

## GEER 07 29 2008

Lynn: Good afternoon everyone! I am really delighted to join this gathering. And I'd like to start by thanking all of you for your pursuit of knowledge and your dedication to advancing Everglades restoration. I've passed my seventh anniversary at The Department of the Interior and as Ronnie noted, back in Washington, D.C., I am known as Pollyanna, ever the optimist whatever the subject, and I remain optimistic that Everglades restoration will bring back a functioning ecosystem. But as all of you gathered, all is not well yet. As I contemplated this event, I plowed through piles of research papers. I reviewed summaries of Everglades restoration efforts, an alphabet-soup of plans and studies and projects and research and, yes, some on-the-ground accomplishments. But I then gravitated to the words of Michael Grunwald. We all know him as the modern chronicler of the Everglades saga and Grunwald wrote recently and I quote, "Half the Everglades is gone. The rest is polluted, disconnected and infested by invasive species ranging from fast-growing ferns to pythons." I did have my own personal encounter with a nine-foot critter gliding through the deep grasses, a lurking invader. I first said snake. I looked a little closer and then said really big snake. The Everglades is not what it used to be. Grunwald continued. He wrote and I quote again "South Florida is having an ecological and hydrological meltdown, the legacy of a century of plumbing and dredging and growing without much thinking." The Everglades now hosts 69 threatened or endangered species and its rookeries and fisheries have crashed. Grunwald continues, "Massive algae blooms," he says "are turning Florida Bay into pea soup. The region's reefs have lost up to 95 percent of their Elkhorn Coral" and he closes. Now amid this gathering of scientists, I confess that Mr. Grunwald's colorful depiction may miss the niceties of nuance. I'm told by Paul Souza there are 67 threatened and endangered species and he misses perhaps the devilish details that are so important to empiricism, but I think as a general portrait he is not far off and few, for me, that portrait is a hard scenario for an optimist cheer. Yet optimistic I remain that the greatest wetland restoration in the world can succeed. I'm optimistic that our scientists here gathered are generating some of the best and relevant science in the world. I'm optimistic that the state and the nation want the "river of grass" to return. As Everglades National Park Superintendent, Dan Kimball, put it, "Everglades restoration is not optional." But it is also not easy. And I want to seize this opportunity as perhaps my own swan song before I leave Interior, and I want to telescope outward to a 60,000 foot vantage point and ask some big-picture questions. I also want to paint on the restoration canvas some contextual brush strokes of complexity, change and constraints. We have so many projects and plans, timelines and extended timelines, delays, and deliberations and amendments to plan that some ... many wonder if Everglades restorations will ever really fulfill our expectations. Meanwhile,

time of course, does not stand still. Stuff happens. That's the technical term. Specifically, some conditions are worsening. We see salt water intruding into once freshwater systems. Nutrient enrichment continues to transform the marine environment. Water quality, that we improved in some areas, in other areas, shows signs of decline according to some papers presented here. Some bird populations remain stressed. In Florida Bay, Spoonbills, Ospreys, Brown Pelicans, Reddish Egrets, and Bald Eagles have all shown substantial declines in nesting birds. Exotic fish perhaps entering the Everglades National Park through the canal system are on the upswing. Paradoxically, mangroves are both encroaching and receding, depending upon location. Now, it seems like with all of that it's a good time to step back and ask are we on the right track. What is success and how do we go there? Now, yes, all of you can repeat I'm sure the three goals like a familiar catechism. We want to get the water right, get the habitat right, enhance compatibility with the built environment, but the Devil is in the details. How are we translating those goals into action? I want to talk about goals and tease out a few questions inspired by the research presentations I pored through. One theme recurs, the Holy Grail of Ecosystem Functionality. Yet our metrics of success are calculated sometimes in terms of location-specific goals such as those for avian populations. Are these the right metrics? Do location-specific population targets cause us to lose sight of the forest for the trees or let us tailor that phrase? Do we lose sight of the Everglades for the blade of saw grass or a particular sparrow or individual tree island or mangrove? Think of the Snail Kite in avian ecology and the review, the multi-species review, what that bird needs is a mosaic of conditions and that is more important than the particular population numbers in an individual location. Perhaps the even larger question, though, is what future do we seek? Greek philosopher, Heraclitus, I know you all think about him frequently, once wrote, "All is flux, nothing stays still." So it is with the Everglades. There is no single pre-intervention past to provide a perfect template, no universally-accepted reference point. One study I read suggested marl prairies near Shark River Slough, rich and diverse in their biology are a 20<sup>th</sup> century phenomenon. They are through the sleuthing of environmental historians found to be a product of post-water management interventions. John Ogden at Audubon of Florida tells me that the super colonies of wading birds present in the southern Everglades prior to the 1970's were also possibly a product of altered hydrology. Are the marl prairies then the right reference point? What about the conditions that support those super colonies of birds? And in any event, is the past the right reference point in the context of a changing climate? What is feasible if temperatures and sea levels are rising? Projections indicate 20 to 30 percent less spring and summer precipitation in south Florida than in the recent past. These increases affect surface water flows, fire frequency, soil moisture species and flows of fresh water to coasts. I cannot discern in the mountains of materials and plans consistent

consideration of this climate conundrum. Surely, it is hard to get the water right without considering the effects of a changing climate. Yet, incorporating those considerations must not mire us in delays. In all the essentials, I believe what we need to do for Everglades restoration corresponds with what we need to do to build resilience in the face of a changing climate. But we may need flexibility in design and operations, different culvert sizes, for example, and more consideration of disturbance events. Restoration will enhance resilience and reduce risk in the context of a changing climate. It can also perhaps even be part of mitigation strategies. Wetlands are after all important carbon sinks or reservoirs. Some 40 percent of terrestrial carbon is tied up in wetlands. This means, to my mind, that the demise like the demise of permafrosted (sic) tundra can release more carbon than all human action in here. Yikes! I reckon that equation makes the Everglades restoration imperative and so let me turn back to the issue of goals. The questions about goals are fundamentally policy questions. Scientists ask how does the world work and what do we know? Policymakers, my universe, ask what do we care about. What values are we seeking? Now asking what do we want is not the same as asking what is. Yet, science is imperative to inform the value choices we make and the management decisions rendered. And while policymakers and scientists ask different questions, they must also be asking some of the same questions. What constitutes success? How do we get there? Scientific insights, I believe, help pinpoint the possible and define the doable. Scientific assessments help evaluate results. Those insights and those assessments are an essential link ... an essential link between actions chosen, evaluation of outcomes, and course corrections. Now, we have much scientific insights to draw from, whether on climate, ecological history or ecosystem functions. As I reviewed the summaries of the spectacular, diverse and extensive scientific research underway, several qualities of ecosystem functionality recurred, resilience, interconnectivity, diversity, flexibility, and scale, bigger being better. Yet, those qualities elude us. Exotics persist and reduce resilience. Without the benefits of decompartmentalization (sic) and more clean water, we will still lack essential interconnectivity and ecological vigor. The proposed 187,000 acre acquisition from the U.S. Sugar Corporation could enhance scale and flexibility, but big question marks persist on how this will all play out on the ground. Will this land enable us to deliver more water simultaneous with improved water quality? Should we deliver more water even at a cost to water quality? Is that a necessary tradeoff and we have barely begun even to ask what this acquisition may mean for currently-planned projects in the south. But the proposed acquisition is spectacularly bold. It sets the stage for flexibility. We can, perhaps, cut back on below-ground storage and use more passive surface water storage with these lands made available. Florida's governor I believe must be commended for his leadership. There are, however, some darker brush strokes on the Everglades restoration picture. Land fragmentation,

water, fire, invasives, these are familiar challenges, though evolving in scope and scale. But new challenges loom and I want to return for a moment to the matter of climate change. Perhaps no subject is more intriguing than the challenges and complexities of a changing climate. Make no mistake, evidence of a changing climate is significant. The effects of that changing climate cut a broad swath across lands and waters especially in the Arctic and in places like the Everglades in South Florida. The effects are not speculative and they are sometimes dramatic. For the nation as a whole, our fire season is now 78 days longer than in the 1970's. Now, I don't want to attribute all of that to climate, but perhaps there is an association. For Florida, we see changed vegetation, drier soils, changing precipitation patterns, coalescing to ultra fire intensity. Think of the very hot 40,000-acre fire in Everglades National Park last May which threatened the park and its associated communities. Now for some of the research I've read, climate could affect tree island viability. Islands are highly susceptible to changes in response to hydrologic alterations. Perhaps especially important is to single out the matter of water generally. I'm reminded of that old ditty. We have water, water everywhere but nary a drop to drink. Now the ditty, of course, is an overstatement, but the prospects of salt water intrusion render the ditty at least metaphorically relevant. Inevitably, we face complexities that accompany (sic) all human action involving time and resource constraints. First and foremost, loom possible tradeoffs. Time and resources, and here I am the policymaker speaking. Time and resources are always, always constrained in any government setting. And that means we've got to make choices. How clean is clean enough for water quality? Can we achieve ecosystem functionality best with more investment in water flows while relaxing constraints on water quality? Now, don't panic! I am neither advocating nor even proposing that tactic. I'm just asking a question, a fundamental policy question. Scientists around me tell me, woo! Anything beyond 20 parts per billion of phosphorus heads us toward cattails everywhere. So probably there are some hard and fast upper bounds to this tradeoff question but are we even asking the question and should we? And that brings me back to the matter of goals. All of us nod approvingly at the trifecta of goals but lurking beneath the surface are some basic debates that persist and those debates complicate decisions and keep us grasping for progress. Let me delineate a few of those debates. There is the "do no harm" versus "do something and adjust later." There's the question how clean is clean enough? I've already mentioned it. There's the challenge of species versus restoration. You fill in the blanks. You know the debate. There's the matter of tree islands versus ridge and slough landscapes. And there's the overarching question in a context of constrained resources, where should efforts focus first? Now, John Ogden, other scientists and some policymakers suggest we should focus on those actions that get the biggest ecosystem restoration bang for the buck. That could mean a focus on the core Everglades and downstream

southern estuaries where much of the production and abundance in the natural system occur. But many tradeoffs need not be cast as conflicts, but their resolution does require that we think differently. What then might be the path forward? Take action to get results and send a signal by the way so that those on the hill continue to support the efforts. Flexibility and incremental adaptive restoration, these are not new concepts for you. I see many nods but what ... what do these concepts mean? And do our laws, regulations and decision structures really support incremental adaptive restoration? At Department of the Interior we have issued an adaptive management guidance for the nation, not simply for the Everglades and we're issuing new National Environmental Policy Act regulations, our first ever by the way, that will facilitate adaptive management, but what about everyone else? Let me suggest a couple of elements of a possible framework for moving forward. We cannot do everything and we can't do everything at once. Perhaps the path to success is to center on those few key transformational projects initially and then build upon them thereafter. We need projects that get flows flowing and especially to sensitive areas. This point was affirmed in the Multispecies Avian Ecology Report. We need to get water into the system to stave off what otherwise may be ... may be irreversible changes to the ecosystem. Once we get those water flows, we can begin to adjust, to tinker, to fine tune, timing, direction and amounts to mitigate unintended consequences. Now I am the novice here. I don't know the answers to some of these questions I'm posing. Indeed, I barely know the questions. As I look at the trifecta of goals, one dimension seems notably less evident and that's the matter of the built environment and cityscapes. Where are they in the vision mix? Yes, the city of Naples, I read their ... their report are addressing storm water and using nature's capital to filter water. Yes, kudos to Miami Dade and its Climate Change Advisory Task Force for their major visioning of the future of that built environment. Kudos, too, to Governor Crist and Secretary Tom Pelham for their leadership in recognizing this issue of the built environment, but across all America, our built environments continue to miss opportunities to green urban space in ways that complement conservation efforts. And I don't just mean having trees and parks. I mean fundamentally rethinking city spaces to incorporate permeable rather than impermeable landscapes and parking lots. This is not just a nice to-do scenario. Such efforts can significantly reduce polluting runoff. I believe we need more intersection between the work of city planners, green-design professionals and ecosystem restoration efforts here in the Everglades. Can we think differently about that urban nature interface? Now I want to return to that refrain of Dan Kimball. Everglades restoration is not optional. Now, I'm a lifelong birder. I remember the Everglades in 1957. I wasn't born yet. It was already partially transformed, but I still remember rivers of grass and flocks and flocks of birds. But you don't need to be a birder with a passion for wildlife and the esthetics of restored environment and wild places to

know that the Everglades restoration is not optional. Water is the essence of life, yet it could be threatened by saltwater intrusion if we don't take significant steps to counter that trend. With changing climate may come increased storm intensities and the risks they pose to both human communities along with the devastation of habitat and ecological functions. One USGS study of the Gulf coast in Louisiana suggests that there, each 2.7 miles of sea marsh reduces storm surge by about a foot. Now for Louisiana with 100 miles of sea marsh 100 years ago, that meant a 30-foot storm surge when it reached human communities was a mere one foot, but those sea marshes are gone. In Florida, the Everglades is one big sponge that can moderate storm damage and provide drinking water but only ... only if we keep what's there intact and achieve restoration goals. We're talking big avoided costs using these horizontal levees to prevent storm surge damage. One study puts the value of coastal wetlands for the nation for flood protection and buffer potential at 23.2 billion, and that's with a "b", dollars per year in the United States. Some of Florida's mangroves are affected by the built ... affected by the built environment are at risk from storm intensity increase. Consider the work of some researchers that will be presented at this event. Some mangroves are simply not regenerating after storms rip through them in recent years. With the loss of some mangroves come loss of storm buffers, and mangroves appear threatened not merely by storms but by changed hydrology that affects subsurface dynamics associated with elevation rise. Historically apparently mangroves kept pace in a sort of dynamic equilibrium with sea level rise, but more intense storms and less water flows into mangroves combine possibly to impede that elevation rise and those mangroves perhaps once lost may be lost forever and that is not good for human communities and the environment. Ironically, elsewhere in the Everglades is the problem of mangrove encroachment, just the opposite, those mangroves going ever inward. What's the bottom line? Everglades restoration I believe is essential ... essential to the well-being of human communities. It builds resilience into landscapes, especially changing landscapes. But here I ask again the central question. How ... how ... how do we get that plum we all seek of restoration? Some fundamentals may need rethinking and we can do that I think through a new ... through a review of programmatic regulations. We can make, and I believe we need to make, learning a project design element. Perhaps we need to rethink the way we design, implement and assess projects or combinations of projects to maximize learning on both ecological and engineering questions. I am indebted to John Ogden for posing this question to me. Yes, we need scientific model but amid uncertainties, learning by doing is an important tool both for scientists and managers. One presenter talks of the Corps' decision process, the requirement that projects, one by one, undergo next-added-increment analysis. Now I may get in trouble with The Office of Management and Budget for saying this but say it I will. The methodology is ill fitted to the

landscape scale interconnected nature of the Everglades restoration framework. One isolated project may not pass the next added-increment cost-benefit test by itself, but as part of a larger whole, it may be an essential component of long-term ecosystem functionality. Let me turn to the matter of do no harm. Surely, Hypocrites had this notion right when it came to health interventions. Though, even there, one could conjure up counter-examples. But for the Everglades restoration, the variables are so many, the interconnections so great, that do no harm can mean an endless quest for more information and that results in decision paralysis. The Everglades itself may be at stake here, that is with the failure to take bold action we may lose our ability to recover the defining historic conditions of ecosystem functionality. Perhaps, and this is the challenge to those gathered, perhaps we need to settle on the bold, necessary, fundamentally-essential actions to get water flowing with a focus on areas, as I mentioned before, that give the greatest environmental lift like restoring Taylor Slough and flows into Eastern and Florida Bay. As we proceed, I believe we need to monitor other variables for unintended consequences and impacts and then make course corrections, adjustments and corrective responses. Now we know a lot but we can't know everything. And we need, I believe, a dose of humility I think to resist thinking that we can fine tune our plans to get everything just right in one go. Many of you, I think most gathered, are scientists. Do you know those limitations? We are not omniscient. Without up-front clear goals and a clear game plan on how to get there, we often spin around pursuing a multitude of actions that lead us on a vast set of vectors that radiate out in all decision-making directions. Now when you have a multitude of vector shooting off every which way you end up with a vector sum of zero and no tangible progress toward the end goal. Now I owe that analogy to Tom Armstrong at the U.S. Geological Survey and it is an imperfect fit for our situation in the Everglades, but it has some aptness as we point in many directions spinning with a dizzying array of scientific detail and projects and programs and then striving to get everything right. Yes, we need to avoid irreversible big mistakes, but does anyone gathered here really question that getting water flowing is essential? I know. I know. There are questions about flow rates but perhaps we need flows first and then we can fine tune those rates at least within some general parameters. We must find that nexus in which waters can flow but minimize adverse impacts to tree islands and address seepage problems. These don't have to be mutually exclusive goals if we have the right sequence and the right mitigations. So what do we need to make that happen? In Florida, folks love the refrain that the Everglades restoration effort is the largest wetland restoration endeavor in the world, but fulfilling that vision set forth in that refrain ultimately requires action. In my job I have a great opportunity to see a nation of citizen stewards, conservation partnerships across large landscapes in this nation. And I want to take you on a virtual tour to just two places. Consider the Black Foot challenge

in Montana. There we have dozens of ranchers. Our federal agencies, the state tribes and non-profit organizations like the proverbial tortoise perhaps slowly but surely lending a caring hand to hundreds of thousands of acres of landscape. They are transforming stream banks back to natural configurations and vegetation. They're even protecting grizzlies. Or let us then quickly fly to the Colorado River to a partnership there which step by step over a 20-year timeframe has restored 290 miles of river to fish passage with stream banks and vegetation restored as well. Now in both of those cases partners avoided getting wrapped up in the search for the perfect plan. And the full suite of partners, private landowners, non-profit organizations, and agencies are all part of the decision process. These partners took a "just do it one investment-after-the-other approach." I believe it's why we must get the one-mile bridge done and then the next steps along the Tamiami Trail thereafter. I believe it's why we must undertake the decompartmentalization and C111 Spreader Canal projects and we must do it now. The good news is we have dramatic progress through the stakeholder process of the South Florida Water Management District. I think that step-by-step process is why we must also get water in the Frog Pond and invest in the Picayune Strand. Now I know consensus eludes us on many matters. Should we focus on tree island restoration and achievement or achievement of ridge and slough configurations? Should we push, push, push water down stream to forestall estuarine salinity or worry about excessive ponding? Policymakers, like me, get hung up on this stuff, but I believe we need to shift gears. I think we need to make the bold decisions, take action, then adapt and adjust as we strive to get the details right. We also tend to drown in a near incomprehensible list of enumerated canals and ditches and storm water treatment areas and water storage areas. We need information, insights and interpretation of science and their intersection with these proposed actions so that we can better understand in Washington, here in Florida, the tradeoffs and essentials and ultimately, therefore, make choices and advocate action. Now I spent a few days in Alaska last week, in fact, yesterday, with some U.S. Geological Survey scientists. These were scientists doing great, great work on seabird dynamics. They talked about how to infuse that work into our policy decisions. For policymakers, I'm reminded of the phrase of one of my favorite economists, Tom Sole (sic), who once wrote that "information is everywhere but knowledge is rare". Policymakers need the help of scientists, but we need knowledge as well as information. We need scientists to help us synthesize information. We need scientists to help, yes, help frame the policy questions. We need scientists to help shape options. Now I know, working with U.S. Geological Survey closely, that this is a sensitive matter for scientists and I'm not suggesting that all scientists everywhere in every venue fulfill this role, but I believe the decision process would benefit from serious assistance from scientists with a proclivity for synthesizing research and translating it into policy relevant questions and options. Some of you are already doing this. I



know recently that John Ogden and others began conversing on just this topic, and I applaud those efforts. I want to mention another lesson learned and that is the need for dialogue. I think we can all draw the lesson from William Isaacs, author of a book entitled *Dialogue* who has written that dialogue is conversation with a center, not sides. He also, by the way, wrote that to listen ... to listen is to develop an inner silence. Now *Dialogue* is about finding that sweet spot that may achieve not one individual's ideal but everyone's notion of the acceptable. In the end, successive Everglades restoration depends on getting beyond the value chasms and debates about preferences. It requires formal coordination of human action across complex multi-dimensional plans, and history shows us that is tough. Yet for the Everglades that cross-jurisdictional and public private coordination is imperative as the landscape in question transcends many boundaries. So too is coordination between policymakers and scientists. As I pored through, and yes I did, the many dozens of research papers, I was wowed ... I was wowed at their sophistication, their diversity and the insights they imparted, but as a policymaker, for me, the missing link is some sort of synthesis, some sort of interpretation. We need voices of science at the decision-making table. What does all this science mean for decision-makers? What tradeoffs are potentially illuminated from the science work you are doing? For me, what would be useful is a delineation of key policy questions, key tradeoff issues and decision debates with the science results then arrayed under those issue groupings to help bring focus to the decision discussion. Such synthesis and policy integration could help winnow out which apparent debates really can be resolved through information and analysis and which truly are matters of value judgments, preferences and priorities? Now Everglades restoration as I have said is not an option. That is my chorus line for today, but success does reside in clear goals, actions influenced by science and course corrections informed by monitoring. Those gathered here lie at the heart ... at the heart of that decision network. You do really cool stuff ... looking at apple snails and atmospheric deposition, methylated mercury and mangroves, sea grass and salinity, carbon cycles and crocodiles. You can also make a difference. You can help Florida. You can help this nation. You can help this world assure that the Everglades will make a comeback. What we need now are big ideas and actions and resources, maybe new resources. Can carbon sequestration using wetlands, for example, generate funds? Now, I want to end with a big thank you. Thank you for helping uncover the mysteries of this place, this planet. Thank you for helping this state, this nation, lend a caring hand to our landscapes. But I'd like some special folks to stand so that I might thank them for their help in making my remarks possible. So I'm just gonna name these names and if they would stand please, Virginia Burkett, Ronnie Best, Nick Aumen, Paul Souza ... stand up ... I don't see anybody here. Come on, Paul. I know you're out there. Bob Johnson, Dave Hallac, Dan Kimball is not here yet. Rock Salt, Greg May, Carol Mitchell.

Come on. Stand up, folks and let us give these folks a round of applause. (All applaud). I drew from the work of so many that I cannot name each of you, but I did want to thank these individuals for tirelessly answering my questions and sending me as much as my heart desired on Everglades science and policy issues. And finally, I'd like to give a very special thanks to John Ogden who Dan Kimball has called the "conscience of the Everglades." His tenure over so many years in so many different roles has resulted in insights that he has shared with me and which I much appreciate. Thank you, John. Thank you. (All applaud)

Ronnie: She asked could we do questions. I think the answer to that should be yes. You willing?

Lynn: Happy to. Questions, comments, critique and, by the way, there's a schoolmarm in me. So if you don't ask, I may point to you. So somebody better lead the charge.

Ronnie: Come on. Don't be afraid.

Lynn: Come on.

Ronnie: Speak up.

Lynn: I'm gonna start with my colleague, Mark. Ask a question here.

Mark: (Inaudible)

Lynn: Okay. Mark's question was with, uh, with the effects of a changing climate unfolding across the world and including here at the Everglades, if I looked into my crystal ball, what would the world look like in ten years in terms of, uh, adaptation strategies and so forth? Well, Mark, I have an extremely blurry crystal ball. Uh, but let me say this. Uh, there is a gen ... a general acknowledgement of the significance of climate change and its effects on the landscapes that we at the Department of the Interior manage and as part of that process, Secretary Kempthorne put forward a climate change task force which I chair and one of the subcommittees of that task force is, of course, looking at land and water management and what are some of the adaptation strategies. Uh, my sense is that that kind of look and that kind of effort will only amplify and accelerate in the years coming forward. Uh, it is going to be essential that we have adaptation strategies, uh, whether it pertains to water management. Already our Bureau of Reclamation is recalibrating its water models it has used in the past, historic precipitation patterns and snow melt patterns to set its annual operating plans. Well, those just ain't gonna be good enough. Uh, that is one example for us obviously in the west. Here in Florida, what does it mean? You know, uh, I think for Florida, of course, the key areas are

going to be in the realm of sea level rise and they're going to be in the realm of precipitation patterns and possibly also the intensity, uh, and frequency of storm events. Uh, but along with all that comes transformations and opportunism for invasives to come in, changed species, patterns, I mean the list just goes on and on and on. Uh, I don't think we can stop change. Um, and consequently we are going to need strategies to adapt to those change, but I think Everglades restoration, the good news is that what's good for Everglades restoration is at least in part good as a strategy, uh, to adapt to a changing climate. That restoration can help at least slow the pace of salt water intrusion, for example. Uh, if we ... if we maintain ... if we get those waters flowing too that makes the landscape more resilient and therefore less subject, for example, to, uh, invasives taking root and taking hold. So, you know, I like to tell people in some ways adaptation is, uh, old wine in new bottles. It's a lot of the same strategies that we already have but perhaps larger. Other questions! Come on, there's gotta be someone here. Here we go.

Ronnie: Go to the microphone please 'cause this is being webcasted. We need to pick it up.

Male: So you've said, and I agree very much, uh, with you that we need to have more science influence in a lot of our decision-making processes. Uh, yet you're somebody who clearly eats science for breakfast, lunch and dinner and really enjoys it. A lot of the people who are in your kinds of positions do not and the question is how do we get ... what mechanisms can we use to have effective policymakers who are willing to be informed by science and then have a mechanism to do so?

Lynn: Let me make a distinction. I think, uh, most policymakers welcome science insights as they try to determine courses of action on various policy issues. So the challenge is not to have an appetite for, uh, receptivity that information. The challenge to my mind is putting that information in a form that's useful to policymakers. And that's what I mean when I say, you know, if I take that abstract of ... of ... of materials for this conference and they're under discreet topical subjects so you can read about mangroves and, uh, uh, surface elevation and subsurface activity of mangroves and you can read about, uh, methylated mercury ... I only mention it 'cause I love to say that ... that term. Uh, but you know one of the great thing about working with scientists too it's really expanded my scrabble vocabulary. It's just great. Uh, but so what I was trying to get at when I said we need that research to be assembled in patterns if you will, uh, is ... what I mean is those in the science world that do have an affinity or proclivity, an interest in the policy questions could help the policymaker by taking some of those key debates ... sea islands ... I mean, uh, uh, the, uh, the tree islands versus, for example, ridge and slough. I mean questions like this. And array the science work kind of under those

questions in a synthesized and simplified form to say, okay, if you're trying to, uh, address this particular possible tradeoff question, here's some scientific considerations to ... to ... to be aware of. That's what I mean. So I don't expect every one of my colleagues to, you know, plow through the entire, uh, set of abstracts here or the associated longer papers that accompany them. Because of that, what scientists with an affinity for policy and an interest in need to do is to help take that science, grab it in, and form it into patterns that fall under some of these key policy questions and with that, that can help a policymaker say, oh, okay, well gee, with that particular piece of information, gee, in this instance, it happens to make those tradeoffs, uh, vanish. Or, gee, in this particular instance, the tradeoffs are actually there and we're going to have make a choice but that science is gonna help me understand the implications of those choices. So I think that's ... that's what I mean and again, that's not going to be every one of you, you know, out there. Some of you are much more interested in and intent on your own particular research, but some of you are interested in synthesis, and that would be very, very helpful to a policymaker. (All applaud)

Ronnie: Thank you very much. Yes, I took a few keyword notes, take action, send a signal