Thank you. Welcome to Sacramento, here in the great Central Valley, the heart of California. My name is Ben Carter, and I hail from the small farming community of Colusa, up about 70 miles north of here on the Sacramento River. I’m a farmer so you might imagine why vegetation is near and dear to my heart. It’s actually what I do. And, that reminds me of a story of a farmer by the name of “Earl.”

Now, Earl had purchased an old, run-down, abandoned piece of property from the State, because the State didn’t have any use for it any longer. And, of course, it needed the money because it was broke. The fields were overgrown with weeds, the farmhouse was completely falling apart. The fences were broken down. And, varmints had burrowed everywhere, including the adjacent levee.

But, Earl had plans to turn the property into a working farm. During his first day of work, a preacher strolled by and stopped to bless Earl’s work, saying, “May you and God make this farm the thriving farm of your dreams.” A few months later, the preacher wandered by again. And, lo and behold, Earl’s property was a completely different place.

The farmhouse was completely rebuilt, in excellent condition. And, there were cattle and other livestock happily munching on grass and pasture. There were row crops that had been planted in neat, clean rows, and the rodent burrows were gone.

“Amazing,” exclaimed the preacher. “Look what great work you and God had done for this property.”

But, Earl said, “Yes, Reverend, thank you very much. But Father, remember what the farm was like when God was working it on it his own.”

Over the next three days, at this symposium, we will hear the results of the culmination of five years of applied research on levee vegetation. Look around you -- you are in good company. Here, under this roof, is the largest gathering of international, national, and regional experts on the -- the levee vegetation since we began this work five years ago.

Represented at the symposium, at last count, are four European countries and 13 U.S. states. It is a great honor for -- for me to stand before you today because I am humbled by the heavy-hitting roster of presenters and panelists that will come before you over the next three days. All of them are Doctors of Philosophy or have numerous initials behind their names.
And, oh -- you probably noticed: there’s a “PE” after my name. Well, in the interest of full disclosure, I want to tell you that is a typo. I am not a professional engineer or a registered professional engineer, but what do you think about “Pastoral Entrepreneur?” It has a nice ring. Certainly, sexier than “farmer,” and better than “hayseed,” which all apply to me. But, seriously, today there is a wealth of information and science, new understandings that did not exist when we started this five years ago. And, we’re going to hear about all of them.

But, let’s step back in time. It’s early, 2007, and the U.S. Army Corps of Engineers had just published a draft white paper entitled, “Treatment of Vegetation within Local Flood Damage Reduction Systems.” This draft paper called for the removal of virtually all woody vegetation from the state and federal levees in California, and a 15’ vegetation-free zone on the levees toes.

At this time, in my former life, I was serving as the president of the -- of the State Reclamation Board, which has since been renamed, “The Central Valley Flood Protection Board.” That Board, for the past 100 years, has served as the Corps’ partners in operating and maintaining the flood control system in the Central Valley. We looked at this -- this draft policy, and with the assistance of DWR and our local maintaining partners, began to realize the enormous implications of the white paper.

For those of you who did not have a chance to tour yesterday, I have a couple pictures here that I want to share. This one is up in the Sacramento Valley, actually north of Grimes. As you can see, this is -- this is the Sacramento River and it is surrounded by large, woody vegetation. Clearly, much of this vegetation has -- has been in existence for a long, long time.

The -- it is difficult to even see the levee from this perspective through the vegetation. One other photo, if I can get this to pull up. Oops. I’m a Mac guy, so this is a -- a foreign language to me. Here’s another photo, again, of the Sacramento River, but in this photo, you can see there is -- on your right, there is a -- a -- essentially, a vegetation-free levee. And, on the left, is a -- is a levee with vegetation inside the waterside.

Now this is just a -- a difference in levee maintenance activities. And, it so happens, in this particular area, there’s two different levee-maintaining agencies. These, by the way -- the levee on -- on your left has been maintained according to the State’s interim vegetation standards today. In the background, you can see Tisdale. We’re headed off to the east. So, as you can see, tremendous challenges, lots of large, woody -- woody vegetation. And, this is why this -- this symposium is so important to California.

In 2007, with this issuance of the draft white paper, our local maintaining partners were in a Catch 22 situation, where, if they fired up the chainsaws and started cutting down the trees, they would be thrown in jail by the resources agencies. And, if they didn’t, the U.S. Army Corps of Engineers would -- would remove their -- their levees from qualification of federal rehabilitation assistance.

Many of us were asking, “Much of this vegetation has been in the system for 60 to 70 years. The system has been performing relatively well. Does it really represent a risk to public safety? By
the summer of 2007, the Corps had launched a worldwide literature search and also, almost five years ago to the day, the 2007 Vegetation Symposium brought together over 500 scientists, engineers, and policymakers. And, those two combined efforts did not find sufficient science to support either the guilt or innocence of the vegetation on the levees.

At the same time, the State Reclamation Board founded the California Levees Roundtable, which was a collaborative effort to define a path forward through this Catch 22 situation. Over the course of the next year and a half, the Roundtable representing nine federal state and local agencies - - and again, I’ll try my technically-challenged skills here.

But this -- this is the cover page of -- of the presentation when the Roundtable rolled out the framework when it was completed. But it shows more important -- most importantly, the logos of the -- the nine federal, state, and local agencies. And, this Roundtable developed a -- an agreement that was entitled, “California Central Valley Flood System Improvement Framework,” or, as we fondly called it, “the Framework.”

The Framework was a short-term bridge between the 2007 Catch 22 and the long-term plan under development, which is called, “The 2012 Central Valley Flood Protection Plan.” A key element of the framework was to support research to better understand the effects of vegetation on California Central Valley levees.

And, I quote from the Framework: “The goal is to contribute peer-reviewed scientific research to support the development of a technically defensible vegetation management policy. The research will include both beneficial and harmful effects and impacts of levee vegetation, focusing specifically on Central Valley conditions.”

Even before the Framework was complete, research work had begun and the California Levee Vegetation Research Program was launched. And, it’s unclear, but I -- I believe that the California Vegetation Research Program kind of defines some of the research priorities for the Framework and -- and, those folks think that the Framework defines -- I think they were -- they were developed concurrently. But, in any case, they were consistent and the -- the Vegetation Research Program used what was in the -- the adopted Framework document as a guide to -- in terms of framing it’s research work to understand the effects of woody vegetation on levees.

As most of you know, California has spent nearly $2 billion in flood risk reductions in the last six years. And the California Central Valley Flood Protection Board has just adopted the 2012 Flood Protection Plan. This is a broad plan outlining approach to addressing numerous challenges of improving public safety in the Central Valley through flood risk reduction, while preserving and enhancing the ecosystem.

Many of the implementation details are now to be worked out on a region-by-region basis and a system-wide basis. And, I know that the stakeholders will benefit from sound science to inform the priorities and help guide the very critical decisions ahead. So, here we were today to learn about what has been discovered in the last five years about the effects of -- of vegetation on levee performance.
And, to ask ourselves several important questions. I start: How can today’s scientific knowledge be practically applied in the real world? What questions remain unanswered, and what are the next steps? Where do we go from here. No doubt, you will have many thoughts throughout the symposium. And, there are comment cards on tables in -- in the back. I encourage you to capture your thoughts, your significant insights, you questions, throughout the day and throughout the next -- the next two days.

You will have numerous question and answer opportunities with -- with each of the presenters that -- that come before you, and also with the panels. But those that remain unanswered or issues that you have, the Organizing Committee will collect those comment cards and they will -- they will then review them and pass them onto my colleagues, John McMahan and Scott Shapiro, who will be moderating on Wednesday and Thursday. And, those gentlemen will endeavor to incorporate your thoughts, concerns, questions, unaddressed issues in the discussions in those -- those succeeding days.

So, this morning, we’re going to frame the issue from the both the research -- resource agency perspective and a levee-maintaining agency perspective. In the second half of the morning, we’re going to drill down into the dirt and we’re going to look at the root of the issue. And, fortunately, we have saved the decomposition, decaying, and rotting discussions until after you’ve had lunch. After that, we’ll open up the -- the discussion to the topic of risk, and we will have a -- a wonderful panel discussion, including experts, and finally wrap up the -- the day with an evening reception. And, I hope you all can attend.

Before we started, a couple of housekeeping announcements: For those of you that didn’t find them before you came in, the bathrooms are out the rear doors and to the right or left, and I’ve forgotten which one’s male and female, but you’ll -- you’ll figure it out. If you have cell phones, please put them on silent mode and take your calls outside the auditorium.

If you’d like to flush your cell phones, you know where the bathrooms are. I often like -- would like to do that. Also, for the convenience of all these proceedings -- also for the convenience of all, these proceedings are being recorded, and all clips -- the audio clips and photos will be available on the Website. So, please, everyone, speak up and smile.

(Introduction of Congresswoman Doris Matsui)

With that, I am pleased to introduce Congresswoman Doris Matsui, representing the heart of the confluence of the Sacramento and the American Rivers, as well as many urban creeks and streams that fall under -- under the jurisdiction of the Army Corps of Engineers and our local maintaining partners.

In working with the Corps, Congresswoman Matsui has juggled the roles of rainmaker for funding and stern taskmaster for vegetation initiatives and policy. As many of you know, she has made increased flood protection a key focus of her work in Congress, successfully advancing legislation to upgrade and modernize the Sacramento Region levees, dams and management -- water management systems.
In 2010, Congresswoman Matsui was instrumental in securing over $86 million in federal funding to improve flood protection infrastructure. She is also the sponsor of the Flood Protection Public Safety Act of 2012, which aims to authorize a backlog of pending flood projects that have secured the Corps Engineers’ Chiefs Reports, but remain unauthorized by Congress.

As a leader in the vegetation policy debate and a spokesperson for the California Congressional Delegation, she has sought changes in the Corps’ vegetation policies over the past five years. Congresswoman Matsui introduced the Levee Vegetation Review Act of 2012 in May of this year, calling for the Corps of Engineers to adopt a regional vegetation variance policy.

Like me, Congresswoman Matsui grew up on a farm in the Central Valley, and knows well the issues that impact those of us that live behind the levee. Please join me in welcoming Congresswoman Dorothy Doris Matsui.

Doris Matsui:

Good morning, everyone. Can you hear me? Great. Thank you. I want to welcome you all here to Sacramento. Those of you are familiar with Sacramento, know it’s a wonderful place to live, work, and play. And, all we want to do here is to make it even better. So, I do welcome you here. I also want to thank, especially Ben Carter for that kind and generous introduction. And, also for his leadership on the Central Valley Flood Protection Board.

And, I know there’s others here in the audience that I have worked with these past years and gotten to know very, very well, as we had sometimes heated discussions regarding some of these issues. And, I have to tell you that, even though it’s an early hour here, the best time of the day, I think, in Sacramento is in the morning hours. And, it’s interesting because, when you think about the topic we’re dealing with today, usually people can’t see why it would be such an interesting topic.

But you and I -- all of you know -- that this creates great fireworks in many aspects of all levels of government. And, even though it seems to many people to be a very boring, mundane topic, we all know -- I hear a little laugh there. We know it isn’t. And, it’s us to us to ensure that we move forward on finding solutions.

Because, as you know, with flood protection and all issues regarding water, I work both on the side of keeping us protecting us protected from water, and on the other side, is trying to figure out water supply issues. So, sometimes, I have a very -- oh, I don’t know, divided type of existence, you might say. But, particularly since I represent Sacramento, Sacramento is the heart of the region. And, the history of Sacramento has already determined where we need to be, as far as flood protection.

And, because of that, we have, through the years, been on the front lines as far as the need to -- for protection, the need to think about structural elements and nonstructural elements to ensure that we think about all the people who live behind the levees. Now, I’m reminded, and I think you see it on television all the time, that tomorrow is the seventh anniversary of Katrina. And, it reminds us that levee building business is not just an exercise. Real people, as I say, live behind the levees.
In Sacramento, levees and flood control systems have many needs. And, time is of the essence. And, I don’t want to have a flood event for us to be reminded of that all the time. We need to make real progress in the shortest time possible. And, issues like vegetation on levees have a relevance. But, let us not forget, or lose sight of, delivering a project before it is too late.

You know, I fundamentally believe we need to find the right balance, ensuring we have the strong and safe levees and prudent fiscal and environmental considerations. So, I thank you all for your hard work on this issue. And, it is my sincere hope that your thoughts and research will lead us all to a positive resolution.

Since 2007, I have been paying close attention to the Corps’ vegetation policy. I was probably one of the first members of Congress to publically raise concerns about this. And, since then, it has been something that I continually raise in my conversations with my colleagues, as well as Secretary Jo Ellen Darcy and other top Corps officials in Washington.

Like many of you, I am very concerned with the Corps’ current approach to a levee vegetation policy and their so-called “variance policy.” And, I would like to use my time this morning to share with you my perspective on where we are, where we’re going, and how each of you can be helpful.

Sacramento is my home town. It’s a wonderful place to be from. I love living here. And, it’s surrounded and protected by levees because we live at the confluence of two great rivers. And, we have found ourselves a Ground Zero on this issue. Over 400,000 people live behind a levee in this region. Most importantly, we depend on a levee system to keep us safe.

But, those same levees, especially along the American and the Sacramento Rivers, also give us incredible recreational opportunities and constitute some of the last remaining riparian habitat in the Central Valley. As we all know, the Corps’ policy would require a fundamental change to most of our levees.

It could force thousands of trees to be pulled out and the levees to be rebuilt. This would result in the loss of shaded habitat for both aquatic and terrestrial species. But most importantly to me, in a time of shrinking federal, state, and local budgets, it could lead us down a path that makes levee improvements too costly to implement. It very likely could divert our attention away from necessary levee fixes to secondary issues that, while important, are not nearly as pressing.

And, I cannot believe in the year 2012, a government agency can take such an approach. I understand wholeheartedly the criticism the Corps had taken in the aftermath of Katrina. But much work has been done since then. But this policy and a number of their new policies are wreaking havoc in communities across the country.

For us in Sacramento, this is not just an academic exercise of, “Are trees good or bad for levees?” This is a reality on the ground that we face with each foot of levee improvements. Many of you are likely aware of the Natomas Levee Improvements taking place just a few miles from here. One hundred thousand people live behind levees in Natomas.
The Corps, itself, certified that the levees in Natomas has 100-year protection in the late 90’s. But by 2006, after Katrina, it became clear that there were serious issues with the levees, mostly [unintelligible] concerns. The state and [SAFCA] rightfully, aggressively moved forward to put in place a levee improvement program that would make those levees safer.

They initially developed a project that would take seven years to build and cost about $414 million. A few months later, the Corps came out with their Vegetation on Levee policy. SAFCA and the State had a choice: to challenge that study or move forward with a project to protect the 100,000 people living the area. They did the right thing, and dutifully modified the project to be in compliance with the vegetation policy.

They applied for and received a variance from the court and ended up building a new levee adjacent to the current one, away from existing trees and encroachments. This new project has a price tag of over $800 million and could ultimately reach over a billion dollars before it’s done. It will not take over a decade from state to finish, but it meets the Corps’ vegetation guidelines.

Because so far, much of the work on Natomas has taken place in rural areas, there has been land available to build adjacent levees. That is not going to be what’s going to be happening as we move further south into the more urban area. It’s going to get harder and harder and costlier to complete.

You know, I’m not here to argue against the Corps’ policy in totals as clearly we must be vigilant about threats to the stability and safety of our levees. But, I am here to say that many of my colleagues in Congress, and many of your colleagues in the flood protection business and I want sound science to guide the Corps’ policy. And, we feel that some flexibility is needed.

I believe that in this political and fiscal environment, it is only appropriate that the Corps implement a variance policy that addresses regional needs and the realities on the ground. So, the question is, “How do we get there?” I propose, and I’m sure many of you would agree, that we follow the science. Let rational thought take us down the right path. And, that is what you are doing here this week.

Scientists and engineers from the Corps Engineering Research and Development Center will present on their research. You will hear from researchers from universities as far away as the University of Georgia, and as close by as UC Berkeley. And, you will have some enlightening panel discussions made up of current and former policy makers who have lived through the same issue and can tell you about it.

A tremendous amount of work has been done by the Corps, the U.S. Geological Survey, the California Department of Water Resources, and other government agencies. We need to hear from them and incorporate their findings into a sensible federal policy. From what I’ve seen so far, I do not believe that science shows every levee in every state needs to be free of trees. The science is just not there.
We’ve heard over and over that the science does not prove that trees weaken the levee. In fact, the Corps’ own studies have found that, in some instances, vegetation actually strengthens the levees. The other way forward is through the forests of legislation. Since December 2010, my colleagues and I in Congress have been expressing our concerns each step of the way.

With all the partisan gridlock in Washington these days, we have come together, as a California delegation, in a truly bipartisan manner, to tell the Corps that their vegetation policy needs to change. I spearheaded several letters with the bipartisan support from the delegation to the Corps, urging them to change their position. After some back and forth with the Corps, we believe little progress was being made, and decided to move forward and introduce legislation.

In May of this year, I introduced HR5831, the Levee Vegetation Review Act, a bipartisan bill which was cosponsored by 30 of my colleagues. And, let me just say this: Even though we are focused on California, you are here from throughout the country. My colleagues who have similar problems and I have talked together about this.

This is not something that can be dismissed as a “California problem.” It is a national problem, and I am getting interest from people on both sides of the isle, who understand that this issue needs to be resolved. So, this will not go away. The Bill directs the Corps to review its current policy, taking in account a broader array of factors, including potential regional or watershed-based variances to the national policy.

It would also strengthen the coordination and dialogue with State and local entities, informing any regional variance. Without changes by the Corps to their current policy, I fear that crucial habitat will be lost, and key levees will not be upgraded. Therefore, we have to get this right. As I said earlier, I’ve had several discussions with the Corps Headquarters and with the Assistant Secretary of the Army on this. We’ve had senior leaders out to Sacramento to see firsthand the challenges we have, in fact, several visits, but one just recently, too.

I encourage you to invite them out to your region, too. They need to understand what you are facing. There’s nothing like seeing the expanse of the problem right before your eyes. The good news is the Corps has a chance to get this right. They are in dialogue with federal resource agencies, and their policy guidance letter is not final.

They seem to be cognizant of their Endangered Species Act requirements and do not want to violate it. Ultimately, the Corps can follow the science on this, or Congress can force them to. Moving forward is my sincere hope that the Corps works with all of us in a constructive manner. And, I hope they will.

And, I’d like to close by reminding you that we are here to have a serious dialogue about this important issue, not only for Sacramento, but for the nation as a whole. It is my hope that you will continue to engage policymakers and Congress on this issue. The lessons learned from Sacramento’s experience with this policy is that tearing down trees or constructing adjacent levees that are compliant has its costs. Those costs are time, certainly money, and the potential loss of habitat.
And, my question to all of you is, “In the year 2012, with the public at risk behind failing levees, tight budgets at all levels of government, and the dwindling river habitat, can we afford to keep going down this path, and where will it lead us?” Since each of you are really the experts, I hope that you’ll help me and my colleagues in Congress to answer that question.

And, I again, thank you for your hard work, your own collaboration, and the ideas that you brought forward in this process. It shouldn’t take this long since we’ve been doing it for quite some time here. But, I’m hoping that we will get to some resolution that will be the right thing to do. And, I look forward to continuing to working closely with you as you deal with this critical issue in a timely manner. Thank you so much.

(Introduction to William Stelle)

Ben Carter: Ladies and gentlemen, as Mark Twain opined, “Do not tell fish stories where people know you. Particularly don’t tell them where they know the fish.” Based on his CV, it’s quite clear that our next speaker, Mr. William Stelle knows the fish. Mr. Stelle was appointed as a Regional Administrator for the Northwest of the National Oceanic and Atmospheric Administration’s National Marine Fishery Service in May of 2010.

The Northwest Region administers fisheries, endangered species, and marine mammal programs off the coasts of Oregon and Washington, and in the vast inland watersheds and habitats of the Pacific salmon and steelhead in Washington, Oregon, and Idaho. He is also the West Coast Salmon Coordinator. So, ladies and gentlemen, let’s put our fins together and welcome Will Stelle.

William Stelle:

Thank you, Ben. I’m going to try to move fairly quickly here, but let me first of all find where my presentation is. Hold on for a second. I’m working on it, Steve. Okay. Now -- nope -- didn’t. I think I’ll leave it there. First of all, let me say thank you all for inviting me to speak to you today. I appreciate it, and, Peter, you and the Sacramento Area Flood Control Agency and all the symposium sponsors.

I’m going to move through my presentation fairly quickly because time is limited. And, then, I will welcome comments or questions from you as we proceed. Now let me figure out, how do you do this? Starting out with the basics: First of all, this is not a debate about public safety. Let me preface my comments by saying

Ben Carter: I’m just make this [unintelligible].

William Stelle: Yeah, go ahead. I’m going to be speaking to you, as Ben said, from a fisheries and aquatic perspective, and run through the -- the, sort of, high-level profile of the scientific information that is pertinent to the issue of levee vegetation and aquatic function. At the -- at the heart of it though, the Corps message, I think, that you will both understand and delve into is that
this topic ought not to be a question of either/or. It is not a question of public safety or aquatic function. It must be -- it must be embraced as an issue of both.

And, it is fully capable of being so embraced. So, let me start out by saying, this is not an issue of public safety. Levees vegetated with trees and shrubs support the protection and recovery of ESA-listed salmon. Woody vegetation on levees helps stabilize river banks, which enhance levee safety for the public and provide quality habitat for salmon. Now how do you -- how do you make this advance?

Ben Carter: This way. Down arrow?

William Stelle: Okay. Good, thank you. Not sideways. So, managing levees for public safety and salmon. There are differences between the Corps of Engineers, levee vegetation standards, and salmon habitat needs, where levee form the riverbanks, and these differences create the conflict. This conflict is west coast-wide, in “salmonland,” as I refer to it, reaching basically from the borders of British Columbia down to Southern California, where NOAA Fisheries have listed salmon and steelhead populations under The Endangered Species Act. These differences pose a choice for us, collectively.

We can work together to find compatible solutions that better balance the risk -- public safety risks and aquatic risks -- and provide for both salmon habitat function and levee safety, or we can choose not to, and we can duke it out. And, that, ultimately is the choice for us, collectively, as Congresswoman Matsui so ably put it.

So, let me sketch where we are. As you well know, a levee sponsor -- a federal levee sponsor, must comply with the ETLD Engineering Technical Level, to participate in the Rehabilitation and Inspection Program or, get a variance from the Corps of Engineers, based on a system-wide improvement framework, as per the so-called “Policy Guidance Letter.” So, you can either adhere to the existing levee vegetation standards, or work up a system-wide alternative and get it approved by the Corps of Engineers.

Key issues: Does the Corps of Engineers Levee Maintenance Guidance, under the ETL, satisfy the best available science obligations under the Federal Endangered Species Act? And, doe the PGL and swift options properly reflect the Army Corps of Engineers’ nondiscretionary obligations to conserve salmon under the Endangered Species Act? These are -- these are fundamental issues.

Currently, NOAA’s response or answers to these -- to the first question of, “Does the current levee veg policy reflect best available science?” The answer to that, in our view, is no. And, it’s not close. The second, the answer to the question is, “Can we reconcile the levee veg policy and guidance with salmon habitat needs under the Endangered Species Act?” The answer is, “Maybe. We’ll see how it turns out.” And, let me explain a little bit on both points now.

First of all, what do salmon need? Think of -- think of a river, and riverine systems, as a complex, living, organic system. It’s not just a channel, and it’s not just what you see. It’s much
more rich and complex than that. Fish need cool water temperatures. Temperatures are vital. They need complex habitat with irregular shorelines, large wood, and things to eat -- bugs.

They need rearing habitat that include off-channel [refugia] and shade. This is where the little kids go to rest, to hide, to not get eaten, that kind of stuff. These [refugia], this off-channel complexity, enables juveniles to mature as they transition from fresh water down to salt water, and radically increase their ocean survival rates. So, again, a riverine system is not a hose. It’s a riverine system with a huge and wonderful amount of complexity. It’s why I do this stuff.

It’s really wonderful. Simplifying habitat structure and limiting litter fall, insect drop, shade, woody material, and bank cover, is not good for fish - not good for aquatic function. It’s really easy to understand if you just stand by a natural riverine system and look at it. You can really get it. Disconnecting flood pains and riparian areas also -- they block the natural processes of -- of flows in and out that produce this healthy riparian habitat, is also something that ill-formed levees do.

Levees and the -- the elimination of riparian vegetation eliminates shade, and, thereby, increases what they call, “thermal loading” to the water. It’s call “sun,” which increases temperature, which decreases aquatic productivity. And, then, finally, the levee systems themselves cut off the [hiparetic] flows, the subsurface flows, that is part of the river system. And, if you imagine looking down at an infrared photograph of a stream channel, what you’re going to see is, you’re not going to see just a narrow channel of the surface water.

What you’ll see is a large and undulating topography of the water flowing through that system. This is - the subsurface flows in the riparian areas that are absolutely vital for maintaining water temperatures and the system, itself. And, when you build levees, you -- you crush the access of that subsurface flows in and out of the surface system. Levees with trees and -- levees with vegetation on it support salmon by decreasing flow velocities near the levees and supporting juvenile fish rearing and adult migration. You don’t just flush the kids out.

Increases thermal regulation of near -- of nearby waters because of shade. Makes total sense. Insures input of leaves that are at the base of the food chain that supplies food for rearing fish. Food sources. Provides substrate for both emerging aquatic insects and insect drop from branches into the water for fish food. Deliver -- and it delivers woody material to aquatic ecosystems -- absolutely vital.

We used to call it in my world, “large woody debris,” but “debris” was judged to be too pejorative a term, so now we refer to it as “large woody material.” But, it’s absolutely functioning for the -- absolutely vital for the complex functioning of that riparian landscape.

A quick sketch on Puget Sound and the impacts on levees on Chinook recovery. Low gradient floodplain habitat is reduced significantly in many Puget Sound watersheds. Nothing new there. It’s flat land. It’s where the cities have grown. It’s where suburbia is grown, and it’s also good for farming, cause it’s flat and rich soils. It’s the floodplain.

Levees occupy much of this habitat eliminating the diverse salmon needs for those low gradient complex channels. And, I think probably about 90 to 95% of the low gradient habitats have
been eliminated through population development and agriculture. Salmon will not recover without adequate, low gradient habitat. Absolutely.

Forty-four percent of the hundred and -- two hundred levees in Western Washington, 44% - half of them -- are eligible for the Corps Levee Program, covering seven basins that are the -- the houses, the watersheds for these Chinook populations. What that means is that the Corps Levee -- Levee Vegetation Policy is highly relevant to rebuilding the productivity of these low flood plain gradients, which in turn, is absolutely essential for rebuilding the Chinook populations. And, if we don’t do it, we will not be successful.

Another case study, Sacramento River. You all know this quite well. The main stem is about 400 miles. The tributaries and slues are another 400 miles, meaning this is a huge area, a huge aquatic system. Flood bypasses and canals are another 300 miles. Total levee mileage is over 1,000 - 1,000 miles of -- that will be affected by how we manage and maintain these levees. Riparian habitat loss is, again, about 95%, which means that it’s a real chokehold -- or chokepoint -- on the rebuilding of aquatic function in this system and salmon and steelhead populations.

Back in the early 2000’s, NOAA fisheries issued what is a called a “Jeopardy Biological Opinion” under the Endangered Species Act to the Sacramento District on the current levee maintenance standards associated with the Sacramento River Bank Project. And, again, the basis of that Jeopardy Biological Opinion was the impact of the levee vegetation standards on aquatic function. And, trying to maintain the proper kind of vegetation to promote aquatic function was a key set of recommendations in that Biological Opinion.

And, here’s a graphic of a profile of the various zones of a riparian system and its relevance to aquatic function. And, again, right in the -- right in the immediate adjacent areas of -- around the river channel itself or stream channel, you see large vegetation, which is absolutely essential for all of the early reasons I cited: food, shade, habitat complexity. And, at the top, you have road access at the top of the levee for levee maintenance and inspection -- absolutely vital for -- for the public safety functions.

And, this, in my view, is a graphic illustration of how we can have our cake and eat it, too, in this context. We can maintain a properly functioning levees for purposes of flood control and public safety, and we can also maintain the aquatic functions that are absolutely essential for the Clean Water Act and ESA obligations, as well. Where you have good habitat, you have healthy fish populations. And, it’s not close. They’re huge multipliers here when you have a complex riparian system in the floodplain, as compared to a hose.

The numbers will vary here. We cite about five to six times as many improvements in survival rates for juveniles in a healthy complex systems. Again, pictures -- pictures are worth a thousand words: If you walk a healthy wooded stream, you’ll understand it in an nanosecond. There is a growing body of evidence that supports what I’ve just sketched out to you. This is not a close call, and I cite a couple of the reports here. You all are probably highly familiar with them.

Woody vegetation protects human safety. Why is vegetation not only not bad, but arguably good for levee maintenance, from a public safety perspective? Roots bind the soil network. Roots
and vegetation decrease moisture content in the soils, through trans-evaporation. Root systems and vegetation slow flood waters near the banks, which reduces erosion. They can buffer against the abrasive effects of passing sediments in the main stem. They can increase deposition of fine material in building the riparian areas, and they can reduce scouring and slumping.

So, what would we posit would be some of the key strategies? Include trees and shrubs in levee projects and strategically manage their growth to better achieve public safety and fish habitat functions. Plant trees near the toes of the levee slope to increase safety. Doing so will reinforce the effects of the roots and increase the counterweight effect of the tree-to-slope movement. Design plantings to allow equipment access during floods. Access is very important. And, encourage more research on how to balance better the integration of these risks: flood risks and aquatic function risks. And, I’ll come back to that.

Holistically assess the risk on a case-by-case basis. Allow trees and other woody vegetation to grow on the lower half of the river side levee face. Plant appropriate vegetation species in suitable sites to minimize safety risks, while increasing habitat function. These are solutions that are staring us right in the face. As a general matter, when you hear some of this stuff, you’ll -- you’ll hear typical responses of, “why this won’t work.” And, what I’ve sketched here are some of the typical responses and the responses to that.

“You’ll -- if we have trees they’ll fall over and rip up the integrity of the levee.” Well, you can top the trees and reduce the likelihood of collapsing trees that will do that. “Hard to inspect. If we got trees and vegetation at the toe of the levee, we can’t inspect it to make sure it’s remaining it’s engineering integrity.” Well, maintain access points. Not hard. “Flood fighting capability, loss of conveyance, etc., etc.”

Relevant to what you’re doing here today, is we believe that additional research is absolutely essential on these different aquatic habitats in order to better balance the risk. Scope, fund, and implement locally relevant scientific studies on the effects of woody vegetation. Recognize that local conditions matter. Local hydrology, types of vegetation, soil types, species needs, and failure modes are all in the mix. Cooperate in the management of levees for public safety and the conservation of salmon and bull trout habitat.

Apply the intent and ideas identified in salmon recovery plans to guide repairs undertaken with the Corps Levee Maintenance Program. Where levee maintenance can be managed with willing partners, do so, and do so on a scale that is watershed-based. In Puget Sound, we have avoided the litigation track, thus far, successfully, and that’s probably a good thing.

We have adopted a system-wide improvement framework, by which we will try to devise, with the Corps and the local levee districts, larger scale watershed-based scales approaches to maintaining the flood control functions in those watersheds. And, we are cautiously optimistic that we’re going to work this out and we’re going to work this out in a way that will be successful for both public flood control risks and for salmonids and other species.

We will be identifying flexible treatment regimes on a site-by-site basis for levee maintenance and monitor the results. We will be doing this on a watershed-by-watershed basis, and
it will be highly collaborative with local governments, the tribal governments, the State, and the Feds. Again, key points on the basics of the science underscoring this issue.

And, the key point here is that, we believe that the weight of evidence is that there are points of reconciliation here that can both achieve the public health risks associated with flood control, and the aquatic functions that we need that are absolutely essential for rebuilding salmonids.

Let me close by going back to the beginning and cite to you the fundamentals of the Endangered Species Act. The Endangered Species Act, first of all, is not just a NOAA thing, or is not just a Fish and Wildlife Service thing. Both those agencies administer it, but it’s a statute -- a powerful statute -- that applies to all of the federal agencies and others, as well, including the Corps of Engineers. And, these obligations to conserve endangered species are nondiscretionary obligations that are fully applicable to the Corps, to us, to the Highway Administration, etc., etc.

Those conservation obligations also have a very important principle that lies at their foundation. And, it is the decision-making on what is going to be essential to provide for the conservation of listed species must be based upon the best available science. And, this is a bedrock principle in the administration of the Endangered Species Act program. And, again, fully applicable to all of the Federal agencies.

So, this is just not best available science on Monday, Wednesday, and Friday. This is all the time. And, those are legally binding obligations. And, my point in raising this, coming back to this, is to express a high degree of optimism that what you are doing here, today, in this -- this week, in this symposium, is highly relevant to problem-solving, and it will be used, because there is no choice but to use it.

So -- so, while we may get frustrated at the lack of apparent progress and setbacks from time to time, keep your eye on the ball. And, keeping your eye on the ball is developing better systems to integrate these risks so as to provide us, the policymakers, with the analytical and quantitative tools to best balance these risks to achieve the -- the multiple obligations that are in play here: public safety obligations, flood control obligations, aquatic health obligations, and Endangered Species Act obligations. Keep your eye on the ball, have confidence that what you do is highly relevant, and do good words. Thank you very much.

Questions:

Ben Carter: Will, thank you very much and I’ll -- we’ll take a couple questions. Ladies and gentlemen, we have time for two questions, we’ll make this -- but we’re going to take it out of your break. So, do we have any questions from the floor?

Yes, please, if you would introduce yourself and we’ll try and restate the question.

Susan Tatayon: Susan Tatayon with the Major Conservancy. Good morning, Will. I just want to ask how you avoided the litigation in Puget Sound. What were some of the ways that you avoided arriving at litigation?
William Stelle: A couple of -- a couple of ways. I think, actually, a key element of it was the Corps of Engineers, frankly, where the Corps district and division understand well the complexities - the risk management complexities that are in play here. And, they -- they approached the other governments, ourselves, the State, Indian Country, and recognizing the superficial polarity that has tended to occupy this -- this discussion.

The Corps, basically, came to us collectively and said, “We think that there’s a way to work this out. We have confidence that we can work it out with you and we want to give it a try.” And -- and, so, I would say that a key component of it was actually the leadership of the Corps at the local level, recognizing that the national framework has some flexibility into it.

Whether or not that is superficial or deep, I think, is an open question, but the District advocated absolutely to, “Let’s try to work within the system, develop a system-wide approach to managing risks -- which is totally right -- and let’s take this as far as we can.” So, I think that was actually key. The litigation route just -- I actually am very comfortable with getting sue cause it happens all the time. So, you know, take a number and get in line, as far as I’m concerned.

But some of -- some of the institutional responses is that -- is that when you get sued, then the lawyers take over and everybody kind of shuts down and gets very defensive. And, you end up -- you end up chilling the kind of, “what if” conversations, the informal conversations, the exploratory conversations -- that are absolutely vital for problem solving. So, I think, in part, some of that’s occurring here, too, where the fact of litigation is causing everybody just to go to their corners and clam up.

Ben Carter: One -- one last question. In the back.

William Stelle: Glad you can see.

Ben Carter: Yeah. The microphone is on the way.

Phyllis Meyers: Hi. My name is Phyllis Meyers and I work for King County.

William Stelle: Oh!

Phyllis Meyers: And --

William Stelle: Where’s King County?

Phyllis Meyers: There -- there are three of us here today.

William Stelle: King County is a little county in Puget Sound, by the way. Go ahead, Phyllis.
Phyllis Meyers: So, I’m just wondering how NOAA can engage the Corps Headquarters people in a way so that they take the ESA’s salmon needs as seriously as seriously as their levee vegetation standards that are -- accordingly to my understand -- from the last millennium -- is, you know, standards that were developed for the hurricane region of the United States.

William Stelle: How can NOAA engage the Corps of Engineers at the national level to -- to explore these -- these issues? Talk to them, Phyllis. And, those -- both informally and formally, but mostly -- most important is informally, I’ve talked to the leadership of Civil Works a number of times on this topic and those -- those discussions will continue energetically. So, I’m -- I’m, again -- I’m absolutely convinced that this is a solvable matrix, totally.

We’ve got -- we’ve got a ton of science and this is not a failure of science. It’s a failure of problem solving. And, I think we just collectively need to re dedicate ourselves to problem solving. And, it’s not a hell of a lot more complicated than that. So, I’m generally optimistic because it is a problem that needs solving. We’ve got the information that can solve it, and we will do so. We can do so sooner or later, but we’ll do so. Again, thanks very much.

Ben Carter: Mr. Stelle, thank you very, very much for coming. I think Mr. Stelle accurately characterized the situation in California and it is heartening to see progress being made north of us and -- and I think those of us in California look forward to and watch with great interest what’s going on up in -- in the Pacific Northwest.

[Introduction to Anthony Wright]:

Now, we will hear, actually, from one of Mr. Stelle’s partners on framing the issue of -- the role of science from a state perspective.

When Washington Governor Chris Gregoire appointed Col. Anthony Wright Director -- Executive Director of the Puget Sound Partnership this summer, she said, “Tony’s experience is widespread, from project management to business development and finding practical solutions to difficult problems. He’s a proven leader and a relationship builder who shares my passion for restoring Puget Sound.”

Until his retirement in 2011, Mr. Wright served as District Engineer and Commander of the U.S. Army Corps of Engineers Seattle District. He oversee more than $2 billion in construction projects, including ecosystem restoration, dredging, and levees. And, in that position, Col. Wright led the development of interim measures to restore the flood storage capacity of Howard Hanson Dam. Please help me in giving Mr. Wright a warm welcome here to this California Vegetation Symposium. You know how to operate this puppy.
**Anthony Wright:**

I don’t know. Let’s see. We’ve got to get out of his presentation first. Okay? I’d rather brief Will’s presentation, frankly. So, there we are. Okay. And--

**Ben Carter:** That little guy right next to you.

**Anthony Wright:** Yeah. Great. Okay. Good morning, everyone. The -- it’s kind of tough at this point because I’ve done conferences a lot of times. You don’t want to be the person right after lunch. You definitely don’t want to be the person after the first break, or right before the first break, because you all’s coffee’s starting to wear off. I can see it. Most of that fourth row has already been sleeping. I’m not sure if that was Will or the lack of caffeine, but we’ll -- I’ll chat with him about it later.

So -- so, I come to this kind of as a state perspective. You know, the first disclaimer, you need to know, I’ve been in the job about 35 days working for the State. So, you may hear me say things like, “we,” when it refers to the Corps and stuff, but you need to know, I don’t speak for the Corps. I’m an -- an old retired dude and I had some time, though, as a Seattle District Commander and he gave you some insight onto this issue and I worked closely with NOAA Fisheries and with King County and a lot of other people trying to figure out a way to navigate out of this mess.

Okay. My job now is to get Puget Sound healthy. It’s a damaged ecosystem. It has a lots and lots of problems. Unfortunately, it looks pretty good on the surface, but we have many areas that we’re working on and that’s the role of the Puget Sound Partnership, the agency that is tasked with coordinating the State response to recovery of Puget Sound and facilitating federal, local, and NGO and tribal activities associated with it.

So, one of our targets, though, is flood plain recovery. Now, we think the flood plains are degraded. Will covered this as a scientist far better than I can. I don’t have -- you guys are a bit intimidating. You all have lots and lots of cool letters after your names. I don’t have any neat letters, except “retired,” I guess.

But, the -- my -- the point here, though, is that we have several targets with Puget Sound Partnership and we’re trying to recover that. It seems like a small number, but when you look at the - - the population growth that is occurring in the Puget Sound area, you can see that even holding your own is difficult when it comes to flood plain management.

As such -- and, I’ll show you some pictures here -- I don’t -- I think this is the most words that I have on a slide, but -- I want to talk to pictures cause they kind of show the problem. We’ve talked about it already. You’re aware of the problem. My point here today is to not tell you there’s a problem, because I think you wouldn’t be here otherwise. It’s to talk about what I think we need from the scientific community in order to make the right policy decisions in a timely fashion.

Okay. Here we are. That’s Puget Sound, for those of you who haven’t been up there. See, if you flip it over, it looks a little bit like the Bay, but you’d have to kind of stretch your imagination. The -- it’s an entirely different type of watershed than what you’re facing here.
There are very few areas where we have sustained high flows during flood season. There’s only a couple of the watersheds where we have -- the water stays at flood stage over 72 hours. Very high energy, fast floods up, down and gone, for most of the Puget Sound watersheds. That’s important when it comes to everything from the water quality standards to the levee designs.

Okay. We talked about this already and Congresswoman Matsui, I think, framed this extraordinarily well in the discussion that, it’s easy when you’re out in farm land and you can set the levees back. And, that’s the best option. The -- the owners of these warehouses would not like having the levees on the opposite side of their -- their structures. And, extraordinarily high value strength -- the biggest distribution center north of the Oregon/California border and it is a difficult spot when it comes to flood risk management.

Nooksack, on the other hand, is an agricultural area. In this case, the levee systems are overtopped frequently. The -- several levee managers are -- are sanguine about -- I think probably would be a better word than saying acceptable. But, it’s an area where we can manage the floodplain and achieve a more natural conveyance activity, better response for the environment, but also can still sustain flood risk production for the people of the Valley.

So, what’s our -- what’s our objective? Safe levees. I have no interest in compromising public safety. I have no interest in compromising salmon. I don’t think you need to. That’s the point. You all need to show me, with good peer review science, things that I can use to show my former colleagues that this is good, and this -- this merging of science -- this merging of salmon and people is a merge.

It’s not a “one or the other” deal. We get into that business, both lose. Because we’ll get wrapped up in court. We’ll -- my buddy, Will, will be sending jeopardy calls to various people, and everybody will come in here and we’ll stop doing things that are necessary, both for the fish and for the people, in terms of maintaining those levees to protect -- to protect the citizens behind them, and taking care of -- of the -- our responsibility to try to restore these damaged salmon runs.

Okay. So, I talked about this, timing. We’re making decisions now. The sooner you can answer the question, the better. And, I’m seeing a lot of those answers coming out here. And, this is the third symposium. The first one, I missed. The second one, we held up in Washington in February 2009, and I’m glad to be at this one. And, we keep seeing progress and additional information that’s necessary to help us make the right decisions.

Focus on key issues and then risks. You know, engineering and flood fighting is a uncertain operation. I see some of my former colleagues out there and, like Charles Ifft from Seattle District over there. And, we’ve watched lots of levees during floods not perform the way we thought they were supposed to.

We’ve also watched some that performed better than we expected them to because it is not a defined hydraulic state you find in a lab. There’s a lot of uncertainties, a lot of variables, changing levels of water, lots of things that happen that make these perform in an uncertain fashion. Whatever you can do to reduce the uncertainty is critical to helping us solve this problem.
Okay. So, this is my one science slide used. This is a symposium of science, so I thought I had to have something in here. It’s a chart that actually talks about temperature levels and we’ve -- we’ve plotted out on the Green River where, and modeled, where we think temperature is based on the ETL, our current condition, and where the water quality standard is and where we think lethal basis is.

We’re always above the water quality standard. We think that we might be able to get close to the water quality standard with -- with 32 meter trees and a deep buffer. That tells you that this ain’t a simple -- we can’t just fix it by throwing a couple of trees on the edges of the levees. It’s a much more complex problem. We recognize that.

The areas where we need to solve this is those critical areas next to the developed locations where it’s impossible to move the levees back and develop -- you know -- riparian vegetation would set back levees, which most people think is the optimal condition for both fish and conveyance, as well as risk reduction.

You’re not allowed to ask questions about my -- my chart. Okay. So, ERDC assessment, Will talked about this already. We got people here from ERDC. I’m not going to brief their stuff. Just like a good policy hack like I am now, I took things out of context to the report and then threw them up here on the slide to support my point.

Okay, look. We haven’t -- this isn’t our first time doing this. The Puyallup Tribe, many years ago, challenged our standards on levees in the [unintelligible]. That was the genesis for the Seattle Variance, which is kind of an interesting document when you look at its legal basis, but, in essence, it was a program where trees were left on levees that were outside the standard existing in the Corps.

Locally approved, and required engineering judgment to periodically go back and assess those -- that vegetation to ensure that it did not compromise the integrity or the performance of the levee. Been going for a long time. All -- you can ask Charles exactly when it started. But, the -- that’s given us a lot of evidence there. So, when we say, “No evidence of levee failure is attributed to woody vegetation,” that’s usually because we don’t know.

I’ve gone out to a levee and it might have been attributed to levee vegetation, but I don’t know because there wasn’t a levee there when we got there. It blew out, and we weren’t watching it when it blew out. So, it could have been that, or maybe it would have lasted longer if trees were there. There are many circumstances here where we don’t know for certain, and that comes back to you all.

Blackberries, I’m not a big Blackberry fan. I’m also, as I tell my buddy for NOAA Fisheries, Steve Landino, that I am not a fan of cottonwoods. Maybe that’s a bad thing to say here in the Sacramento Valley, but there are a lot of other nice trees that grow up in the Pacific North -- Northwest besides cottonwoods that perform better on levees. So, I’ll just tell you up front on that. But, I like Doug Firs.
So. On the ground, Nooksack, see look, grass levees get damaged, too. There’s the Green River. This is a -- this a project done by the Corps back when I was in the Corps, actually, which shows a steppe, a vegetated bench. You start seeing some of the willows that are starting to grow up there, but the idea is to incorporate some of the things that Will said.

So, Puyallup Levee. The Corps repair, alike, both of these pictures. Maybe that sounds odd, but you got to remember, I’m an old Corps guy. We -- you know, I know exactly how that rocked face levee is going to perform in a flood. It’s a very predictable environment. It’s easy for me to understand. It’s easy to comprehend it when you’re standing out there at 2:00 at night trying to predict how it’s going to respond to the flood. 2:00 in the morning, you already have a pretty good idea what it’s going to do.

The planted wood revetment, we’re getting a better idea of what that’s going to do. But, it’s that uncertainty piece which I’m asking all of you to help us with, so that we can take that information and I can take it back to my former employers and say, “Hey, look. This is what we want to do and it answers the question.” And, that’s -- if you’re hearing a theme here?

This is a nice levee. I know exactly how it’s going to perform. And, I know that sometime it will fail, too. Under the right circumstances, under the right hydraulic or hydrologic conditions, this will also do that. What you don’t see on this picture is a big bench down at the foot of this, which has been planted with -- with willows and other things to mitigate some of the effects. Is that enough? No. Go back and look at that first chart that I’m going to take questions on and you’ll see, it doesn’t get the temperature where it needs to go on the Green River.

Okay. This picture here is -- is what Will’s worried about. You see the -- the gas can in the foreground and the guy carrying a chainsaw? Okay. We talk about scientific uncertainty. The PGL perspective, you know -- is there scientific uncertainty? It depends on if you’re a scientist.

If you just completed your report and had it peer reviewed, you don’t see that being a lot of uncertainty. It’s -- it’s the integration and how we take this community, transmit it and take that knowledge and integrate it into policy, that will help us do the right things for our levees and our fish.

What do we do? Set back the levees. That’s my first answer. I -- I’d like it if Congress would just appropriate sufficient dollars to buy out everybody who’s in a flood plain, back them back 100 meters, and we’ll rebuild new levees. I think that is really good if I’m taking drugs, but it’s not a viable approach.

Okay? There’s too much going on in cities like we are here, or in the Pacific Northwest in many of those locations where it has been tremendously built up right up next to the -- to the river. So, we have to come up with smart solutions. If it’s easy, we wouldn’t be having a big conference talking about it.

Drop out of PL8499. When I was a district engineer, I had a conversation with a King County executive who told me, “Tony, I can’t afford to stay in your program because I’ll lose because I have three different people ready to sue me if I take the trees down in order to comply with
their program.” And, that’s with the Seattle Variance. That wasn’t with the ETL. And, when he said that, that kind of was, like, “Wow.”

So, how do we get to a point where we don’t have the local governments in a box? Where they’ve got the “evil” NOAA Fisheries waving the Endangered Species Act -- “evils,” like, there’s quotation marks around it, guys. So, when you do the transcript, put that on there. But -- but, you know, you got those guys on the one side, and then the Corps standing, “Hey. I don’t think you’re good.”

And, then, of course, there’s the flood insurance map thing, and what does this mean about your levees when the Corps says, “It’s not good.” All of those things crush local governments and don’t have enough money to do what they need to do in the first place. And, we’re hearing that kind of discussion, so that’s where we need to be focusing or these are the choices we look at.

We’re trying to pursue, we’re trying to stay out of court and we’re trying to pursue an approach that gets us where we need to go. I appreciate the -- frankly, the support that we’ve received from both the Washington Delegation and from the California Delegation on this particular issue, that is keeping it on the forefront as we move along.

We’re working -- we got a -- I wanted to have a 12-step program but it wouldn’t fit on the slide. So, we have a -- we’re continuing to work through these particular aspects to ensure that we can get where we need to go. You see a couple of things there. We keep the Seattle District Variance in place, as we’re approaching this.

You see delegation -- delegate the decision authority to the district or the division. We’re asking for the district, but there are several former division commanders in the room and they know that’s probably not a safe thing to do. So, we’re willing to accept that to be at the division level in Portland. And, we need to have some [ka] sharing for some of these -- some of these capital projects.

You see what we really want to do is set back the levees. If you want to have proper flood plain performance, natural flood plain performance, you need to have the levee away from the river. There are places where we can still do that and that needs to happen. As I looked at the abstracts, I see many of these things are already in here and I’m looking forward to seeing those today.

Again, I would challenge you to consider how we take your research and your future research to determine how we can both understand what’s happening and then, in the field, measure the performance of that. Recognize the -- recognize that we’re going to have climate change or we’re in climate change, but also account for how guys are going out and doing their inspections and looking at the performance in a field environment.

Keeping that in the back of your mind as you’re doing your research will be helpful because most of these decisions that are made by engineers on levees are not made in the best of conditions. You know, find common ground -- I think we’ve got a lot of common ground. Will explained about how we got these -- these superficial separations. A lot of people who really get this, but they’re committed to what they’re doing.
We -- and, it's amazing how the conversations you can achieve when you get some hardcore levee engineer saying, “I’m just here to protect people.” Okay? And, then, you’ve got this hardcore environmental activist, “I’m just here to protect fish.” And, you put them in the room together - which we have -- along with other stakeholders and the tribes, and we’ve come up with some solutions where both of those people were happy with the solution. Lots is possible -- we need your help.

You have, like, a couple minutes to ask -- ask questions. I was trying to make some time back for your, Ben. What -- what questions do you have for me? Hopefully, none, because if you don’t, that means you get to get to the coffee and pastries sooner.

Questions:

Ben Carter: For those of you who have questions on the -- on Tony’s chart, you can jot those down on your comment cards. I think we have one right back here.

Male Speaker: Good morning. Colonel and being from King County and we’ve done a little work together over the years. I appreciate seeing you here. I just wanted to let --let your -- or ask you to please clarify one comment that we heard a little bit earlier about the work in Puget Sound and it’s collaborative and I know you were behind a lot of the leadership comments that were made earlier.

But, I guess my question is more to the status. Some of the words I heard earlier I’m not sure were carefully chosen about how firm we are in having a framework in place in Puget Sound to move forward successfully together. And, I wonder if you could talk about our status there. And, just where in negotiations in term of a system-wide improvement framework and whether we actually have one for the Seattle District or for the -- the Pacific Northwest Region.

Anthony Wright: Okay. Great question. Take the mike away from him quickly. Okay, good. No. No, we -- we do, but -- and we’re making some progress, but we don’t have anything formalized. I can’t speak for the Corps, as you know. I can speak for the State. And, the Governor gave me a lot of things to do besides cleaning up Puget Sound, but one of them was to work this issue.

We -- you saw what the State’s position is on this and that’s closely coordinated with that of the County and I’m meeting regularly with the Corps to try to move this forward and get it into a firm agreement, in terms of a framework. That are a couple of options that we’re looking at that we think we have funding for for two different counties, one of which you’re familiar with.

And, where we are going with that, that decision has not exactly been made how we’re going to approach that. I’m meeting with the new Division Commander from the Corps on Friday, and this is one of the topics that we’re going to work. But, we’re committed to try to move forward with a framework. It’s been delayed a little bit by the fact that the PGL not being released has, you know -- there’s -- you know, do we wait for it? Do we go now? How do we approach it? And, we’re going to -- we’re going to march forward at this point, not without knowing whether the PGL is coming out or not.

Ben Carter: Another question? Mr. Countryman.
Joe Countryman: I’m Joe Countryman. I’m just wondering, do you accept the proposition that the Corps puts forward that vegetation is a safety issue? We’re not seeing the evidence, at least, you know, when we looked at several thousand levee incidents, any correlation between vegetation and - - and the safety issues associated with the levees. I’m just wondering, are you accepting the Corps’ position that the vegetation is a safety issue?

Anthony Wright: Partially. I don’t know whether I’m accepting the Corps’ position. I’ll tell you my position. I think there are certain circumstances where I believe that the wrong type of vegetation in a riparian zone on a levee can contribute to scour. It may or may not involved typing, but as a I told you, the hydraulic conditions associated with Seattle District flooding typically don’t have sustained, long-term, high levels of water, which is where you start worrying about piping.

We do see some concerns with piping in some of the areas in Idaho and in Montana where I have higher flows -- had. See? I told you I was going to sit -- speak possessively at least once. Okay. But, where I had higher flows. And, but I don’t think that -- I don’t think that’s a big issue. I do think that, in certain areas, wind throw down can be a problem. I do think that it needs to be considered what’s happening and what I’d like about the Seattle District approach is that there’s engineering judgment.

So, can vegetation be a risk? Yes. Could the lack of vegetation also be a risk? Yes. I don’t think there’s a -- I don’t -- I would not put myself to say that I support the Corps’ position. I support the Seattle District’s original variance thought up by somebody a lot smarter than me, that has several factors in it, including engineering judgment, most specifically, engineering judgment.

That’s why we have those people with all those letters after their names who stand out on the levees and make the right calls. So, to answer your question succinctly, I think there are cases where I don’t -- would not support vegetation on levees. I don’t think that it’s always a good thing. I also think the contrary. I’ve seen some willow battens that perform better than rock.

Ben Carter: One last question. Way in the back.

Walter Valenta: Hi. Walter Valenta, the Portland Oregon. We have levees there, too, and our city grows right, literally, into them. It’s amazing to hear about the Seattle Variance. It’s amazing to hear about Representative Matsui’s legislation. Our experience is that the Army Corps is pretty cut and dry and enforcing standards whether they make local sense at all.

So, my question to you, because of your former position is: Why aren’t the Army Corps driving this compromise? Why do we have to force them to look at this stuff? How -- what is it in their organization that -- why aren’t they being the leading edge of this discussion? Where’s the science coming from them? Why is like pulling teeth to get a fair, reasonable solution here? What can we do to have the Army Corps be a partner with us instead being the other side?

Anthony Wright: I -- Okay. I always like ending on a positive comment. But, no, I -- 1) I told you I can’t speak for the Corps. I think there are a lot of different factors involved in this. There’s a lot of risk and -- and other things that people have been considering. It’s looking at their mission. It’s the way we’ve done this.
I -- I can’t speak for Portland District, but I can give you the phone number of the old district commander who I used to work with. But, they -- I think -- I think you have some very good points and I can’t answer them because I don’t speak for the Corps, but I can tell you what we did and how we think we’re making some progress in that area -- which isn’t a really good answer for you, but the lady up here keeps holding these “zero minute” signs up to me. So.

**Ben Carter:** Very good. Tony, I want to thank you very, very much for coming down to California and sharing your pearls. Again, unanswered questions, issues, concerns, please fill out the comment cards. Leave them so that the Organizing Committee can collect those and we can attempt to address as many as possible in the future. We’re going to take a break now.

But, before you dash, please join me in thanking the sponsors of the symposium and, in particular, our four platinum sponsors, the California Department of Fish and Game, HGR, HDR Engineers, Kleinfelder, and the U.S. Fish and Wildlife Service. If you see those people out there during the break, please share your gratitude.

They -- they, along with all the other -- they, along with all the other generous sponsors were able to fund this symposium to the tune of nearly a half a million dollars. So, we really appreciate their support. Food and beverages are available in the back. We will be back here in 20 minutes. That will be 10:10. We’ll be starting. Thank you very much.