NRCS awards $1,667,500 to study two watersheds where dams breached in 2018

MORE THAN 150 citizens participated in the two meetings held in Coon Valley and Cashton to learn more about watershed studies to be undertaken in the Coon Creek and West Fork Kickapoo watersheds on Jan. 30. In those two watersheds, flood control dams breached in the August 2018 flood.

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SOUTHWEST WISCONSIN - USDA-Natural Resource Conservation Service (NRCS) State Conservation Engineer Steve Becker announced last Thursday that $1,667,500 has been approved for a new watershed study in Coon Creek and West Fork Kickapoo. The study will be undertaken in the two watersheds where flood control dams breached in the August 2018 floods.

The study of the Coon Creek Watershed will span its headwaters through the Village of Chaseburg. The study of the West Fork Kickapoo will span its headwaters through the Village of Liberty.

“We wish we could have better, clearer answers sooner,” Vernon County Conservationist Ben Wojahn said in his introduction. “However, we can’t keep doing the

same old ‘rush to repair,’ and expect to achieve a different result. We have to spend the time to reevaluate our approach to flood control, take into account current weather trends and land use, and make decisions about the future of the dams with the best information available.”

THREE COUNTY CONSERVATIONISTS from Monroe, Vernon and La-Crosse counties were on-hand to discuss their county’s efforts to stabilize the breached, damaged and/or aging flood control structures in their counties since August 2018. Those three counties will be the ‘local sponsors’ of the Coon Creek and West Fork Kickapoo watersheds.

The three county conservationists present – Matt Hanewall of LaCrosse County, Bob Micheel of Monroe County, and Ben Wojahn of Vernon County – discussed what their response to the breached dams had been to date. Where dams breached, focus has been on stabilizing the location of the breach, reconnecting the stream with its traditional bed, cleaning up the debris field below the dams, removing debris from the valley floor, and streambank stabilization.

All three counties have been faced with short-term costs to stabilize the dam structures, clean up the debris, and do streambank restoration. All three have received funding from the NRCS Emergency Watershed Projects fund matched by a percentage of county funding to complete the work.

“We can either just give up and move everyone out of the flood plain or we can take a step back and think about how our communities can build resilience,” Wojahn said. “A big part of what we need to look at in this study and in making decisions about the future of the dams is to think about what we can do to hold as much water on the landscape as possible.”

“Things are always changing –weather patterns have changed and land use has changed,” Hanewall said. “If everything else is changing, then we have to be willing to change too.”

“It seems, as far as weather goes, that the Monroe-Vernon county line has turned into the new equator and become a magnet for big storms,” Micheel said. “One important thing that we have to keep in mind is that the 14 dams in Coon Creek, with three now standing breached, only control about 20 percent of the total runoff from the watershed – so that leaves 80 percent to be controlled in other ways.”

USDA-NRCS State Conservation Engineer Steve Becker participated in two meetings at the Coon Valley American Legion, and at the Cashton Community Hall, on Thursday, Jan.30. The purpose of the meetings was to inform the public about plans to study the Coon Creek and West Fork Kickapoo watersheds, where flood control dams breached in August of 2018.

Dam failure report

In his dam failure report presentation, Becker stated that the failures resulted from a combination of weakness in the foundation geology combined with extreme amounts of runoff. The rainfall volume and intensity exceeded the design capacity of the dams, and having the reservoirs behind the dams full exploited the cracks in the sandstone bedrock causing internal erosion and erosion around the end of the dam in the hillside abutment area.

“Most of these dams were built between 1958 and 1961, and the information about the geology back then was somewhat speculative,” Becker said. “Now, with modern techniques, we have the ability to obtain much better information that we can factor into our designs.”

“Today, in our planning, we no longer talk about the “100 year storm,” Becker said. “Instead, we use a ‘probable maximum precipitation’ standard, and there are different design models that determine what size pipe is needed for the principal spillway, for the auxiliary spillway, and to decide how high the dam needs to be.”

The official ‘Dam Failure Report’ is available on the website of the Monroe County Land Conservation Department at http://www.co.monroe.wi.us/departments/land-conservation/.

“The other thing is that with respect to the DNR, the status of the dams is currently in limbo,” Becker pointed out. “While they have extended the deadline to repair or remove the dams out to 2023, that doesn’t mean that there won’t be more requirements coming down the pike from them as well.”

County actions

Hanewall from LaCrosse discussed the issues with two of his county’s dams in the Coon Creek headwaters controlling water that drains into Bohemian Valley. Because the infrastructure at the dams is now over 50 years old, his county is evaluating issues with the structural stability of the dams such as aging concrete, deteriorating pipes, encroachment of forests onto the abutments of the dams, and sedimentation behind the dams. His county has also undertaken some diagnostics of the underlying geology in the dams through core sampling and Electric Resistivity Imaging.

Wojahn discussed how his department had partnered with Valley Stewardship Network to create a ‘Watershed Planner’ position. Monique Hasseman who fills that position will assist the department with setting up more user-friendly templates for reporting storm damages and turn old paper records of past storm damages from 2007 and 2008 into digital data that can be more easily used to apply for funding.

Micheel discussed how Monroe County envisions decisions about the future of the dams being made on a watershed basis, versus just by one or another county.

“Monroe County is focused on creating a regional authority that can help to make decisions about flood control structures on a watershed basis,” Micheel said. “For instance, Monroe County could decide to remove a flood control dam in the Coon Creek headwaters, just to use an example, and that could have a profound impact on citizens lower in the watershed in Vernon County. To ensure that all stakeholders have a seat at the table in decision-making, we need to broaden the discussion beyond county lines.”

Micheel also discussed his county’s formation of a Climate Change Task Force.

“The Monroe County Board voted to create the task force because it is clear to them that weather events are changing, rain events are becoming more severe, and we need to start to plan for resilience to get out in front of the changes,” Micheel said. “One of the

first things our task force has taken up is how to improve warnings and get information out to citizens who may be in harm's way more quickly."

At their next meeting, planned for Wednesday, Feb. 12, 1:30-3:30 p.m., at the Monroe County Courthouse in Sparta, the Monroe task force will hear from Lt. Governor Mandela Barnes about the State of Wisconsin Climate Change Task Force. Barnes will discuss the state climate change information hub, a climate change conference that is planned, funding mechanisms, and empowering people.

Two meetings

Two meetings to discuss the dam failures and the upcoming watersheds study were held at the Coon Valley American Legion and the Cashton Community Hall on Thursday, Jan. 30. In all, more than 150 people attended the meetings. Attendees included local citizens impacted by the 2018 floods, farmers, local and state government representatives, county and town highway workers, local first reponders, NRCS District Conservationists, DNR representatives and county conservation staff.

"NRCS used to have lots of employees that could undertake a study like this without a lot of need to contract with private sector providers," Becker told the audience. "These days, though, we need to look outside the agency for the horsepower to complete such an ambitious project."

Becker said that the funding is being made available through the same federal program that funded the original construction of the dams – 'The Watershed Flood Prevention and Operations Program (WFPO).' The fund was created as a result of the 'Watershed Protection and Flood Prevention Act of 1954. After a hiatus in congressional appropriations into the fund for almost a decade, congress approved $150 million in 2017, 2018 and 2019.

"Once the study is completed and a recommendation is made for how to proceed, then the next steps will be to apply for money for design, and then for money for construction," Becker said. "With the increasing incidence of weather-related disasters, it is reasonable to believe that congress will continue to appropriate funding for this program – we are hopeful, but it is not guaranteed."

The grant for the study of the watersheds requires 'local sponsors.' The local sponsors for the Coon Creek Watershed will be LaCrosse, Monroe and Vernon counties. For the study of the West Fork Kickapoo Vernon County is the local sponsor. The total funds approved will be used 50/50 to study the two watersheds.

Timeline and priorities

Becker told meeting participants that the study is expected to take about 18 months. He stated that he hopes to complete the task of selecting an engineering firm to work with by

the end of February, and have the study up and running right after that. From there, he listed a series of nine steps:

1. Identification of problems and opportunities

2. Determine stakeholder objectives

3. Inventory resources

4. Analyze resource data

5. Formulate alternatives

6. Evaluate alternatives

7. Make decisions and finalize Environmental Impact Statement (EIS)

8. Plan implementation

9. Evaluate implementation

“The old ‘Watershed Work Plans’ put forth a cost benefit analysis for the dams over their 50-year financial life span, and part of this study will be to recalculate those costs and benefits,” Becker said. “Part of the process calls for several public input/scoping meetings to gather ideas and concerns from local residents.

“One advantage we have now in calculating costs and benefits is that we can look at the history of spending on dam maintenance, of flood-related repairs to county infrastructure, and disaster relief claims from flooding events over the last 50 years,” Becker said. “When the Work Plans were originally written, they had to make a lot of educated guesses about all of that.”

The proposed work schedule will be as follows:

1. Contract with an engineering firm

2. Formal invitation to cooperating agencies

3. Public participation plan

4. Develop and host an informational website

5. Stakeholders orientation meeting

6. First public scope meeting

7. Second public scope meeting

8. Progress review meetings with stakeholders

9. Draft EIS and open it up for public comment

10. Publish EIS in the administrative record

11. Close the engineering contract

UW-Madison study

The Nelson Institute for Environmental Studies at UW-Madison has a program required for students seeking Masters degrees called the 'Water Resource Management Workshop.' This is the program that Hydrology Research Scientist Eric Booth, PhD, will lead his team of students in for the storm frequency and severity analysis, and land use changes portion of the study.

"My team will take a broad view of the complex factors that lead to flooding," Booth explained. "In our work, we will look at rainfall analysis, changes in land use in the watersheds, and flood plain management in the watersheds."

All students in Water Resources Management (WRM) must complete a four-credit interdisciplinary 'Water Resources Management Summer Workshop.' The workshop is a culminating experience near the end of a student's program where a student-faculty teamwork on a project focused on a contemporary problem in water resources. The workshop brings together students with diverse backgrounds and areas of specialization to work together as an interdisciplinary team which functions as an unbiased, diverse, and well-trained group of professionals that can make a contribution to water resources policy. The workshop provides an opportunity for students to work outside of the textbook environment and tackle a "real-world" problem.

WRM workshops have been conducted, first as seminars and later as workshops, since the mid-1960s. Their titles and accompanying descriptions demonstrate the wide variety of workshop topics and locales since 1970. Copies of workshop reports are available in the Nelson Institute Student Commons in 15 Science Hall.

Audience questions

Question: what is the timeline before we could see some actual changes on the ground versus just leaving these dams wide open?

Answer: That's a great question. If all goes well, I think we can hope to get something on the ground in four-to-five years.

Questions: Will climate change and the increasing frequency and magnitude of storm events be factored in?

Answer: Yes. We have taken a small portion of the funding granted to used it to get a group of UW-Madison researchers to conduct analysis of extreme storm events and the impacts of changes in land use. Part of their work will be to re-calculate the definition of the 25, 50, 75 and 100-year storm event.

Observation: Lonnie Muller of the LaFarge Episcope commented that the EIS should be moved up to earlier in the process to make sure that the project doesn't get all the way to the end and then be blocked by the results of the EIS like happened with the LaFarge Dam.

Question: will the study result in modifications in designs for infrastructure, for example the Highway 14 bridge across Coon Creek in Coon Valley?

Answer: The cost/benefit analysis in the original work plan for the dams calculated that over the fifty year life of the dams, there would be a $1.2 benefit for every $1 in cost. In those work plans, a big part of the benefit was to open up the rich agricultural fields in the flood prone valleys for agricultural production. That probably will not be as strongly factored in to the study now, and other features will be brought in, reflective of changes that have happened in the last 50 years.

Question: has the purpose of the dams changed in the last 50 years?

Answer: not really, but beyond flood control, some of the dams also serve recreational purposes. Under the funding guidelines, this is allowed, but the cost share is different. Construction for the purpose of flood control is covered 100 percent, but any costs associated with other uses like recreation or farm irrigation are covered 50 percent by the federal government and 50 percent by the local sponsors. In addition, the local sponsor is also responsible for maintenance over the life of the dam and land acquisition for the construction. One project that was completed recently on the Zumbro River in Rochester Minnesota took an innovative approach to funding maintenance. Instead of calculating cost/benefits over 50 years, they chose to extend it over 100 years. To fund maintenance, they passed an ordinance dedicating one-half-of-one-percent of sales taxes to be dedicated to dam maintenance.