



**US Army Corps
of Engineers**

UPPER MISSISSIPPI RIVER SYSTEM FLOW FREQUENCY STUDY

(Upper Mississippi, Lower Missouri, & Illinois Rivers)

PUBLIC INVOLVEMENT NEWSLETTER

April 2003

PUBLIC OPEN HOUSES PLANNED

In October 1997, the U.S. Army Corps of Engineers, in partnership with State and Federal agencies, initiated the Upper Mississippi River System Flow Frequency Study to develop flow frequencies for the main-stem Upper Mississippi, Lower Missouri, and Illinois Rivers. Four groups were formed to assist with this study: the State and Federal agencies' Task Force, the Citizens' Public Involvement Group, and two Technical Advisory Groups, whose members include nationally renowned scientists knowledgeable in flow frequency analysis.

The study is now nearing its conclusion and the Corps and partnering State and Federal agencies have analyzed the effects of reductions in flood runoff attributable to flood control reservoirs, considered potential effects of levee overtopping and/or breaches, and have selected the appropriate hydraulic model to develop water surface profiles for a range of flow frequencies.

You are invited to attend an upcoming open house to view the study results. Eight open houses will be held in May 2003. Please see pages 4 and 5 for further information.

STUDY UPDATE

The Upper Mississippi River System Flow Frequency Study is scheduled for completion on June 30, 2003. Currently, the profile results from the hydraulic Unsteady NETwork (UNET) model are being checked and reviewed by technical review teams. This model can represent the movement of floodwaters in a complex network of open channels. The UNET model can continuously simulate many years of flow record, including the 1993 flood, at all locations along the Mississippi, Missouri, and Illinois Rivers. The UNET model also simulates the effects of local levee breaks on river stages.

Technical reviews are scheduled to be completed in April 2003.

Results of the study will be made public at the May open houses. Final publication, to include Internet access, will occur in June 2003.

MODELING WORK CONTINUES

The five involved Corps of Engineers Districts (St. Paul, Rock Island, St. Louis, Omaha, and Kansas City) are continuing their modeling efforts. Each District has been in contact with levee and drainage district points of contact within their Districts, as well as with the States' points of contact, to assure that the best available levee elevation information is used in the UNET model.

The Districts produced a numerical hydraulic model that is used in the process of computing stage-frequency relationships. Within those models, during extreme flood events, flow from the main river channel may overtop a levee and fill the protected area. Each District worked with a contractor to gather information for digital terrain models, which are used to describe the geometry of the floodplain for the hydraulic models.

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The information that was gathered was then entered into the UNET model.

Levee and drainage district representatives were asked to verify the elevations (upstream, downstream, or inter-district) at which overtopping may occur for their levee districts. Discrepancies reported and certified were taken into account as each Corps District's UNET model was refined.

WHAT'S ON THE WEB?

A study area map, study newsletters, Frequently Asked Questions, and minutes from the Task Force and the Citizens' Public Involvement Group meetings can be viewed on the Flow Frequency Study's website at www.mvr.usace.army.mil/pdw/pdf/FlowFrequency/flow_freq.htm. Also available for viewing are the letters and levee elevation tables sent to levee and drainage district representatives in each Corps District (as discussed above). After the May 2003 open houses, the presentation shown at the open houses will be added to the website.

Those who do not have Internet access may request a copy of the material provided on the website by writing to the address at the end of this newsletter.

CITIZENS' PUBLIC INVOLVEMENT GROUP MEETS

The Citizens' Public Involvement Group met twice since the last Flow Frequency Study newsletter was released. The Group's sixth and seventh meetings were held on June 20, 2001, and October 9, 2002, respectively. Following are a few of the topics discussed.

JUNE 20, 2001

At this meeting, the Group spent considerable time discussing the November 2002 public open houses and the way to best present the study results to the open house attendees. (The open houses were subsequently postponed and rescheduled for May 2003. Information about the open houses is provided on pages 4 and 5 of this newsletter.)

Mr. Jerry Skalak, Corps of Engineers, Rock Island District, the study's Regional Project Manager, stated that the study's findings will be provided to the Federal Emergency Management Agency (FEMA) for possible updating of the Digital Flood Insurance Rate Maps.

Mr. S. K. Nanda, Corps of Engineers, Rock Island District, Chairman of the State and Federal Task Force, stated that the periods between 1898 through 1998 will be used in the study because 1998 is when the study started. The study team looked at adding the 2001 flood, but found that there were no significant changes in the flow frequencies.

OCTOBER 9, 2002

The Citizens' Public Involvement Group held its final meeting on October 9.

The upcoming open houses were discussed in greater detail and Group members commented on the presentation that will be shown to the public.

Several Task Force members joined the meeting and provided answers to many of the Group's concerns:

- **Q.** Many levees were designed for the 50-year flood to comply with the mandate in the 1954 Flood Control Act that levees must provide protection against a 50-year flood event. Does the Corps of Engineers have the authority and funding to maintain the required level of protection?

A. Mr. Nanda said that the Corps of Engineers Headquarters is currently reviewing this question. The answer will be posted on the Flow Frequency Study's website by the time the final report is completed in June 2003. (Note: Policy determination is expected by May 1, 2003.)

- **Q.** What happens to those levees that are part of the Public Law 84-99 Program if the water surface profiles are raised, for example, 1½ feet? Will it take a congressional mandate to determine if the levees are still part of the Public Law 84-99 Program?

A. Mr. Nanda said that the Corps of Engineers Headquarters also is reviewing this question. The answer will be posted on the Flow Frequency Study's website by the time the final report is completed in June 2003.

- **Q.** Will the Flow Frequency Study results be used to "kick" levees out of FEMA's Program?

A. Mr. Al Schulz, FEMA Region VII, Kansas City, MO, said that from FEMA's perspective, it is only concerned with 100-year levees.

Mr. Schulz responded that if a levee is decertified and studies show economic and legal feasibility to bring the levees up to certification level, FEMA will work with private levee districts and will delay publishing maps until their improvements are finished. FEMA will try to avoid and minimize hardships.

- **Q.** Will there be a grace period to make improvements?

A. Mr. Schulz stated that due to FEMA's publication process, there may be several years before leveed areas are re-mapped. For currently certified levees to maintain certification, FEMA will work with communities and levee districts to allow time for re-certification.

TASK FORCE MEETS

The Task Force also has met twice since the last newsletter: June 21, 2001, and October 10, 2002.

Agencies/groups that were represented at the meetings were: Corps of Engineers, Federal Emergency Management Agency; U.S. Geological Survey; Bureau of Reclamation; States of Illinois, Kansas, Minnesota, Missouri, Nebraska, and Wisconsin; Upper Mississippi River Basin Association; and the Citizens' Public Involvement Group.

A brief summary of both meetings follows. Verbatim transcripts are available upon request from the Rock Island District, Corps of Engineers.

JUNE 21, 2001

Discussions included modeling efforts undertaken by the Districts for the study. The purposes for modeling are to 1) develop stage flow relationship, 2) quantify impacts of reservoirs, and 3) evaluate impacts of levee overtopping. The steps in the modeling effort include 1) collect topographic data, 2) format data and put it into the model (e.g., build the model), 3) calibrate the model – first for flow and then for stage, and 4) make production runs including simulation of the period of record. (Please refer to pages 1 and 2 of this newsletter. The modeling efforts have been completed by each District and verification letters have been sent to levee district representatives and to State representatives.)

Concerns that stemmed from the previous day's Citizens' Public Involvement Group meeting were summarized. Among the Group's concerns are that all the data used in the study be available for the public, including the assumptions, uncertainty bands, and other data used. The Group requested that the Corps release the data as soon as they are available to utilize the updated information in areas that need it now and that the Corps and FEMA coordinate to update the maps as quickly as possible.

OCTOBER 10, 2002

Study progress since the last Task Force Meeting and issues remaining in finalizing stage frequency estimates were discussed.

The Technical Advisory Group and the Inter-Agency Advisory Group reviewed methodology for a regional study and split record testing that was performed to avoid the high sampling errors obtained during single site analysis. By combining the flow frequency curve, the relationship between unregulated and regulated flows, and the rating curve, the Districts have obtained stage frequency curves at cross sections along the various waterways. The 100-year profile can be obtained by plotting the one percent stages for each cross section location. Problems with the methodology include the interpolation of statistics and difficulties at confluences. The Districts are applying some trial approaches to find if better results can be obtained.

Climate change and land use variability impacts on the flow frequency estimations were discussed. The climate for the period of record, 1898-1998, is assumed to be stationary; i.e., not significantly changing. The analysis by the Corps of Engineers' Institute for Water Resources (IWR) showed possible trends for some stations, but no clear climate change trend for this period. IWR's recommendation was to assume that the period of record was stationary given the difficulty in distinguishing a climatic trend from overall climatic variability. Consequently, standard flood frequency statistical analysis will be used to capture the overall variability in the flood of record.

Each Corps of Engineers District gave a progress report. Preliminary results were presented which indicated some significant and some insignificant changes from previously published values.

Discussion included concerns that there should be consistencies in methodology and assumptions among the Districts in their study efforts and consistencies among the States on regulatory issues.

The importance of communicating the study results to the public, discussing any uncertainty about the study results, and processing the study results and other information after the study is completed were stressed. Also, lessons learned from the study should be identified.

PUBLIC OPEN HOUSES

The public is invited to attend any of the open houses that will be held in May 2003. The purpose of the open houses is to explain the reason for the Flow Frequency Study, present the study results, and respond to questions or concerns.

The open houses will be held in eight locations along the Mississippi, Missouri, and Illinois Rivers. Sessions will be held from 1:00-4:00 p.m. and 5:30-8:30 p.m. Each session will be identical (except for the last open house on May 28th in St. Paul, MN. Please see below for further details of that open house).

The beginning and ending hours of each session will be informal. Attendees can come and go as they please, visit displays, meet with study personnel, and have specific questions answered on a one-on-one basis. Displays will include maps of the study area, new river profiles (in draft; the profiles will not be considered final until the final report is released in June 2003), and cross-section information for each District.

The middle hour of each session will be formal. A presentation describing the study and its findings will be given, followed by general questions and answers.

- 1:00-2:00 p.m. – informal session
- 2:00-3:00 p.m. – formal presentation/Q's&A's
- 3:00-4:00 p.m. – informal session

- 5:30-6:30 p.m. – informal session
- 6:30-7:30 p.m. – formal presentation/Q's&A's
- 7:30-8:30 p.m. – informal session

Comments received at the open houses will be summarized on the study's website and will become part of the final report.

The dates and locations for each of the open houses follows.

TUESDAY, MAY 6 - ST. LOUIS, MO
Spazio Banquet and Conference Center in Westport
12031 Lackland Road
St. Louis, MO

WEDNESDAY, MAY 7 - KANSAS CITY, MO
Hyatt Regency Crown Center
2345 McGee Street
Kansas City, MO

THURSDAY – MAY 8 – OMAHA, NE
Holiday Inn Omaha-Central-I-80
3321 South 72nd Street
Omaha, NE

MONDAY –MAY 19 – QUINCY, IL
Holiday Inn Quincy
201 South 3rd Street
Quincy, IL

TUESDAY –MAY 20 – PEORIA, IL
Holiday Inn City Centre
500 Hamilton Boulevard
Peoria, IL

WEDNESDAY – MAY 21 – DAVENPORT, IA
Holiday Inn
5202 Brady Street
Davenport, IA

THURSDAY – MAY 22 – LA CROSSE, WI
La Crosse Center
300 Harborview Plaza
La Crosse, WI

WEDNESDAY – MAY 28 – ST. PAUL, MN *
U.S. Army Corps of Engineers
Conference Rooms 5A and 5B
190 5th Street East
St. Paul, MN

* An afternoon session only will be held at this location. The format will be identical to the other sessions. Conference Rooms 5A and 5B are on the 5th floor of the Corps of Engineers office building in downtown St. Paul. Due to the security system in the building, open house attendees will need to be escorted up to the conference room. There will be signs at all publicly accessible elevators (i.e., basement and 1st and 2nd floors) directing attendees to gather on the 2nd floor of the building by the elevators. An escort will be at the elevators on the 2nd floor to take attendees to the conference rooms on 5th floor.

PLEASE NOTE: Study results for the entire system will be available at all open houses. However, the technical staff present at each open house will be most familiar with the specifically identified river reach or reaches shown below:

OPEN HOUSE LOCATION	DATE	APPROXIMATE RIVER REACH(ES) TO BE PRESENTED	RIVER
St. Louis, MO	May 6	L&D 24 (Clarksville, MO) to Thebes, IL St. Louis, MO, to Boonville, MO LaGrange L&D to Grafton, IL	Mississippi Missouri Illinois
Kansas City, MO	May 7	Boonville, MO, to St. Joseph, MO	Missouri
Omaha, NE	May 8	Gavins Point Dam to St. Joseph, MO	Missouri
Quincy, IL	May 19	L&D 18 (Burlington, IA) to L&D 24 (Clarksville, MO)	Mississippi
Peoria, IL	May 20	Lockport L&D to LaGrange L&D	Illinois
Davenport, IA	May 21	L&D 11 (Dubuque, IA) to L&D 18 (Burlington, IA)	Mississippi
La Crosse, WI	May 22	L&D 4 (Alma, WI) to L&D 11 (Dubuque, IA)	Mississippi
St. Paul, MN	May 28	Anoka, MN, to L&D 4 (Alma, WI)	Mississippi

LAST NEWSLETTER

This is the last newsletter for the Upper Mississippi River System Flow Frequency Study. Thank you for your interest in the study. We look forward to seeing you at the public open houses and encourage you to continue to view the study's website and to keep informed of other Corps of Engineers studies and programs.

WHAT HAPPENS NEXT?

As stated above, the Upper Mississippi River System Flow Frequency Study will conclude in June 2003. Study products include updated digital floodplain elevation data, flow-frequency relationships, UNET hydraulic models, and stage-frequency relationships. New flood frequency water surface profiles will be used by the Corps of Engineers and other Federal and State agencies.

STUDY POINT OF CONTACT

Mr. Andrew Leichthy, Rock Island District, Corps of Engineers, replaced Ms. Heather Wiese as the Flow Frequency Study's Coordinator in April 2002.

For further information or questions about the study, or if you have comments, please contact Mr. Leichthy by telephone 309/794-5399, fax 309/794-5710, or email: Andrew.L.Leichthy@usace.army.mil.

If you prefer, you may write to Mr. Leichthy at the following address:

U.S. Army Engineer District, Rock Island
ATTN: CEMVR-PM-M (Leichthy)
Clock Tower Building - P.O. Box 2004
Rock Island, Illinois 61204-2004

We welcome your input

