

# Overview of Flood Hazard Framework

## DLS-114, Module 1.2



**U.S. ARMY**



**US Army Corps  
of Engineers®**

Dam and Levee  
Safety Programs

March 2026 / Version 1

SOUTH ZUMBRO, MN (SOURCE: ADOBE STOCK)

# Learning Objectives

---

- Describe the overall framework for using RMC-BestFit and RMC-RFA software
- Describe how the software supports flood hazard analysis
- Explain the difference between stage frequency and volume frequency curves

# Risk Informed Decisions

---

$$\textit{Risk} = P(\textit{Hazard}) \times P(\textit{Failure}|\textit{Hazard}) \times \textit{Consequences}|\textit{Failure}$$

$$\textit{Flood Hazard} = \textit{RMC} - \textit{BestFit} + \textit{RMC} - \textit{RFA}$$

# Flood Hazard Analysis

---

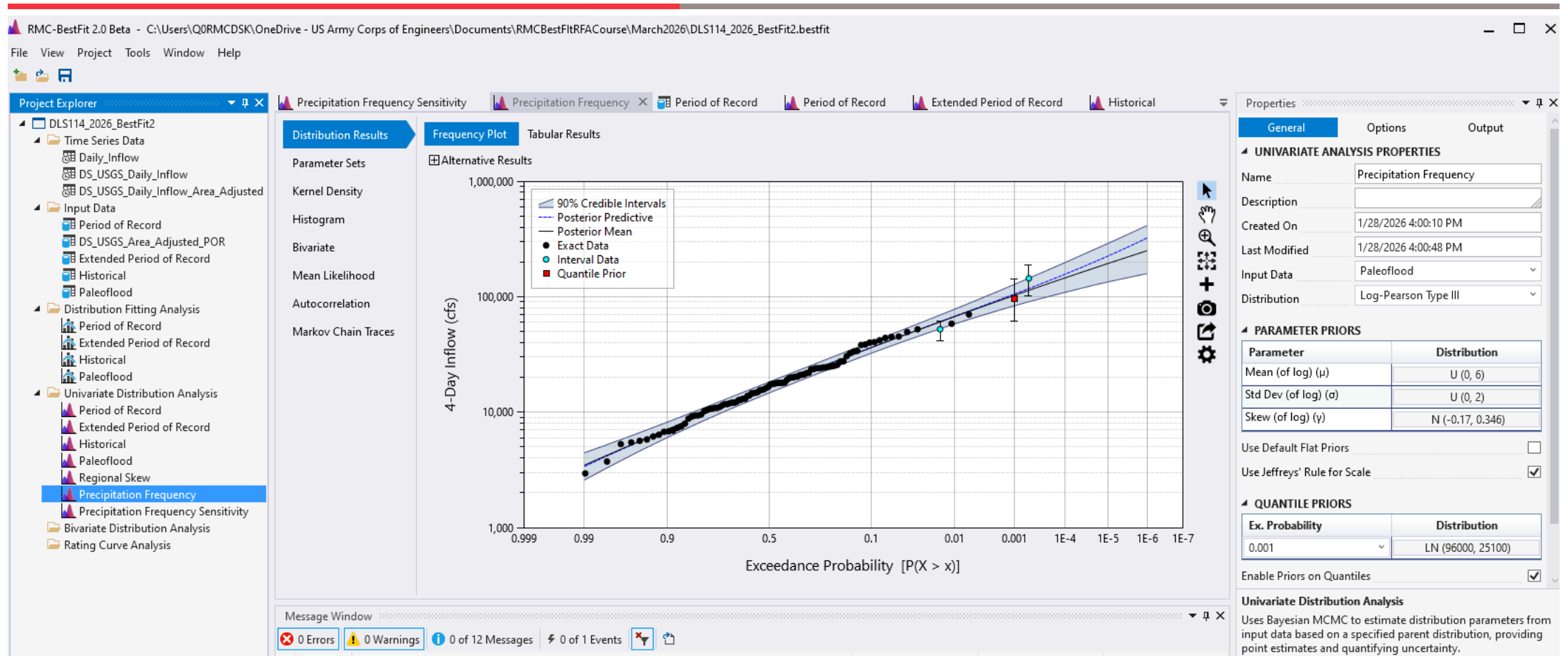
## 1) Flood Hazard Curves

- a) Volume-Frequency (**RMC-BestFit**)
- b) Stage-Frequency (**RMC-RFA**)

## 2) Probable Maximum Flood (PMF)



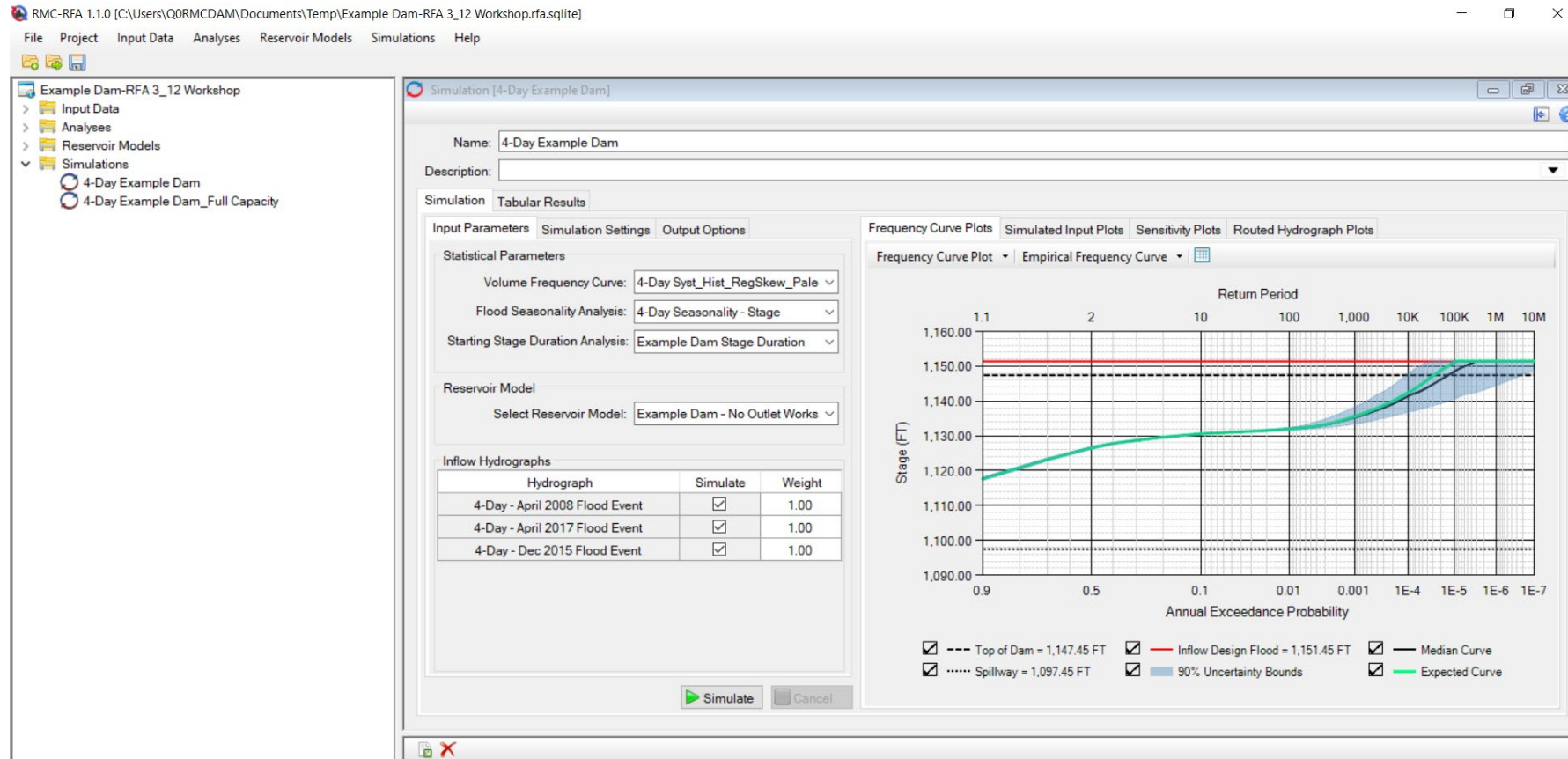
# Volume-Frequency



RMC-BestFit



# Stage-Frequency



RMC-RFA

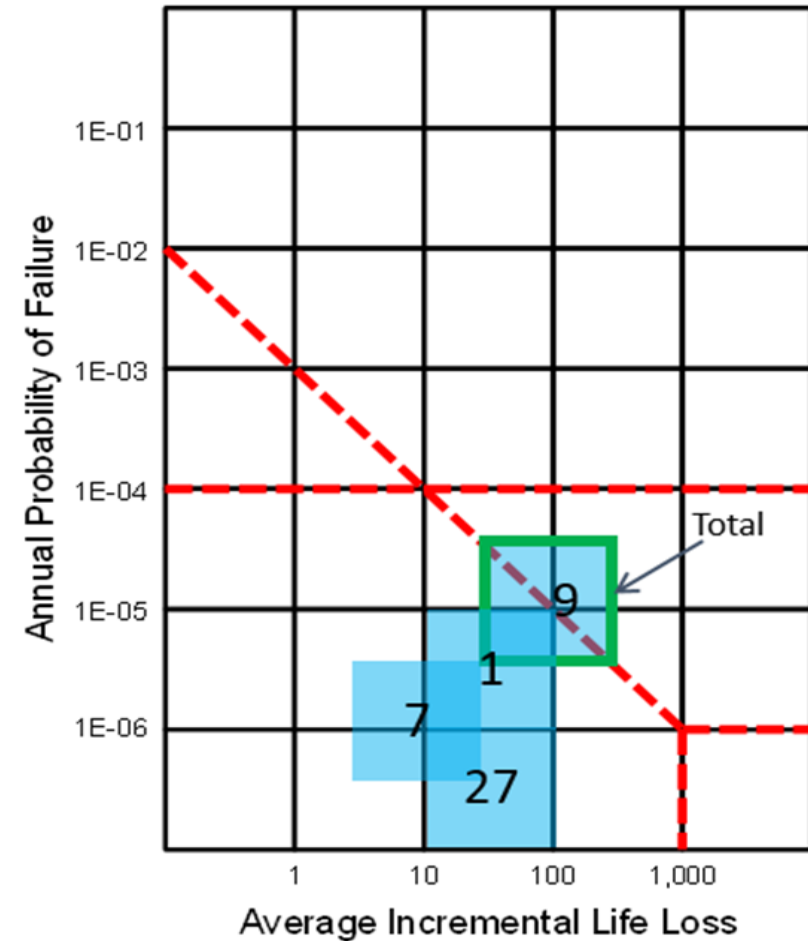




# Understanding Impacts

## Risk-Drivers

- Potential Failure Mode 1:  
Continuous leak erosion along left embankment/concrete interface
- Potential Failure Mode 7:  
Overtopping of embankment
- Potential Failure Mode 9: Spillway monolith instability
- Potential Failure Mode 27: Tainter gate anchorage failure



# Flood Hazard Resources

## RMC publications:

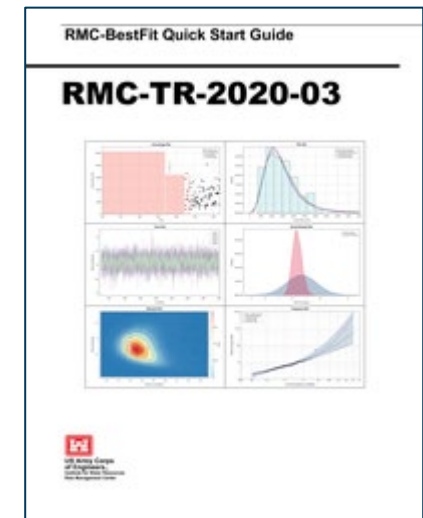
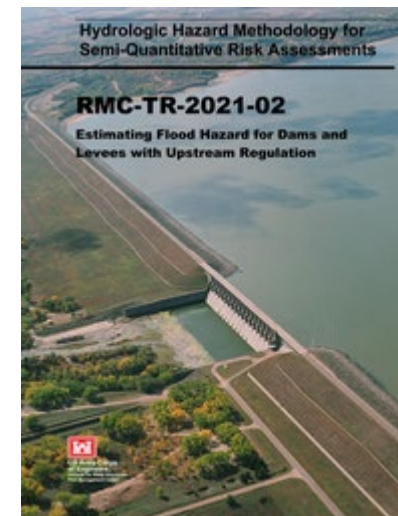
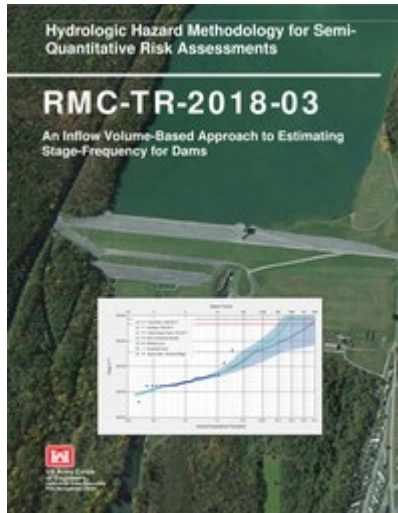
<https://www.rmc.usace.army.mil/Library/RMC-Publications/>

## RMC software:

<https://github.com/USACE-RMC/RMC-BestFit>

<https://github.com/USACE-RMC/RMC-RFA>

<https://www.rmc.usace.army.mil/Software/>





---

# Questions