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Stephanie: Dates back to 1863 where we were chartered by the federal government in Lincoln's administration to provide scientific advice to the government. Now, we were tasked to pull together volunteer scientists who would donate their time to provide advice to the government, and this tradition continues today where we provide policy advice to science institutions and we provide advice on science to policy. Now, since the 1800's The National Academies has expanded. We now include, uh, The National Academy of Engineering and The Institute of Medicine which are in addition to The National Academy of Sciences primarily honorary organizations, and then The National Research Council which is technically the operating arm which under this umbrella organization which we call The National Academies. Now, The National Research Council operates and provides its advice primarily through committees of experts who volunteer their time to the process, and in any given year, we have over 500 committees in action and roughly 6,000 volunteers representing technical experts in the subjects at hand. We are a non-government organization. We receive no direct appropriations to support our base operations although about 70 percent of our budget does come from the federal government, but we also do studies for states, local governments, NGOs and foundations. The National Research Council produces roughly 300 reports a year on a wide range of topics, uh, ranging from energy, water, climate change, uh, science and technology, health, education and social science. Now, the NRC has been involved in Everglades issues for about the past decade, and this started with The Committee on Restoration of the Greater Everglades Ecosystem, also known as CROGEE. Some people like to call it CROGÉE. (Chuckles) Uh, the … the … the CROGEE was tasked to advise the task force on issues of science related to the restoration. They started up in 1999, produced six reports over their lifespan. They wrapped up in about 2005 and covered topics including aquifer storage and recovery, Florida Bay, uh, monitoring and assessment flow and the influence on the Everglades landscape and finally water storage. Now, along the way, there was a spinoff panel that reviewed The National Park Service's Critical Ecosystems Studies Initiative, their science program called CESI and then starting in 2004, this new committee was formed authorized through WRDA 2000 to review progress restoring the Everglades. Now, the committee produced its first report in 2006. We are actively working on wrapping up our second report which unfortunately I can't discuss today but, uh, at the end of the talk I'll talk about the release plans. And so I want to focus the rest of my talk on this Committee on Independent Scientific Review which has the catchy acronym of CISRERP and to talk … to explain the … the origin of the committee, again, it was a congressionally-mandated study wherein WRDA … WRDA stated that they shall establish an independent scientific review panel such as The National Academy of Sciences, but not

necessarily, to review the plans progress towards achieving the natural system restoration goals of the plan and to produce biannual reports to the Congress on … reviewing progress and also dealing with monitoring and assessment issues and so the study is currently funded by the Corps of Engineers under con … contracted through the Corps with additional support from The Department of the Interior and The Water Management District. So, the committee, the CISRERP Committee, is tasked to produce reports every two years that address these same four points including an assessment of progress restoring the natural system. And according to WRDA, the natural system is all lands and water managed by the state or the federal government in south … in the South Florida ecosystem. The committee is also tasked to discuss significant accomplishments of the restoration, to discuss issues, scientific, technical, engineering issues that may impact natural system restoration progress and then to review the monitoring assessment program … protocols and programs because these affect the evaluation of progress. Now, this chart gives you, uh, shows you who the committee is and was. We're now in the CISRERP II phase wrapping up our report. Uh, the first committee was chaired by Wayne Huber of Oregon State University. The second committee is chaired by Will Graf of the University of South Carolina. On these committees, we have expertise in ecology, hydrology, modeling, geography, uh, economics, engineering, planning, uh, so … estuaries. There's a wide range of expertise and we're gonna continue to reconstitute the committee starting this fall for our third round of the … the review process and we're continuing trying to adapt the committee to have the right expertise to address the issues that the Everglades is facing. So, to give you a quick overview of how we work, uh, you all know that the Everglades Restoration Plan is tremendously complex and it seems to be constantly changing and so the committee has a lot of public meetings, uh, to gather information about the current issues, the progress that's being made, uh, and … and so we have a number of these informational meetings where we receive briefings from agencies, individuals, organizations, and we also have the opportunity to have public comment from stakeholders and we have field trips so that we can get these committee members to climb up the steep learning curve and to understand the heart of the issues facing the … the restoration. We also … because the end product is a consensus report of the committee, we meet in closed session where … with only the committee and the staff where we deliberate on the report's findings. We … we work on crafting the recommendations and conclusions, ultimately, this report is then peer-reviewed by an external set of experts before it can be released as a report of The National Research Council. And before I move further, it's important to note that, based on the committee's charge and the fact that it's congressionally-mandated, the committee sees their role as directly reporting to Congress. So, inherently this is a policy-related report. The report is written for Congress. So there's clearly a lot of other interested

stakeholders here and interested audiences. The report we hope will also be useful to agencies, uh, the general public interested, both technical and non-technical stakeholders, but for a science conference it's important to know that inherently, uh, this is a … this is a policy-related report. So I want to give you a quick overview of the findings of our first biennial review and before I get into the details, there's two main conclusions that kind of underlie all the … the conclusions that follow and the committee stated in its report that restoration of the natural system will be best served by moving as quickly as possible towards the biological, the physical, the chemical conditions that once molded and maintained the historical Everglades and until greater restoration is … progress is made on CERP projects and non-CERP projects, the Everglades will continue to move away from those conditions that support the ecosystems processes. So, the … one of the key tasks of this committee is to assess on the ground natural system restoration progress and for this committee it was rather straightforward. No CERP projects had been constructed. It was simply too early to evaluate, but the committee did express cautious optimism that CERP will, once constructed, lead to important restoration benefits and they cited several promising non-CERP examples to support this including the Kissimmee River restoration and the storm water treatment areas which have been remarkably effective in removing large quantities of phosphorus. So the committee then focused on discussing the accomplishments of the restoration and many of these accomplishments were programmatic in nature and one of the major accomplishments was the development of the monitoring and assessment plan which the committee determined is a well-developed and designed, statistically-defensible plan that includes a rather ambitious assessment strategy and there were some concerns, espec … the … the CROGEE had done a review of the map back in 2004 that the implementation strategy was moving a little more slowly than it originally envisioned and the importance of a … a long baseline of monitoring to support later assessment strategies and to perhaps there is need for some increased staffing. They also recommended that the RECOVER group continue to analyze the number of performance measures, whether those needed to be reduced to produce a more financially-sustainable, uh, monitoring assessment plan and to consider developing some whole-system performance measures. When … when the committee was operating, there was some pushback on models and people saying we've done enough modeling. We're ready to start putting things in the ground. The committee wanted to make a strong statement on the importance of modeling to the success of the CERP and to the functioning of the adaptive management process. And the committee acknowledges there's an impressive set of hydro … hydrologic models available. Uh, granted they can always continue to be improved but relative to hydrologic models, ecological models are certainly lagging, but as these models are … continue to be improved, they should be improved

with the adaptive management and decision-making needs in mind, how can decision-makers use these models and what changes need to be made to … to make these models more effective for the decision-making adaptive management process. Now, another important accomplishment during the committee's term was the release of the adaptive management strategy which the committee determined, as shown here in this four-box model of planning, performance assessment, science integration, CERP update process. The committee found this to be a sound model for a passive adaptive management program, which passive adaptive management often termed kind of learning by doing, as opposed to an active adaptive management strategy which emphasizes more of an experimental approach. Uh, the committee thought that their … some of the linkages, especially between multiple levels of decision-makers and scientists needed some further development but that its strategy should im … should be implemented very soon so that those involved can start working through some of these issues and … and further refine the process. Because active adaptive management has greater opportunities for learning and improving the project design, the committee encouraged the use of active adaptive management wherever possible and they also expressed some concern about the … the … how willing agencies may be to make major changes based on adaptive management. Is adaptive management simply constructing a project as designed and tweaking the operations a little bit to get better results or is there a willingness to make major changes if needed? Now, in the first six years of the CERP, most of the progress was focused on developing the administrative, legal, scientific framework to support future project implementation and there was a lot of progress made in terms of these planning, coordination and management issues. But in terms of project implementation, on-the-ground construction, there were significant delays. The original yellow book had an extremely ambitious strategy for project construction stating that ten projects would be constructed by 2005. As of the committee's report, no projects had been constructed. Uh, the … the pilot projects, the earliest projects, were delayed by an average of eight years, and the committee identified several factors that contributed to these delays. Uh, many of these were discussed earlier this week in the CERP 101 discussion from budgetary and personnel restrictions. There was simply too much that was being taken on for the staff size available, but the lengthy planning process which includes the … uh, an exhaustive review and comment process and simply the need to resolve potential disagreements when you move from a more conceptual yellow-book plan to a detailed plan for a PIR, Project Implementation Report, there … there was a need to work through agency and stakeholder disagreements. And I'll discuss in … a little bit more, uh, the … that the planning process itself can be stalled by major scientific uncertainties. So the implementation itself not all was slow. There was … the Acceler8 had been announced. It was clearly adding momentum to the process. The committee did note,

however, that with Acceler8, the production … the … the future production of natural system benefits seemed in the Everglades National Park, in the water conservation areas, seemed to be lagging behind other areas such as Lake Okeechobee and the estuaries which also admittedly were in dire conditions as well, but the restoration bene … the early restoration benefits were not evenly spread. The committee also addressed issues about … and … and challenges facing the partnerships that were so essential to getting CERP authorized back in 2000 and noted that this is gonna be a significant challenge to maintain these partnerships, both among stakeholders and the federal/state partnership which was becoming increasingly uneven, and you can see in this chart of state funding which goes from 1995 to 2005. This is state funding. This is federal funding. The colored bars are non- CERP funding. The black bars are CERP funding, but there is quite a discrepancy in that the state is really taking the lead on both CERP and non- CERP funding and that … and that the federal funding which was originally estimated about 200 million a year was falling quite far … far short of that and that the federal funding was not increased. The restoration benefits toward the federal interest may not come in a timely way. The committee also looked at the decompartmentalization project focusing on the notable delays, uh, observed in the planning process and there were two major issues that caused the … some concern to the committee. First, that there essentially is a sequential nature of CERP planning such that some of these important projects with big restoration benefits have to come after a whole series of projects such as upstream storage and downstream seepage management. Also, in the planning process for DECOMP, there were conflicts over the plan that were tied to uncertainties such as do we fill canals versus plug canals versus partially fill a canal. And the science was simply not available to address these questions and the issues were so contentious that it essentially stalled the process. And the committee felt that there should be no significant scientific uncertainties that should be standing in the way of restoration progress. Now, admittedly there are uncertainties, but the key is should these uncertainties be holding back forward momentum on the restoration, and the committee thought no. And as a result, the committee kind of went slightly beyond its charge and wanted to propose an alternate wave forward and that they call incremental adaptive restoration, and I'm gonna try to explain the committee's thinking quickly in one slide and I want to first talk to … to help explain the rationale, talk about this, uh, response chart which shows on the X axis, hydrologic improvement, on the Y axis, recovery and that these … these kind of charts were shown in the yellow book. Here this in the upper right-hand corner is this restoration end point and there're all sorts of ways by adding, say for example, that this is more discharge. By adding more discharge, the system could be slow to respond, could be quick to respond, could have a lag, could actually show some decline, but the yellow book presents a more pessimistic view that you really have to

get near all the benefits before you start seeing the results. And the committee questioned that approach. Why … uh, we … we don't really know the response. Perhaps there … if… if you had some hydrologic improvements, you might see significant restoration benefits, even if it's linear. You can make restoration progress by only doing pieces of the whole and perhaps that might provide a way forward. And, thus, they proposed incremental adaptive restoration which is not entirely a new concept. It's quite similar to the Kissimmee River restoration where you take pieces of a project. The piece might include, uh, a chunk of a particular project or pieces of interrelated projects that are large enough to actually secure environmental benefits, but at the same time, you're resolving scientific uncertainties so that that information can feed into future project design. And learning is an explicit benefit here considered on par with habitat units that one would consider in … in developing the … the plan for these projects. You would identify specific critical uncertainties that need to be addressed and metrics that would be identified in advance to help determine and … and resolve these uncertainties to help guide future project design, and the committee hoped that through this process, one could resolve conflicts and possibly reduce costs. Folks, 'cause I'm running short on time, I'll skip the overall summary so that what's next, uh, the second biennial report of the committee is anticipated to be publicly released in late September. If you already receive our spam email messages announcing our committee meetings, uh, you will also receive a short summary of the report on the day it's publicly released and a link to our National Academies press website which will have the entire report available online. If you're not on that email list and wish to be, you can email Dorothy Weir at dweir@nas.edu and we'll add you to that distribution list. Meanwhile, our third committee is gonna start up this winter, uh, addressing a whole new suite of issues. If you're interested in the first report, the PDF is available for free online at www.nap.edu, or National Academies press and at this point, I'll be happy to take questions. (All applaud) If there's time, one minute.

Ronnie: I hope this is working. Yes, it is. We, uh, Stephanie would like to take questions. We do have a few minutes. We've built that into the plans, so if you have a question, speak up. You will have to use a microphone. So, raise your hand and walk to the center. Yes, come on up this way and I'll hand you …

Female: Uh, yesterday the, uh, Army Corps of Engineers indicated that they were waiting for the release of this report before they could modify, uh, some information related to their projects with respect to sea level rise. Do you think they are waiting, uh, uh, well for this, uh, or will they be unpleasantly or pleasantly surprised?

Stephanie: (Chuckles) Uh, we hope not to disappoint, but as … as always we recommend that people not exactly hold back. Uh, this … this next report will include a discussion on climate change where the past reports haven't. Uh, it's … it's not going to be an exhaustive chapter like discussion, but it … it is an important issue that this committee felt was important.

Ronnie: While we're waiting for one or two more questions … we do have time, could I get the, uh, panelists to please go ahead and migrate up to the front. I've assigned you your chairs. So please take a seat. Pour yourself a cup of coffee. Come on panelists. Move on up there. Obey, come on! Questions, any more questions? Rock, as I understand it, you're buying everybody a cup of coffee so go make your way up there and buy 'em a cup of coffee. No more questions? Stephanie, thank you very much.