Summary of HFAWG Activities Related to Development of Bulletin 17C

Will Thomas
Hydrologic Frequency Analysis Work Group

- HFAWG is under the Subcommittee on Hydrology (SOH) of the Advisory Committee on Water Information (http://acwi.gov/)
- 18 meetings of HFAWG since January 2000, most interaction through email
- Minutes of all meetings provided on HFAWG web site http://acwi.gov/hydrology/Frequency
- Primary activity since November 2005 has been the update of Bulletin 17B, Guidelines For Determining Flood Flow Frequency
- Voting members of the HFAWG are shown on the next slide, limited to one representative from any given organization
- Corresponding (non-voting) members are shown on the HFAWG web site
<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
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<tr>
<td>Siamak Esfandiary</td>
<td>Federal Emergency Management Agency</td>
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<td>Don Woodward</td>
<td>Global Ecosystems Center</td>
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<td>Martin Becker</td>
<td>BECKER</td>
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<td>Will Thomas</td>
<td>Michael Baker International (Chair)</td>
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<td>Zhida Song-James</td>
<td>Consulting Hydrologist</td>
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<td>Tim Cohn</td>
<td>U.S. Geological Survey</td>
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<td>Beth Faber</td>
<td>U.S. Army Corps of Engineers (USACE)</td>
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<td>John England</td>
<td>U.S. Bureau of Reclamation (now USACE)</td>
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<td>Jerry Coffey</td>
<td>Mathematical Statistician</td>
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<td>Joe Krolak</td>
<td>Federal Highway Administration</td>
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<td>William Merkel</td>
<td>Natural Resources Conservation Service</td>
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<td>Sanja Perica</td>
<td>National Weather Service</td>
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<td>Jery Stedinger</td>
<td>Cornell University</td>
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<td>Thomas Nicholson</td>
<td>Nuclear Regulatory Commission</td>
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<td>Samuel Lin</td>
<td>Federal Energy Regulatory Commission</td>
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<td>Curt Jawdy</td>
<td>Tennessee Valley Authority</td>
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Recent Activities of the HFAWG

- June 2013 – HFAWG voted to accept recommended revisions to Bulletin 17B (recommendations are given on the HFAWG web site)
- August 2013 – SOH voted in favor of HFAWG drafting a new Bulletin 17C
- March 2014 – USGS released PeakFQ Version 7 that implements Bulletin 17C methodology
- April 2014 – completed the testing report on *Evaluation of Recommended Revisions to Bulletin 17B* – colleague reviews received, to be published as USGS report
Recent Activities of the HFAWG

- April 20, 2015 – first draft of Bulletin 17C was completed and distributed to HFAWG members for review
- May 7, 2015 – HFAWG met at office of Michael Baker to discuss the April 20, 2015 draft of Bulletin 17C
- June 24, 2015 – revised version of Bulletin 17C provided to SOH members (posted on John England’s Google site)
Guidelines for Determining Flood Flow Frequency
Bulletin 17C

Techniques and Methods 4–BXX

U.S. Department of the Interior
U.S. Geological Survey

DRAFT: June 18, 2015

This should not be referenced, cited, or released without USGS Survey approval.
May 7, 2015 HFAWG meeting

- Provided an overview of the Bulletin 17C draft report to HFAWG members
- Discussed the new information in Bulletin 17C and what is similar to Bulletin 17B (Crosswalk)
- Demonstrated PeakFQ Version 7 for two examples in Bulletin 17C
- Decided to move equations and technical discussion to Appendices to shorten and clarify text
- Voted, 11-1, to forward Bulletin 17C with revisions to the SOH for their review
Bulletin 17C and Supporting Materials

- Bulletin 17C and Appendix materials, including Appendix 3 Initial Data Analysis and Appendix 9 Flood Frequency Examples, are available at:
  https://sites.google.com/a/alumni.colostate.edu/jengland/bulletin-17c#B17CDraft

- An EMA FAQ is available at:
  http://acwi.gov/hydrology/Frequency/b17_swfaq/EMAFAQ.html

- Various presentations, journal articles, and reports on theory and applications used in developing the draft Bulletin 17C are available here:
  https://sites.google.com/a/alumni.colostate.edu/jengland/bulletin-17c#Refs
USGS PeakFQ 7.1 software includes the recommended procedures described in Bulletin 17C: [http://water.usgs.gov/software/PeakFQ/](http://water.usgs.gov/software/PeakFQ/)

A USGS Fact Sheet describes PeakFQ 7.0: [http://pubs.usgs.gov/fs/2013/3108/](http://pubs.usgs.gov/fs/2013/3108/)

USACE HEC-SSP is being revised to include the Bulletin 17C methodology

USBR is revising their EMFREQ frequency program to include the Bulletin 17C methodology
Next Steps

- Obtain approval of SOH to move forward with a public comment period on Bulletin 17C
- If agreed, the USGS Office of Water Information will post Bulletin 17C on a public web site for comment and announce the review period through the Federal Register
- Inform ACWI of the status of Bulletin 17C at their September 2015 meeting
- HFAWG will revise Bulletin 17C based on public comment and inform SOH of the revisions
- Obtain approval from SOH and ACWI for publication
- USGS will publish in the “Techniques and Methods” series
Comparison of 100-year Discharges

- Questions have arisen about how the new Bulletin 17C methodology (EMA/MGB) compares to Bulletin 17B and what impacts changing methodology will have on estimated flood discharges.

- Following is a comparison of 100-year discharges for EMA versus Bulletin 17B for many gaging stations in Arizona (provided by USGS, Tucson, AZ).

- Arizona is a state with a lot of zero flows and low floods so one would expect this state to be an extreme example of differences in flood discharges.
Comparison of 100-year discharges

EMA-Bulletin 17B comparison for 100-year flood discharge for Arizona

\[ y = 1.2334x^{0.975} \]
John England will now give an overview of Bulletin 17C with comparisons to Bulletin 17B