

**DELAWARE RIVER BASIN COMMISSION
FLOOD ADVISORY COMMITTEE SUMMARY**

February 16, 2011

The February 16, 2011 Flood Advisory Committee (FAC) meeting began at 10:00 AM at the Commission office (DRBC) in West Trenton, NJ. Tom Suro, U.S. Geological Survey (USGS), chaired the meeting.

A. Introductions and Review of the Draft Minutes from the November 17, 2010 Meeting

The minutes were approved with no corrections or changes. The summary will be posted on the DRBC web site. Tapes of the meeting may be reviewed upon request.

B. Hydrologic Conditions Report, Amy Shallcross, DRBC

A presentation of the current hydrologic conditions was given by Amy Shallcross, DRBC. As of February 14th, the year-to-date precipitation for 2011 ranged from 3.55 inches (0.8 inches below normal) for the upper basin (above Montague) to 4.32 inches (0.5 inches below normal) for the lower basin (Wilmington).

To date, for the month of February, streamflow both at Montague and Trenton gages were below the normal range for that time of year. Streamflow at Montague was 95% of normal as of February 14th and Trenton was 50% of normal. These flows are slightly higher than the preceding month of January.

As of February 15, 2011, the total storage for the NYC Delaware reservoirs was 219.5 BG (81%); Cannonsville at 79.6%, Pepacton at 81.9% and Neversink at 81.4%. Total storage for the NYC Delaware reservoirs, taking into account ½ of the existing snow water equivalent, was 249.6 BG (92%); Cannonsville at 94.5%, Pepacton at 90.7% and Neversink at 91.6%.

As of February 14, 2011, the salt line (7-day average river mile location of 250 mg/l chlorides) was at river mile 78 which is ten miles upstream of its normal position at 68 miles. This is because both January and February year-to-date flows are approximately 50% of normal. The next one-three month outlook shows an equal probability of experiencing either higher or lower than normal temperatures and precipitation.

C. Storm Surge Modeling, Shaun Wicklein, USGS, Richmond, VA (via webinar)

Bob Hainly introduced Shaun Wicklein who gave a presentation via webinar on the Chesapeake Bay Inundation Prediction System (CIPS). CIPS was developed as a demonstration project to improve inundation forecasts for tropical storms and nor'easters. It was funded by the NOAA IOOS office for 3 years (2008 to 2010) and leveraged resources of multiple partners from the private sector, government, and universities. Instead of a text only product, CIPS is able to display overland, flooded areas at a city-block scale with the use of geographic and visualization capabilities and LiDAR. The prototype used the ensemble method displaying high-resolution hydrodynamic model results with regional-scale atmospheric wind forecast models and an estimate of uncertainty.

The CIPS prototype is now operational, but it is not housed somewhere at this point. It is hoped that NWS may be able to house it and allow it to become fully operational. It is also hoped that CIPS may be able to extend its capability to the mid-Atlantic region.

Bob Tudor mentioned that John Callahan, USGS Delaware, has been working with FEMA to develop a similar program named DEOS. It was discussed that there are several techniques being reviewed around the country and NWS wants to see which one is going to work best for coastal inundation. The NOAA storm surge team is currently evaluating various programs and it may be several years before NWS makes a decision on a national scale.

D. Flood of 1955 from a Forecasting Perspective, Joe Miketta, NWS Mount Holly

Joe Miketta, NWS, gave a presentation which highlighted flood forecasting and the work of forecasters and emergency managers prior to the many flood warning advancements that we have today. He highlighted available technology of the time and newspaper articles of the region. Some of the first images of radar were made available during Hurricane Connie.

E. Meteorological Model and Ensemble Forecast System (MMEFS) tools, Patti Wnek, NWS

Patti Wnek, NWS, presented a new online tool, NWS Experimental Short-term Hydrologic Ensemble Forecasts. This product can be found online at the Middle Atlantic River Forecast Center’s website or directly at <http://www.erh.noaa.gov/mmeefs/>.

The product is experimental and provides a range of possible forecasts based on uncertainty in precipitation and temperature only. The product is fully automated and meteorological input is based on computer model ensemble forecasts only. The official NWS forecast is a separate product that is informed by the model forecasts, but is also modified and fine-tuned by NWS meteorologists and hydrologists based on local and past knowledge. Please continue to refer to your local NWS office for the latest official public river forecasts.

The ensemble forecasts are experimental, but can be helpful for planning, contingency forecasts and what-if scenarios. It should be noted that the ensemble forecasts do not account for rises due to ice and they are not consistent, meaning that they may change dramatically as the storm track forecasts change.

There are currently 3 models that NWS utilizes for meteorological predictions for all River Forecast points. The short-range model (SREF) has 21 forecasts, goes out 3 days and is updated 2x day; Global Ensemble Forecast System (GEFS) has 12 forecasts, goes out 7 days and is updated 4x day; the North American Ensemble Forecast System (NAEFS) has 42 forecasts, goes out 7 days and is updated 2x day.

Model	Members	Length	Updated
Short Range Ensemble Forecasts (SREF)	21	3 days	2x day
Global Ensemble Forecast System (GEFS)	12	7 days	4x day
North American Ensemble Forecast System (NAEFS)	42	7 days	2x day

There are many difference input data graphics to view: precipitation traces; precipitation expected values; temperature traces and expected values; and snow water equivalent expected values. Forecast graphics show a summary map.

The ensemble mapping products have been under review by NWS Weather Forecast Offices and the Customer Advisory Boards. Feedback has been helpful in identifying needed improvements. Further feedback is welcomed.

F. Nurture Nature Foundation Update including presentation of educational materials, Rachel Hogan, NNF

The Nurture Nature Center in Pennsylvania was founded with the help of the Nurture Nature Foundation, a nonprofit established in 1991 that is headquartered in New York. Upon completion, the Nurture Nature Center will include a variety of exhibits, programs, and other educational activities related to the river and other environmental concerns.

The Nurture Nature Center is located in the City of Easton, which lies at the confluence of the Delaware River and its second largest tributary, the Lehigh River. A principle focus is the Flood Project, devoted to educating the public about the flooding problem that has become so urgent in the region and elsewhere, and teaching citizens what can be done to address it.

Rachel Hogan-Carr, NNF, reported that their website has a great overview of all that is ongoing including downloads of educational/ outreach materials, interviews and links to more information.

<http://focusonfloods.org/> A subset of ongoing activities include:

- Flood Forums: a series of focus groups and forums on flooding in the cities of Allentown and Easton, and Lower Mount Bethel Township, three communities at high risk for flooding. This programming was funded by the National Science Foundation and provided an opportunity for discussion about community specific issues related to flooding.
- A Flood Safety Awareness Campaign is being developed with the NWS including outreach materials and public safety announcements. Key message: Floods happen. Lessen the loss.
- NNC will partner with Maryland Science Center, Da Vinci Science Center and Lehigh University to create a new Science on a Sphere® program on climate and flooding. NNC is working with a team of academic and science center partners, which will create a new visualization program for the sphere showing the relationship between climate and flooding, and will incorporate the sphere program into its Flood Forums project.
- The Nurture Nature Center will open in phases beginning in 2011.

G. DRBC meeting with FEMA RII and RIII, Laura Tessieri, DRBC

Tim Crowley, Mitigation Division Director for FEMA Region 2, and Gene Gruber, Mitigation Division Director for FEMA Region 3 met with DRBC staff on December 9, 2010 to discuss coordination across the regions. It was agreed that a Repetitive Loss Reduction Strategy is needed for the basin. In addition, greater coordination of outreach programs across the region would be useful. The Flood Warning Forums (September 2010) were discussed as a good example of outreach in the Basin. It is hoped that perhaps a similar format might encourage/support mitigation.

Action/Discussion Items:

1. DRBC to solicit a speaker from FEMA to discuss the RiskMap Floodplain Mapping Strategy with the FAC at the upcoming June meeting.
2. DRBC staff to help develop a Repetitive Loss Reduction Strategy for the basin.

H. Opportunity for Public and Interested Party Comments

Audrey Miller, NJ Office of Homeland Security and Preparedness (NJOHSP), has been working with the NJ Department of Environmental Protection (NJDEP) and New York City Department of Environmental Protection (NYCDEP) on the need for collaboration across states within the Delaware River Basin. One issue is the number of dams (water supply, flood control, power or otherwise) that, if breached, have the potential to cause downstream destruction. In order to reduce risk, the formation of a regional Task Force is being discussed to improve preparedness planning, coordinate response, and establish effective partnerships within the region.

Draft flood inundation mapping for Belvidere and Montague flood forecast points is soon to be available on AHPS. NWS/DRBC will host webinars with County/local officials to review the mapping.

A brief review on the tasks associated with the Delaware River Enhanced Flood Warning System was given.

Action/Discussion Items:

1. DRBC staff and NWS to convene Flood Inundation Mapping webinars for County/local Emergency Managers in the vicinity of the final 4 inundation mapping sites to be posted on the

Delaware (Easton, Belvidere, Montague and Port Jervis). Webinars will inform and encourage review of draft mapping.

2. DRBC staff to help solicit updated flood impact statements at NWS Flood Forecast gages.
3. DRBC staff and NWS MARFC to finalize Standard Operating Procedure for monitoring Ice Jams at DRJTBC bridges
4. USGS to extend stage/discharge measurements above 125% of record flow for ten (10) prioritized gages. This work will be completed using FY10 Delaware River Basin Enhanced Flood Warning funds. These funds were made available through a NOAA grant with congressional support.
5. DRBC staff to complete brochure to highlight progress implementing Task Force Flood Warning recommendations and grant tasks

I. Next Meeting

The next meeting of the Flood Advisory Committee (FAC) is scheduled for Wednesday, June 8, 2011 at 10:00am in the DRBC Goddard Conference Room.

**FLOOD ADVISORY COMMITTEE
ATTENDANCE**

February 16, 2011

NAME	AGENCY
AHNERT, Peter	National Weather Service (NWS)
BOLLINGER, Dave	Federal Emergency Management Agency (FEMA) Region III
BUTKUS, Bob	Ocean County Sheriff Department -Office of Emergency Management
CARLSON, David	Delaware Emergency Management Agency
CROWLEY, Tim	FEMA Region II
DEANGELO, Jim	Michael Baker Corporation
FERRARI, Mark	New York State Office of Emergency Management Region II
GOULD, Chris, A.	New Jersey Department of Environmental Protection (NJDEP)
HAINLY, Bob	United States Geological Service (USGS) - PA
HOGAN CARR, Rachel	Nurture Nature Foundation
KRUZDLO, Ray	NWS
MATTE, Al	NWS
MILLER, Audrey	New Jersey Office of Homeland Security & Preparedness
MILLER, Jason	United States Army Corps of Engineers
MOYLE, John	NJDEP
QUINODOZ, Hernan	Delaware River Basin Commission (DRBC)
REISER, Robert	USGS - NJ
ROLAND, Mark	USGS - PA
RUGGERI, Joseph	NJDEP
RUPERT, Clarke	DRBC
SCORDATO, John	NJDEP
SHALLCROSS, Amy	DRBC
SURO, Thomas	USGS - NY
SZATKOWSKI, Gary	NWS

TESSIERI, Laura	DRBC
TODD, Steven	Pennsylvania Department of Environmental Protection (PADEP)
TUDOR, Robert	DRBC
WINSLADE, Bill	Yardley Borough Manager & Emergency Management Coordinator
WNEK, Patti	NWS