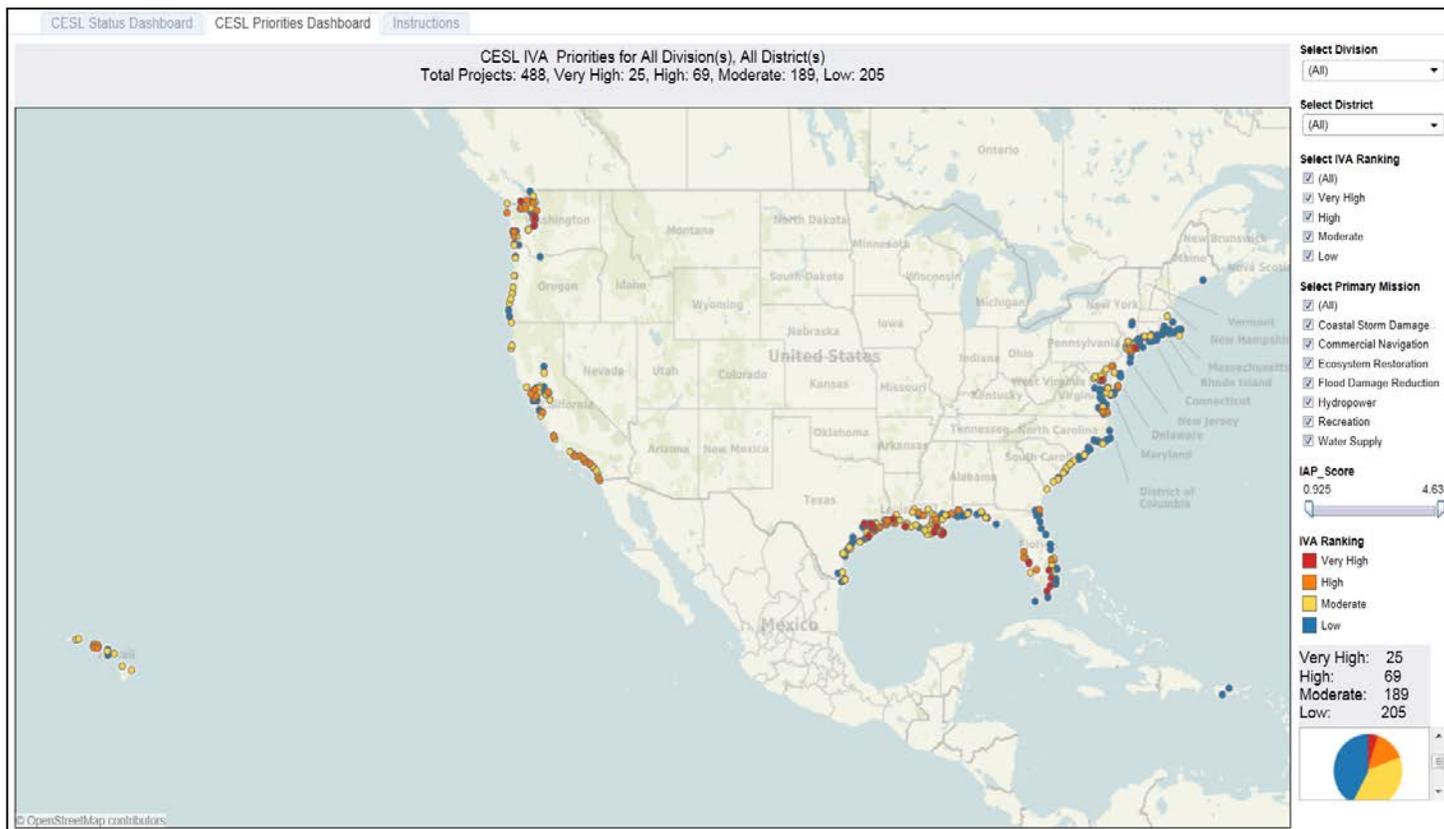
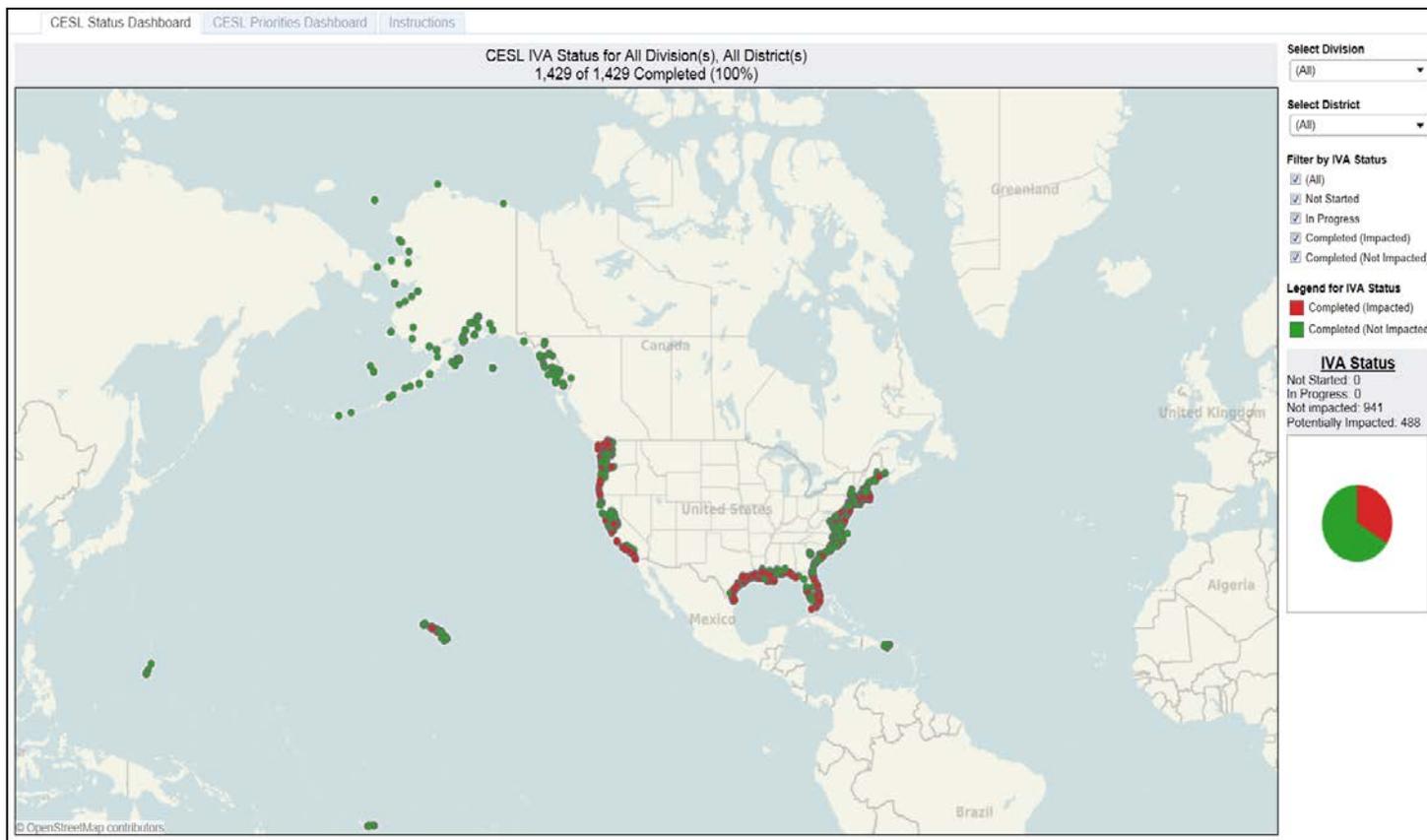


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FACT SHEET

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