Flood Awareness Month – PODCAST 1: River Forecasting and the 2012 Spring Flood Outlook

RUN TIME: 5 MIN, 13 SECONDS

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STEFANIE: Most people would think of the National Weather Service as forecasting weather, but there's also forecasting of rivers.

JEFF JOHNSON: Thanks, Stefanie. Jeff Johnson here with the National Weather Service. My job is the warning coordination meteorologist, and with me today is Jeff Zogg, who's our senior hydrologist. Yes, river forecasting is something we do that perhaps the public isn't as aware of as our weather forecasts. And we do our river forecasts particularly when the rivers aren't flooding. In the big picture with river flooding, you know, we're going to be focused on the spring flood outlook the forecast process where we're looking at the probabilities of a flood. Maybe we should start, Jeff, with the seasonal outlooks?

JEFF ZOGG: Well thank you, Jeff. This is Jeff Zogg here. As Jeff said earlier I'm the senior hydrologist with the National Weather Service here in Des Moines, and the seasonal outlooks are sort of the first step we use in forecasting the possibility of river flooding. We actually provide a three-month outlook every month of the year. We issue it around the first of every month. And people can get that on our website at weather dot gov, slash "Des Moines." But we're looking three months out into the future and we're looking at the possibility of rivers hitting flood stage, or, or exceeding flood stage. And it's important to note that these outlooks don't include numbers, per se. In other words, we're not saying in three months, for example, the river's going to get to 15 feet. We're looking at more of a, a qualitative, if you will – the risk of it getting in to flooding, that is. And then as it draws closer in, especially in the spring season, we issue outlooks more often. We issue about two or three spring outlooks every season and those are in lieu of our normal outlooks that we issue monthly throughout the rest of the year.

JEFF JOHNSON: Excellent. So let's kinda – Stefanie, if we could, could we kinda talk our way through a typical spring? Everybody in Iowa realizes we build up a snow pack over the winter, particularly in northern Iowa. And then in the springtime that snow pack melts. It can cause seasonal flooding.

STEFANIE: And, as we saw last year, that snow pack from other states like Montana also can affect the rivers in Iowa.

JEFF JOHNSON: Absolutely. Maybe the perception out there isn't complete as to where a lot of this water comes from – like on the Missouri side of the state – along the Missouri River. Maybe people don't realize that comes all the way from Montana.

STEFANIE: Mmm hmm.

JEFF JOHNSON: You know, some of that water. So, maybe with that Jeff, you can talk a little bit about when we're looking at the spring outlook for snow melt flooding, what are some of the things we are looking at?

JEFF ZOGG: Yeah, Jeff. You mentioned snow pack already and that's definitely one of the factors that we consider. But it's one of several. Another factor we look at is soil moisture. If the soil is, is wet, then it won't be as able to absorb moisture as it would be if it were dry. We also look at the frost depth. If we have a lot of frost on the ground, then the ground even if it is dry, won't be able to take on much moisture. We look at the existing river levels. Of course, if the rivers are high to start with, then it doesn't take as much water to push them above flood stage. We also look at rainfall which is reflected in the soil moisture. Usually if you have an above-average fall in terms of rainfall, then the soil's going to be wet and won't be able to absorb as much moisture. We look at the outlook for the next few months, so if we're expecting above-average precipitation, then of course we would think that there'd be an above average risk of, of flooding there. As well as the temperatures – we'll look at those too. Just at the speed of the snow melt. Now in Iowa, of course, the snow melt is one big factor. But the largest driving force of spring flooding Iowa is actually the rainfall. You can have a lot of snow and it can melt rapidly, but it's the rain that's going to make the flooding really, really bad. So, the snow is just part of the equation and the forecasted rainfall even a bigger part of the equation. Unfortunately it can be difficult to forecast rainfall more than a couple days out.

JEFF JOHNSON: So going into the spring, if I live along the river or have an interest on the river in Iowa, where can I go to find out the flood outlook and how can I keep aware of it?

JEFF ZOGG: Well, there's different ways you can access the flood outlook. For the National Weather Service in Des Moines, at our web page at weather dot gov slash "Des Moines." Once we release our outlook we'll put that at the top of the page. There's a section called the "News" section, and we'll actually put the outlook there. And most of the other National Weather Service offices that serve Iowa will do the same thing. Once they release the outlook, it'll be put on their web page near the top where people can access it. And that'd probably be the easiest way to do that. Of course we're also talking to the media, whether it's the newspaper, or television stations and they're usually relaying some information to the public as well. Another thing I wanted to add is in forecasting flooding on rivers, what's important is not what is falling in a given location, but what falls upstream. And that's one of the things we talked about when we're forecasting rivers with our models is the rainfall. But let's say for example, you're in Des Moines here and Des Moines only got an inch of rainfall over the past 24 hours. Well, if a good portion of the Raccoon River basin above Des Moines received four inches of rainfall, that's a big deal and it just is an example to show that you have to look upstream in the basin, because what happened upstream is definitely a larger factor. Another example kinda coming from a different angle is there've been times when there's been rivers in flood [and] where they're flooding, there's a drought in progress. There's been really heavy rain that fell upstream, pushed the river above flood stage, the flood progresses downstream but a given community that's being flooded by a river may have not received any rainfall in the past couple months at all. They could be under a drought, but they're flooding. It seems counterintuitive, but that's how it works – where again, it's an example of the rain that falls upstream of a given location is what you have to pay attention to.