

## Text transcript

# ***Ron Sims Keynote Speech: An examination of levee vegetation policy***

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*Good morning, and thank you very much* for your gracious invitation to speak with you today.

Some might ask, why would the Chief Executive of a local government like King County have any interest in how trees are managed on levees? And what's more, why should anyone want to listen to a local government official's opinion on what seems like a mundane technical question about the role of trees in levee stability? The



answer is that any decisions about how we reduce and manage flood risks are land use decisions. Dams and levees are two of the tools that we use to reduce the risks of flooding to people and property in floodplains. These tools can also be thought of as land use "decisions" – they guide and shape development, similar to zoning regulations.

King County manages roughly 500 flood protection facilities along more than 120 miles of river. Our floodplain management program is recognized by FEMA as the top-rated program in the country. It is no boast that ours is the finest floodplain management program of any county in the nation. I have worked closely with the members of the King County Council to build upon this long history of successful floodplain management by forming a countywide flood district. This new district generates more than \$35 million a year in funding for critical floodplain management activities, including rebuilding old levees, to protect the health and safety of our citizens. So to answer the question, I'm here today because King County has a significant investment in reducing flood risks to our citizens.

King County not only has the largest population of any county in the state – in fact, we are the 14th largest county in the nation by population. We are also a county – and a region – with a remarkable abundance of natural resources, and our high quality of life is inextricably linked with those natural resources. Local

government have been partnering with businesses, environmental groups, and federal and state agencies including the Corps since 1998 to develop a federally adopted recovery plan for Puget Sound chinook and bull trout, which are protected under the Endangered Species Act. This plan is one of the most comprehensive in the nation, and is based on what must be among the strongest technical foundations for a recovery plan anywhere. A cornerstone of this recovery effort is restoring riparian vegetation and reconnecting rivers to their floodplains. As we seek to implement our public safety and salmon recovery responsibilities, we run into conflicting federal mandates that undermine our ability to achieve either objective.

I want to start with an overview of why King County cares about vegetation on levees for both engineering and ecological reasons. I want to give you my perspective on the predicament local governments are in when faced with conflicting federal mandates for protecting public safety and recovering endangered species. And I want to describe for you our long-term vision for our rivers and floodplains, and the steps that I recommend we all take together to achieve this long-term vision.

In some of the press coverage of our on-going conversation about the role of trees on levees, our positions have sometimes been oversimplified to imply that King County is interested solely in habitat and the Corps is interested solely in flood protection. In reality, we know that both King County and the Corps are committed to both. Together, we have helped develop and adopt federal salmon recovery plans, and we are both fully committed to minimizing the risks of flooding in our communities. To help correct any lingering misperceptions, let me spell out our position on native vegetation: King County believes that native vegetation along streams and rivers is necessary to restore the habitat that listed species need for recovery. Two decades of experience in incorporating trees and other native vegetation into flood facility repair projects have shown that when properly designed and constructed, vegetation can actually improve the structural stability of levees. Our reliance on the use of vegetation in these repairs has resulted in increased public safety, and decreased long-term operations and maintenance costs while restoring habitat for listed species.

King County's involvement in flood protection dates back to the early 20th century and parallels the Corps' involvement in flood protection in the Pacific Northwest. Like the Corps, King County has built and maintained flood protection facilities that were originally intended to promote human settlement and economic development of our agriculturally productive floodplains. In many of our river valleys, these areas have transitioned to high density residential areas and commercial manufacturing centers.

Following major flooding on the Green and Snoqualmie rivers in 1959, we established a river improvement program and passed levies that funded flood control work during the 1960s and 70s. During those years our flood control strategy sought to confine the floodplain and channel to a narrow corridor. Levees were placed immediately adjacent to riverbanks to contain floods or to "train" the river to go in a certain direction. Miles of streambank were kept bare of vegetation and lined with heavy rock to control erosion and limit the natural

migration of river channels.

By the early 1990s we had a greater recognition of the high financial and ecological costs associated with a sole dependence upon traditional engineering approaches. Rather than relying on hard engineering approaches to fight the natural process of flooding, we adopted new approaches to floodplain management. We emphasized acquisition and removal of structures that were frequently flooded, and we used bioengineering methods that incorporated riparian vegetation and large woody debris as part of the repair of flood-damaged river facilities. By adopting a different, integrated approach to floodplain management, we have implemented more cost-effective and environmentally beneficial solutions that strive to accommodate – rather than oppose – natural river processes. Implementing these flood risk reduction solutions have reduced the threat to public safety, lowered long-term costs of floodplain management, increased aesthetic and recreational values and created a better environment for fish and wildlife.

The latest chapter in this long history of local efforts to reduce flood risks is the formation of the King County Flood Control District in 2007. An annual property tax of 10 cents per \$1,000 dollars of assessed value, or roughly \$40 dollars per year on a \$400,000 home generates about \$35 million per year in funding, which translates into a significant local investment in reducing flood risks. About 85 percent of these funds are being used to address a backlog of infrastructure repair needs, with the remainder supporting other floodplain management activities such as maintenance of flood facilities, flood awareness and flood warning, and participation in FEMA's Community Rating System program.

As I noted earlier, our comprehensive efforts to manage our floodplains earn us high marks from FEMA. We are the top-rated county in the nation under the Community Rating System program. This recognition results in up to a 40 percent reduction in flood insurance rates to residents of unincorporated King County. All told, King County has been involved with flood protection for a century, and we have worked closely with the Corps of Engineers on flood risk reduction for more than half a century. We have been successfully employing biostabilization techniques, sometimes in partnership with the Corps of Engineers, for the past two decades. This approach has been successful because it has evolved over time to reflect the best available science and our improved understanding of our rivers.

As King County and the Corps have debated the structural impacts of vegetation, over the past 20 years, the most frequently raised concerns are that tree roots will weaken levees, that the trees will fall over during floods and expose the levee materials to erosion, and that regardless of any structural concerns the mere presence of vegetation inhibits inspections and flood fights. Like the Corps, King County is very concerned with the structural stability of our flood facilities, but our research and experience has shown us that these concerns over vegetation are not substantiated, and that our facilities face far more significant structural problems than the mere presence or absence of trees.

Concerns of the negative impacts of trees were first raised more than 70 years ago in response to catastrophic flood events that in the southeastern United States. Erosion occurred around trees, resulting in uprooting and a worsening of the levee erosion. This became the basis for the Corps' national vegetation management standard. We have known for some time that the main risk to levee stability in King County is not erosion. Rather, we have found that our facilities are at risk because they were built too steep, that they do not have sufficient toe support, and that they were often built from inappropriate materials that are prone to slumping under the weight of flood flows.

There is a growing body of research, some of it discussed at length during a symposium on levee vegetation in Sacramento back in August 2007 that demonstrates how properly installed vegetation can actually increase the structural stability of levees. Tree roots can help bind the soil together, while vegetation can slow the velocity of floodwaters and reduce scour and erosion. Much of this research is coming from the Corps' own Waterways Experiment Station in Vicksburg, Mississippi. But I'm not here to provide you with a literature review, I'm sure others are better suited to that role. What I can do is tell you a little about what we have seen in our 20 years of experience incorporating vegetation as a structural as well as habitat element of our flood facilities:

First, after the 2006 flood, we noted that despite record-setting flows and over \$33 million in damaged flood facilities, none of our facilities that are considered 'ineligible' for PL 84-99 funding due to the presence of vegetation were damaged. Similar findings came in 1994, 1995 and 1996, when we found minor damage at one of our biostabilized sites, but severe damage to more than 170 rock-lined and earthen flood facilities. Since the early 1990s we have documented just one single incident of minor damage to about 40 feet of levee that occurred when two cottonwood trees were uprooted. Despite the continuing presence of damage to armored flood facilities, we have seen nothing comparable at biostabilized sites. At the same time, we have seen additional slope stability and erosion problems affect facilities where native vegetation is not present.

This experience is not unique to the Pacific Northwest. In a study of the 1993 Mississippi River flood, researchers noted that facilities eligible for funding under PL 84-99 were no more or less likely to be damaged than wooded levees that were ruled ineligible for the program. In fact, the length of damaged levee sections on vegetated levees was 50 percent less than the damages to eligible, unvegetated facilities. And in the Sacramento area, researchers found that damage rates for vegetated flood facilities were less than unvegetated facilities.

Rather than lobbying more obscure academic and technical studies back and forth at one another, let's recognize that the role of vegetation is specific to its context, and as such no hard and fast rule or policy is appropriate. We are not interested in a 180 degree reversal from existing policy. Rather, we would like to see a process that uses best available science applied alongside our own considerable experience on Pacific Northwest rivers to thoughtfully design and construct our flood facilities. Our collective goal should be that these facilities provide public safety while offering environmental benefits. We find that

responsible and careful use of vegetation on flood facilities increases the long-term stability of the structure, reduces maintenance and repair costs, and furthers federally mandated objectives for endangered species recovery.

The Corps has recently agreed to work with local and state partners to develop alternative vegetation management standards in California. While the final recommendations have not been published, the Corps participated in a symposium on levee vegetation, including presentations from local partners describing the positive and negative impacts of vegetation on levees. As a result of this discussion, the stakeholders agreed to develop new vegetation management requirements that ensured levee safety while promoting environmental values. Furthermore, the participants agreed that short-term decisions about tree-removal should be delayed while improved requirements were developed. We understand that these requirements will be specific to the Sacramento area, however, we welcome a similar decisionmaking process in which we collaboratively use science and local knowledge to develop vegetation management policies that are appropriate for the Pacific Northwest.

There is little debate about the beneficial habitat value of vegetation along our rivers. While I know our friends from the federal Services will go into much greater detail on this topic later today, allow me to share with you what the 2007 Federal Puget Sound Chinook Salmon Recovery Plan has to say regarding the ecological benefits of health riparian areas:

Trees and shrubs alongside streams, and rivers are important for salmon for a variety of reasons. Riparian vegetation helps support insects that are food for salmon, provides cover from predators, and keeps water temperatures cool. Tree roots stabilize stream banks and create habitat structure in the stream. Decaying trees form log jams that provide cover and help create pool and side channel refuges for young salmon, away from high velocity flows and predators...

The plan goes on to say, "People too can benefit from keeping or restoring riparian habitat: root systems maintain bank stability and prevent erosion on property, trees and shrubs filter out chemicals from upriver sources, help control floods and provide habitat for other wildlife enjoyed by humans."

Clearly, we are caught between conflicting federal mandates. As a local government, we seek to be responsive to the needs of our citizens. Our citizens demand, and federal law requires, that we protect public safety and promote the recovery of native salmon species. Science tells us that reconnecting rivers to their floodplains is the most effective and sustainable way to reduce public safety risks and increase the ecological health of a river. However, we find that the federal government has created a number of conflicting mandates and incentives that undermine our public safety and species recovery objectives and prevent us from being good stewards of our floodplains. These include conflicting federal policies, conflicting messages to the public and conflicting use of limited public funds.

Let me provide you with a few examples of these conflicts that place us in an

untenable position:

- Despite a recent appeals court ruling that FEMA's National Flood Insurance Program, while purely voluntary, is still a federal action requiring consultation under the Endangered Species Act, the Corps continues to contend that PL 84-99 funding is voluntary and therefore not a federal action.
- From a local perspective, the practical result of the Corps' contention that PL 84-99 is not a federal action is that all ESA legal liability is effectively transferred to the local government.

The end result is that we are required to degrade areas identified as critical habitat for federally listed species so that we can retain our eligibility for federal funding. In other words, to comply with one federal mandate we must violate another.

And legal liability is not just a hypothetical concern for us. Since agreeing to bring several facilities into compliance with the PL 84-99 program by removing over 200 mature trees later this spring, we have responded to two public disclosure requests and have been warned of a likely federal lawsuit from a national environmental organization should we continue to comply with federal funding eligibility requirements. And just yesterday a national environmental organization notified the Corps of their intent to file a lawsuit for failing to consult under the Endangered Species Act. They further noted that our continued participation in this program could increase our risk of violating the Endangered Species Act. I take great pride in this county's leadership role in developing grass-roots watershed-wide salmon recovery plans. I do not relish the idea, after all of this effort, of being sued for violating our own local plan and degrading critical salmon habitat in order to remain eligible for federal funds.

While the Corps does not consider tree removal to be a federal action and subject to ESA consultation, the Corps has required us to consult for our tree removal mitigation activities. Apparently, we do not need to worry about adverse environmental impacts from habitat degradation, but we must demonstrate that our efforts to restore riparian areas will not harm listed species.

- While we are placing permit conditions on developers requiring them to limit their footprint and undertake expensive mitigation actions to prevent degradation of our rivers, at the very same time that we are actively and routinely degrading these same areas in order to be eligible for federal funding.
- Those of you from outside Puget Sound are not aware of this, but King County has recently battled to strengthen the regulations that protect our rivers and streams, and we have successfully defended the scientific basis for our regulations all the way to the Washington State Supreme Court. Needless to say, after all of this effort our citizens rightfully expect us to adhere to the same standard to which they are held – and to exceed that standard.
- The Biological Opinion on FEMA's National Flood Insurance Program further recommends that FEMA provide funding for levee repairs that are

ruled ineligible for PL 84-99 funding due to the presence of a higher riparian vegetation standard.

- The many participants in salmon recovery efforts in the Northwest are asking volunteers to plant trees, and we've responded – for example, we planted more than 80,000 trees in King County alone last year.
- We've also asked people to change their individual behaviors to protect and restore habitat for salmon in the Northwest, and they've done so.
- On the surface, 80,000 trees planted in just one year seems to trump the 200 trees we are being required to remove from our levees. However, the region's significant investment in public outreach, education, and riparian restoration can be undone very quickly if our actions are not consistent with our own rhetoric, not to mention the rhetoric of a federally adopted salmon recovery plan.
- Every time we bring a levee into compliance by removing functioning habitat, we have to plant four trees for each tree we remove. We must also install large wood to mitigate for the lost natural recruitment of the wood that would have occurred over time had we let stand the trees we were required to remove.
- Presumably, we'll have to repeat this exercise every 10 to 15 years to ensure that vegetation on a given levee did not violate the Corps' vegetation management policy by reaching maturity and providing functioning habitat.
- The inevitable result of this endless loop of planting and cutting, planting and cutting, is that we will run out of places to mitigate our impacts along our rivers, and we would be forced to take facilities out of the program in order to use them as mitigation sites for those facilities that remain eligible.

Perhaps the crowning ironies though, are that to retain eligibility for repair to damaged armored riverbanks we must:

- Cut trees that have been shown to stabilize river banks and protect public safety,
- Cut trees planted for the express purpose of stabilizing riverbanks and protecting public safety, and
- Cut trees planted to comply with the Army Corps' own permit requirements.

There is simply no rational way to explain any of this to our taxpayers, or to our environmental advocates. In these harsh economic times, we simply cannot afford these conflicting mandates, these conflicting public messages, and this ongoing inefficient expenditure of limited public dollars. The public will not support failures or half-measures for protecting public safety, nor should they. And they also will not support half-measures or failures in protecting and restoring our natural resources.

We have been seeking a different science-based levee design process since about 1990, when we began incorporating vegetation into our project designs. After the floods of 1996 we worked with the Corps, other floodplain managers on both sides of the Cascades, the States of Washington and Oregon and tribal nations to advocate for a regional variance that would enable the Seattle District

to allow more vegetation than prescribed under the 1930s-era national standard. We greatly appreciate the Seattle District's efforts to obtain a regional variance from the national standard, but even this regional variance is not sufficient to ensure levee safety, and it is woefully insufficient to support recovery of threatened species. We ask you to join us in finding a regional solution that reflects the best available science and our thorough understanding of our local river systems.

It has now been more than a decade since Puget Sound chinook and bull trout were first proposed for protection under the Endangered Species Act. During this time we have seen additional listings for steelhead and also for Puget Sound orca populations, which shouldn't come as a surprise, since chinook are the major food source for our local orcas. It has been three and a half years since critical habitat was designated for chinook, and more than two years since the federal government adopted a Chinook Recovery Plan that included a call for investing more than \$120 million over a decade as the first step in a recovery effort that will likely take 50-100 years.

This plan assumes, and the Endangered Species Act requires, that federal authorities such as PL 84-99 funding will be applied to the maximum extent feasible toward supporting recovery of listed species. Despite the considerable amount of time, effort, and statements of federal commitment to salmon recovery, we are still dealing with a federal mandate that calls for mature riparian vegetation and the removal of the armored levees that disconnect our rivers from their floodplains, while we are granted federal funding only if we remove trees and armor riverbanks. The minimum eligibility requirements of PL 84-99 require us to sustain factors of decline for listed species rather than reversing them.

We know from our experience that public safety and salmon recovery are not mutually exclusive. Indeed, we have an opportunity to apply the lessons from the last 20 years to increase public safety while promoting habitat restoration, salmon recovery and a sustainable economy. Our citizens expect us to find creative solutions to seemingly intractable problems, and we would be irresponsible to choose one objective over another when we know we can effectively and efficiently achieve both.

So what is our alternative to these conflicts? In King County we are seeking sustainable land use decisions in our floodplains so that we may reduce flood risks, recover endangered species, and promote economic growth in the Pacific Northwest. We do not believe that these objectives are incompatible, nor are they mutually exclusive. In fact, the solutions for all three of these goals point in the same direction:

To reduce flood risks, we must limit future development in floodplains, relocate land uses currently in floodplains, and focus limited flood protection dollars on land uses that cannot be readily relocated to lower risk locations.

- In addition, we must avoid giving a false sense of security to those that choose to develop in high-risk areas. The presence of a levee should not

- lead to the conclusion that all public safety risk has been removed.
- This past summer we saw communities in the Midwest that were inundated with floodwaters despite their protection by certified levees.
  - Because the levees were certified and those protected by the levees were not required to obtain insurance, a recoverable flood event became a catastrophic disaster because residents who did not expect to be flooded did not have the insurance coverage necessary to rebuild.
  - To recover listed salmon populations, we must restore active rivers by reconnecting rivers to their floodplains and restoring riparian corridors.
  - To sustainably grow our economy, we must limit commercial and industrial exposure to high-risk areas such as floodplains, and we must not support subsidies or insurance that encourages development in high risk areas.

Until these long-term objectives can be achieved, the riverbank is, in many cases, all we have to work with. We should not lose sight of the fact that due to past land use practices these relatively narrow river corridors and the few remaining trees and intact riparian areas are the main focus for public safety, for salmon recovery, and for economic growth.

We in King County are faced with a backlog of repairs to our flood protection infrastructure that require our immediate attention. Forming our flood control district meant making the difficult decision to tax ourselves to the tune of \$35 million per year to address this backlog.

It is incumbent on us to make these repairs and rehabilitate our levee systems in ways that are economically and environmentally sustainable and support, rather than undermine, our longterm objectives.

We are taking the lead on one of the most daunting issues of my tenure: climate change. I believe it is the defining issue for humankind in the 21st century. We know that the shared public safety, economic, and environmental objectives for our floodplains are rendered even more urgent in the face of climate change. We are still at the early stages of understanding what climate change could mean for us, in terms of natural resources, public health and safety, transportation, and other fundamental aspects of our society, culture, and quality of life. Our scientists tell us that we will be facing reduced snowpack and wetter winters that are likely to result in increased flooding, which has certainly been the case this past fall and winter. The increased frequency and severity of early storms will change stream hydrology and may further limit salmon survival. Regardless of the exact impacts, we know that the science tells us we need to prepare for a range of probable and potential impacts.

I believe that 50 years from now there will be communities that are winners and those that are losers. The winners will be the communities like ours that are taking action now to adapt to the expected changes that threatened harm to our environment, our health, and our economy. How can we collaboratively achieve this long term vision for sustainable river floodplains? I offer four recommendations, along with the commitment that King County and our local partners stand ready to assist the Corps, NMFS and FEMA in whatever way is necessary to integrate federal programs for flood protection, recovery of

endangered species, and sustainable economic development.

As a first step, we can use the existing authorities in the Rehabilitation and Inspection Program to partner on non-structural alternatives that simultaneously reduce flood risks and restore habitat by reconnecting our rivers to their floodplains. In response to this summer's floods in the Midwest, the Corps is working with states and local communities to identify nonstructural project ideas to implement in the short-term, as well as developing additional projects that will be ready for implementation as funding becomes available under PL 84-99. This is a wise first step and allows local governments to partner with the federal government on flood protection projects, while also allowing the Corps to put its resources toward projects that support the Federal Salmon Recovery Plan, as well as implementation of the NFIP Biological Opinion. We in King County have identified non-structural alternatives on two PL 84-99 eligible facilities and will be formally requesting non-structural solutions at these sites.

Second, the Corps should consult immediately with National Marine Fisheries Service and the US Fish and Wildlife Service on the Rehabilitation and Inspection Program. While participation in the program is voluntary, the courts have established that decisions about how to spend federal dollars, regardless of the voluntary nature of the program, constitute a federal action that requires consultation. This is a compelling legal precedent, but we should not have to wait for several years of legal wrangling between federal agencies to make this determination. We have all signed on to federal salmon recovery plans - our citizens expect and the law requires us to use federal authorities to promote recovery of listed species.

Third, until the Corps vegetation management standards are revised, we ask that the Corps support the recommendations of the NFIP Biological Opinion. We also request that Stafford Act funds be made available by FEMA for repairs to levees that are ruled ineligible for the Corps' PL 84-99 funds due to higher vegetation standards. King County has several flood protection facilities that fall in this category, and we will be asking FEMA to exercise its existing authority and help us to repair levees damaged during the January 2009 presidentially declared flood disaster. Fourth, we encourage the Corps to evaluate vegetation management policies and regulations in the context of the NFIP Biological Opinion, and to do so in partnership with federal, tribal, state, and local agencies. As precedent for this approach we look to the Puget Sound Chinook Plan, which is built upon what must be one of the strongest technical foundations for a recovery plan anywhere. To their credit, NMFS reached outside their agency to find the best salmon scientists to provide guidance for recovery and they gave them the independence to do their jobs. We encourage the Corps to adopt this model, as you have already done in Sacramento, and update the vegetation management guidelines rather than impose a consistently inappropriate national standard.

As I mentioned earlier, decisions about levees and flood risks are decisions about floodplain land use. Levee vegetation should be part of a broader discussion of floodplain land use and integrated approaches to both flood risk reduction and endangered species recovery. As NMFS notes in their biological

opinion, this integrated approach requires the involvement of several federal and state agencies as well as tribal governments. As a national leader in floodplain management, King County stands ready to support this collaborative effort. In conclusion, let me leave no doubt that King County can not and will not compromise the safety of our neighbors or our communities. We agree with the Corps that public safety is paramount, but we do not believe that reducing flood risk is incompatible with salmon recovery. Quite frankly, our citizens expect us to do better than to artificially pit one legitimate public purpose against another. Indeed, we have found through our considerable experience that habitat-friendly approaches are also the most cost-effective means of ensuring public safety. Our citizens quite reasonably demand that we protect public safety, promote economic growth, and recover listed species, and that we find solutions that do not simply pass problems off on future generations. We have the scientific expertise to meet this challenge, but we must develop the solutions together. Our citizens expect us to apply the best available science when we develop policies and spend public dollars, and we would be irresponsible to choose one objective over another when we know we can effectively and efficiently achieve both. There is so much at stake here that it would be hard to overstate the importance of timely, coordinated action.

The time to move forward – together – is now.

Thank you.

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