

Rick Burnett:

Well, good morning. Thank you, Dr. Macari. I'm a little nervous knowing at least half the people in this room, I think, probably worked against me at this point; so that they know me. I'll try to get through this anyway. My name is Rick Burnett, I'm a water resources engineering associate, slash flood fight specialist with the Department of Water Resources. And, I have been employed by DWR for close to 15 years now. Prior to that I worked for the California Conservation Corps as a crew super-crew supervisor and project coordinator; so, I could probably say I worked on both sides of the issue that we're talking about today. I planted willows and I have cut down willows. Hopefully, I have equalized my, what is that? Carbon footprint? So, never mind.

One of my responsibilities to DWR is the coordination of flood fight training methods classes; where we actually go out and train people in different techniques for fighting floods. We average 700 people per year, and beyond that I'm referred to as a technical advisor, a specialist in the field during high-water events. Prior to my current position in DWR, I was a levee inspector for over 10 years. I've been with the state for 30 years, and I've been involved with emergency response for most of that time.

Floods have made up the majority of those emergencies. Through the seventies, eighties, nineties, and even into the new millennium, I have been on practically every major flood that has come down.

There are three major issues when it comes to levee vegetation and flood fighting -- and believe me you are not just one side of this; it's going to be a mixed-message. Patrolling, advanced measures and the actual physical act of flood fighting. Now, the goal of the division of flood management, and this is taken straight from mission statement itself, is to "protect lives, property, resources and infrastructure."

The first issue is one that is most impacted by levee vegetation: high water patrolling. Mobile levee patrols are activated when water ways rise to monitor stage; this is a predetermined stage that varies by water ways. These patrols are made up of local and state levee maintainers, as well as trained volunteers. Many people in this room have spent long cold nights patrolling various sections of levees and know the challenges.

Twenty-four hour periods are usually divided into two 12-hour shifts, with two people in each patrol vehicle. Vegetation can be a major issue for levee patrollers. Vegetated slopes can prevent early detection of problems, such as erosion and slope failure on the water side, and boils and seepage on the land side. This problem increases at night, when high beam spotlights cast shadows and distorts perspective.

Looking at this photo, upstream on the Sacramento River, you see that probably over 80 percent of the water-side slope is blanketed with vegetation. This example would present a real problem for levee patrollers. The downstream view from the same location is not much better; or, is very good, depending on your point of view.

We're now looking at the- an example of the land side section of the levee that is also heavily overgrown. You see mature oaks, blackberries, wild rose -- everyone's favorite: elderberry. And they prevent any chance of effective high water patrolling. Remember, we're attempting to spot problems in the initial stages before they become major problems.

The next issue -- excuse me, let me go back to this: the land-side view of an area near Walnut Grove on the Sacramento River shows that the problem is not only restricted to wild, or natural, growth, but also includes landscape vegetation that homeowners use as a screen for privacy. The next issue is advanced measures. Now, I'm talking about the advanced measures the DWR can do, and has done, not the Army Corps of Engineers' advanced measures, although they are very similar.

Last year, we became involved in quite a bit of work that would be termed as “advanced measures,” along the San Joachim River and its tributaries. This is one site. This work is a preemptive action, usually based on a forecast of eminent high water or flooding. We also take into consideration historical knowledge of an area that might determine the need to invoke advance measures.

If we have reports of an area like this having major seepage, undermining of the levee -- things like that -- then we definitely would consider this for advance measures. This work is typically done by contractors -- contractors supervised by DWR construction and inspection staff. Heavy equipment is used to clear vegetation, prepare slopes, place erosion protection and construct seepage and stability berms. Hand labor may also be used where alternative methods are more effective.

The upper, left-hand corner, photo shows several oaks at the top, or base of the levee. Erosion has been encroaching into the berm area for quite some time. This is a non-project levee, by the way. Approximately one and a half years later the bottom right photo shows the erosion is into the levee section itself and several of the oaks have been lost, in example- in an example like this, advance measures possibly could have saved this vegetation.

Third issue is the actual act of flood fighting; this is the on the ground work that's done during high water events. Flood fighting, or the actual act- actual hands-on work performed -- makes up this third issue. In my experience in three decades of fighting floods, vegetation on levee slopes has not presented much of a problem. Let that sink in: I had a difficult time coming to terms with that myself, having been a levee inspector and kind of completely against vegetation on slopes. In the case of patrolling: bad. In the case of flood fighting: not so bad. If vegetation is in the way, it's usually cleared quickly by the same flood fighters that are responding.

When a large labor force is needed to fight a flood, DWR depends on two agencies to supply the people power: the California Conservation Corps and CalFire, formerly known as CVF. The CCC is a voluntary youth-employment program. CalFire supplies Fire Captains to supervise Department of Corrections inmates, or the same fire crews that are out fighting fires on days like this. Both groups are organized into crews of 12 to 17 crew members, and come with a large compliment of hand and power tools; they are very effective at clearing brush.

I'd like to explain some examples of flood fighting methods that are used when the time calls for it. The top left photo: you see wave wash protection, where we place plastic sheeting to prevent erosion on levee slopes or stream embankments; this is a method that is used both on naturally running streams. It can also be used at the delta and has been used several times in the delta where we've had islands flood, in an effort to maintain the remaining levee in the flooded area.

The top right photo is a sandbag sack-ring, sometimes referred to as a "chimney," that is constructed to control a boil that is piping water and levee material. And I will say this: the boils that I have encountered through the years -- and there have been literally hundreds -- almost always were a result of rodent, or ground squirrel, activity. If decomposing tree roots cause under-seepage -- I'm- I never saw the evidence of it, but there was a lot of evidence to support that probably 90 percent or better was due to rodent activity.

The bottom left photo is an emergency spillway; this is used as a last resort to prevent erosion on the levee due to overtopping. And at the bottom right is the result of not having an emergency spillway. Uncontrolled overtopping just north of the city of [Merced] caused the levee to fail; it eroded quickly, and over 100 homes were flooded as a result of this. It occurred just last year.

This is a photo taken in 1997, near the town of Clarksburg, where an emergency repair was implemented by the reclamation district. You'll notice the vegetation, kind of down in the water, that -- that is actually the area that had sloughed down from the slope itself. This photo shows a section of the levee that has very little vegetation on the water side slope. I think if levee maintainers had their own Chamber of Commerce, this might be the picture that they would put up on their website, right there.

Personally, I'd prefer to see some vegetation. Although I know that from a levee maintenance perspective allowing vegetation on levees can create a lot of problems, both physical and financial. One of the problems, as well, with vegetation like willows on levee slopes are: they don't stay put; they don't stay at the bottom of the levee, there's a constant migration up through that area, as long as they can get to water. So, it is a constant battle for the maintainers.

This levee would not present much of a problem for flood fighting; we would most likely just work around the trees that are in that area. You can see that area is rocked already. But, it doesn't exempt it from levee problems in high water.

That's all. In closing -- you guys are supposed to get that, "in closing?" Sorry, I know you're supposed to open with a joke; I thought I would close with one -- see if you're still out there. I can't leave you with a levee-changing last word, but I will say this: following a flood in the town of [Guernville] on the Russian River, a woman was asked by a reporter why she continued to live in an area where flooding occurs so often. Her reply was: "Three-hundred and sixty days out of the year this is a wonderful place to live. It's those five days you have to watch out for." Now, the question for all of us in here today is: how far are we willing to go for those five days?

Thank you very much.