



US Army Corps
of Engineers®

Flood&Coastal Storm Damage Reduction R&D Program

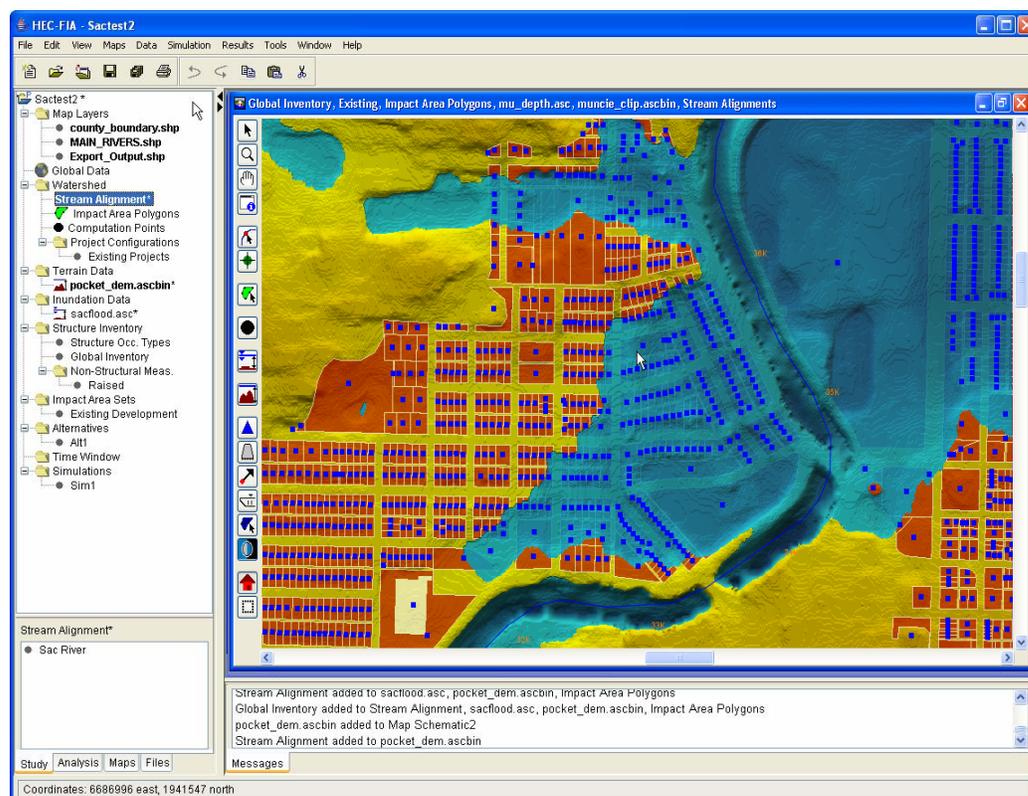
HEC-FIA

Description

The Hydrologic Engineering Center's Flood Impact Analysis software (HEC-FIA) is a stand-alone application that provides state-of-the-art techniques to calculate post-flood or forecasted-flood impacts for a user-specified event. It is also used to determine flood damage reduction benefits attributed to individual flood-control projects (reservoirs, levees, and diversions) and for real-time response activities as part of the U.S. Army Corps of Engineers Water Management System.

For the specified event, HEC-FIA computes urban and agricultural flood damage, area inundated, number of structures inundated, and population at risk. Damage analysis of crops involves a complex series of factors and considerations. Among these are the type of crop, season of the year, cropping patterns, duration and magnitude of flooding, and much more. Monetary damage values are determined from investment losses, mature-crop price values, harvest costs, and may include secondary business losses.

The new version of the software, HEC-FIA 2.0 (beta), includes a graphical user interface with GIS capabilities.



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<https://swwrp.usace.army.mil/>

Benefits HEC-FIA 2.0 will contain capabilities that allow it to access and utilize the growing amount of GIS information available to efficiently perform flood damage related studies at all levels of detail. These data include:

Individual Structure Damage Computations

HEC-FIA 2.0 will allow users to compute damages structure by structure using a flood inundation depth grid. Users will be able to access individual structure damage reports in table format, or through a GIS-type interface that will allow them to select a structure and view the depth and damage at that structure for a flood event.

Non-Structural Measures Analysis

HEC-FIA 2.0 will contain capabilities that facilitate analyzing flood damage reduction for nonstructural measures. The new version will allow users to quickly apply nonstructural measures to a structure or group of structures, compute the modified flood damage, and visualize the damage reduction attributable to the nonstructural measure for an event.

Structure Inventory Generation

Flood damage reduction studies and project benefit analyses are dependent on extensive structural inventories and/or stage damage relationships. Collecting structure and crop data can be extremely expensive. Often, existing structural inventories and stage damage relationships are dated and incomplete, and damage relationships for crops are non-existent. The cost of performing rigorous structure and crop surveys are often prohibitive and old data or crude assumptions are frequently used instead. HEC-FIA 2.0 will contain capabilities that will allow users to generate approximate structure inventories from readily available data, including land use maps, census block data (FEMA HAZUS), and parcel maps.

Status HEC-FIA 1.3 is available to all Corps Districts as part of the Corps Water Management System. HEC-FIA 1.3 does not include the GIS enhancements that will be available in HEC-FIA 2.0. HEC-FIA 2.0 is currently undergoing testing. A beta version will be available on the HEC Web site in early FY 08. Additional capabilities that will be added to HEC-FIA 2.0 include loss of life calculation and reporting.

Distribution Source(s) HEC-FIA can be obtained HEC Web site at the following location:
www.hec.usace.army.mil

Available Documentation Documentation for HEC-FIA currently consists of a User's Manual (version 1.3). A quick-start guide will be available with the beta version of HEC-FIA 2.0 when it is available on the HEC web site.

Available Training There is currently no separate training course based solely on using HEC-FIA. However, HEC-FIA is introduced in the "Risk Analysis for Flood Damage Reduction Studies" class and the "Corps Water Management System" class offered at HEC. To find out more about these classes, and when they are offered, visit the HEC Web site.

Available Support Support for HEC-FIA is available to all Corps employees. Corps users can either e-mail or call HEC with questions and/or comments.

Application HEC-FIA 2.0 (beta) is being used as the main tool to estimate consequences (economic and population at risk) in the Corps Dam and Levee Portfolio Risk Assessment program.

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Partners N/A.