

## **New National Flood Frequency Guidelines for Determining Flood Flow Frequency, Bulletin 17C**

Bulletin 17B, *Guidelines for Determining Flood Flow Frequency*, has been the national guidelines for flood frequency analyses in the United States since March 1982. Recently new guidelines, Bulletin 17C, *Guidelines for Determining Flood Flow Frequency*, were developed that employ recent improvements in statistical procedures for flood frequency analysis. The Hydrologic Frequency Analysis Work Group (HFAWG) of the Subcommittee on Hydrology (SOH) of the ACWI developed Bulletin 17C and the latest version is posted on the HFAWG web site at <https://acwi.gov/hydrology/Frequency/b17c/>.

The major updates to Bulletin 17C include:

- adoption of a generalized representation of flood data that allows for interval and censored data types,
- a new method called the Expected Moments Algorithm (EMA) that extends the moment-of-moments approach for fitting the log-Pearson Type III distribution to interval and censored data,
- a generalized approach for identifying multiple low floods in the data set (Multiple Grubbs-Beck Test), and
- an improved method for computing confidence limits.

Major events in the development of Bulletin 17C included the following:

- Testing and evaluation of Bulletin 17B and 17C procedures over the period 2012 to 2015 documented in a report at [https://acwi.gov/hydrology/Frequency/b17c/supplementary-materials/b17b\\_evaluation\\_report2.pdf](https://acwi.gov/hydrology/Frequency/b17c/supplementary-materials/b17b_evaluation_report2.pdf),
- Several drafts of Bulletin 17C since April 2015 that were reviewed by the HFAWG and SOH – review comments used to revise Bulletin 17C,
- Public comment period on Bulletin 17C from February 22, 2016 to April 22, 2016 – review comments used to revise Bulletin 17C,
- Peer review of Bulletin 17C through the USGS review process by four flood frequency experts from August to December 2016 – review comments used to revise Bulletin 17C,
- Testing on the reproducibility of Bulletin 17C procedures was conducted during May to June 2017 and eight testers analyzed for four data sets and got very similar results,
- Review and approval of Bulletin 17C by the SOH on September 21, 2017, and
- Review and approval of Bulletin 17C by USGS on September 26, 2017.

Different versions of Bulletin 17C and responses to public review comments and USGS peer review comments are posted at <https://acwi.gov/hydrology/Frequency/b17c/>. Software, examples and training materials are also posted on this web site and they will be updated as needed.

This document and the SOH presentation to ACWI at the January 18, 2018, meeting are intended to inform ACWI representatives that Bulletin 17C has received extensive review and has been approved by SOH and USGS for publication. The next step in the path forward is publication of Bulletin 17C as USGS Techniques and Methods 4-B5.