

This webinar provided an overview of the Life Safety Risk Indicator (LSRI) and how it can be a helpful tool in the early stages of flood risk management studies. The LSRI is a web-based tool that allows users to efficiently estimate potential flood damage and life loss for a range of riverine and coastal scenarios when detailed studies are unavailable. Presented by Susie Byrd (Economics & Life Risk National Technical Specialist, Flood Risk Management Planning Center of Expertise), the webinar walked through an example of how to use the LSRI to quickly model existing conditions and a structural measure for an FRM study.



This summary of the Question/Answer session of the webinar is not a transcription; questions and responses have been edited and reordered for clarity. The summary also includes questions and responses from prior PCoP Webinars on the LSRI tool in order to serve as a comprehensive, up-to-date resource.

Key Resources:

- [Life Safety Risk Indicator 2 \(LSRI2\) Homepage](#)
- [USACE National Structure Inventory Website](#)
- Email DLL-CWBI-LSRI-Support to request access to the tool

LSRI Tool Capabilities & Data

Can the LSRI be used to show potential for induced flooding from placing a levee?

To a degree. The tool will show estimated with- and without-project conditions, which may include induced flooding. However, the LSRI is generally not recommended for advanced study stages where that level of detail could meaningfully impact decision-making. It is recommended to shift to [HEC-RAS](#) and [HEC-FDA](#) or HEC-RAS and [LifeSim](#) to better understand the potential for induced flooding.

Can demographic data be pulled into the LSRI to characterize populations at risk?

Not generally. However, if an existing inventory reflects a higher proportion of a particular demographic compared to the default [National Structure Inventory \(NSI\)](#), that data can be imported into the tool. The LSRI does not currently integrate [FEMA's National Risk Index \(NRI\)](#) or social vulnerability data. Population at risk (PAR) estimates are displayed, along with a basic age breakdown (over and under 65), but detailed demographic information is not shown within the tool. The NSI 2026 will include additional demographic variables, which can be examined in any desktop GIS software.

Does the LSRI calculate expected annual damages (EAD) across multiple floodplains, similar to [HEC-FDA](#)? Does it include standard damage categories such as structure, content, and auto?

Users can create as few as one scenario or many, and standard flood frequency scenarios can be developed within the tool. Yes, structure, content, and auto values are included in LifeSim's damage computation. The economic damage results from multiple flood frequencies can be used to calculate EAD within the LSRI under the "Risk" tab. However, the LSRI produces a simplified risk estimate compared to HEC-FDA and does not incorporate the same sources of uncertainty.

Does LSRI output depth results at the individual structure level?

Yes, on a structure-by-structure basis, users can zoom in to view results for individual structures. A structured detailed output is not currently available, but exporting results to a GIS platform of the user's choice is recommended for easier visualization and analysis.

LSRI Technical Accuracy & Modeling Considerations

How would you characterize the accuracy of the hydraulic inundation in the LSRI? Is there a way to calibrate results or apply uncertainty, particularly for reviewers?

The hydraulic accuracy is as good as the modeler makes it—the LSRI is essentially running [HEC-RAS](#) in the cloud. The tool supports calibration to existing maps and similar reference data. Key advantages include cloud-based computation and relatively quick setup for simple models. Detailed HEC-RAS models can also be imported directly into the tool as .hdf files. Coordinating with H&H staff on use of the LSRI tool is strongly encouraged to ensure an accurate hydraulic component. Additionally, by the time the team has finalized their final array of alternatives, a more detailed HEC-RAS model should be used for comparison and evaluation. The LSRI's simplified HEC-RAS engine is most helpful for obtaining a baseline understanding of existing conditions and screening certain measures/alternatives.

How can planners work with their H&H study teammates to ensure they feel comfortable using the LSRI tool?

This is a broader RAPID Framework challenge—all disciplines need to build comfort with early-phase coarse modeling and the risk associated with doing so. If uncertainties are appropriately captured in the Risk Register, early results can be used responsibly. For many measures, it will be reasonably clear whether a proposed action will efficiently reduce flood risk, even without a fully refined model.

Applicability & Scope of LSRI Use

Since many of the same terms are used, how does the LSRI relate to risk-informed design, and is it appropriate to use for that purpose?

No. The LSRI does not meet the level of analysis required for risk-informed design. Life safety is a major factor in risk-informed design, but when studies reach that stage, LifeSim modeling is the appropriate tool.

Is there a coastal equivalent to the LSRI tool, and who is developing it?

Yes. The Coastal Hazards Analysis Risk Toolkit (CHART) is the coastal equivalent to the LSRI and is currently in development by the Planning Center of Expertise for Coastal Storm Risk Management, with coverage over the Gulf and the East Coast. Like the LSRI tool, CHART can display inundation-based risk along coastlines, though it does not currently include beach morphology.

Should the LSRI tool be used for coastal studies, for budgeting purposes, or otherwise?

Guidance is currently being developed on the best tools to use to determine LSRI values for budgeting purposes. More information is forthcoming. Please reach out to Susie Byrd for additional information.

Can users pull information from LSRI (e.g., the flood extent for a specific hypothetical annual exceedance probability event) to use elsewhere in other GIS applications (e.g., ArcMap)?

Yes, users can download applicable data, including inundation results from HEC-RAS, from LSRI and use it in other GIS applications. Users will not need to download the entire HEC-RAS model to do so and can instead easily pull specific data through the user interface.

Can LSRI be used for prioritizing the budgeting of Dam Safety Modification Studies, such as dam and long reach projects?

LSRI is not required to be used for Dam Safety Modification Studies for budgeting purposes; the Dam Safety Program already has a process in place for determining project funding prioritization based on Dam Safety Action Classification (DSAC) ratings. However, LSRI can be used for dam and long reach projects.

Do projects need to be set up by an administrator in the LSRI tool before they can be accessed, or will any user be able to create their own projects?

Access to the LSRI tool must be initially granted by an administrator, but once access is granted, anyone can create their own project in the tool.

The LSRI Tool in the Planning Process

Could the LSRI tool be used early in the study process during charrettes or the first milestone meeting?

Yes, the LSRI tool can be used early in the study process to help with the life and economic risk discussion during the Federal Interest Determination, charrettes, and DP1.

Can the LSRI tool be used to compare life risk in the “future without project” and “with project” conditions?

Yes, the LSRI tool can be used to compare different project conditions. However, it is meant to be used during the initial phases of a study to help gain an initial understanding of risk, potential risk reduction, and to screen some measures/alternatives while a more detailed HEC-RAS model is being created. The LSRI is not certified, and teams need to shift to other certified tools (e.g., LifeSim and HEC-FDA) for the evaluation and comparison of their final array of alternatives.

Should study teams use the LSRI tool if the study has already budgeted for a LifeSim analysis?

While the LSRI tool cannot replicate a full LifeSim analysis, it can help study teams gain some efficiencies ahead of using LifeSim analysis. Any analysis completed within the LSRI, including HEC-RAS model runs and LifeSim model runs, can be downloaded and refined using the full version of those tools on the user’s computer. The LSRI tool is an efficient way to gather the required data (terrain, land cover, NSI, etc.) to support a more detailed assessment.