Approved Minutes
Joint Meeting of the
Working Group and Science Coordination Group
West Palm Beach, FL
December 14, 2010

Opening Remarks and Administrative Items

Dan Kimball called the meeting to order at 1:05PM. He reminded the members the meeting was being webcast. Agenda (Encl. 1) was presented and members were reminded to review the September minutes (Encl. 2) which were scheduled for approval the following day.

In Attendance:	Day 1	Day 2	
Working Group (WG) Members			Alternates
Dan Kimball - Chair - NPS - ENP & Dry Tortugas	√	√	
Greg Knecht - Vice Chair - FL Dept of Environmental	√	√	
Ken Ammon – South Florida Water Management	-		Paul Warner
Billy Causey – NOAA, FL Keys Nat'l Marine Sanctuary			
Sheri Coven – Department of Community Affairs			
Roman Gastesi – Local Government	-	-	
George Hadley – U.S. Dept of Transportation	-	-	
Veronica Harrell-James – U.S. Attorney's Office	√	√	
Eric Hughes – U.S. Environmental Protection Agency	√	√	
Vacant – Office of the Governor of Florida			
Keith Neves - Bureau of Indian Affairs			
Fred Noble - FL Dept. of Transportation			
COL Pantano - U.S. Army Corps of Engineers	-	-	Kim Taplin
Bonnie Ponwith – NOAA, National Marine Fisheries			
Terry Rice - Miccosukee Tribe of Indians of FL	√	√	
Barry Rosen - United States Geological Survey	√	√	
W. Ray Scott - FL Dept of Agriculture and Consumer	-	-	
Paul Souza – U.S. Fish and Wildlife Service	√	√	
Craig Tepper – Seminole Tribe of Florida			
Kenneth Todd - Palm Beach County Water Resources	√	√	
Joe Walsh/Chuck Collins – Florida Fish and Wildlife	√	√	
Vacant - Broward County Department of Natural			
Ed Wright – U.S. Department of Agriculture			
Greg May – Special Advisor	√	√	
Science Coordination Group (SCG) Members			
Susan Markley – Acting Chair – Miami Dade County	√	√	
Vacant – Vice Chair – Science Coordination Group			
Calvin Arnold - U.S. Department of Agriculture, ARS			
John Baldwin – Florida Atlantic University	√	√	
Lisa Beever – Charlotte Harbor National Estuary			
Ronnie Best - United States Geological Survey	-		Stephanie Romanach
Joan Browder - NOAA, National Marine Fisheries			

James Erskine - Miccosukee Tribe of Indians of FL	√	√	
Susan Gray - South Florida Water Management	√	√	
Todd Hopkins - U.S. Fish and Wildlife Service	√		
Chris Kelble - NOAA, AOML	√	√	
Chad Kennedy - FL Dept of Environmental Protection	√	√	
Dan Kimball - NPS - ENP & Dry Tortugas	√	√	Bob Johnson
Cherise Maples - Seminole Tribe of Florida	√		
Gil McRae – Florida Fish and Wildlife Conservation	√	√	
Bill Reck - U.S. Department of Agriculture			
Dan Scheidt – U.S. Environmental Protection Agency			
David Tipple - U.S. Army Corps of Engineers	-		Kelly Keefe

Joe Walsh introduced Chuck Collins who will be his replacement on the Working Group from this meeting on. Eric Hughes reported that the effort they had with DEP to set the numeric nutrient criteria (NNC) for freshwater lakes, springs and rivers was finalized on November 30th. EPA is now working with the stakeholders on proposing the NNC for the estuarine and coastal waters. There will be a series of meeting and they are hoping to have a preliminary report by the end of February. Bob Johnson noted the final EIS Tamiami Trail next steps project goes to the federal register on Dec 17th. Paul Souza reminded everyone they had proposed a rule that would list Burmese pythons and other large constrictor snakes as injurious under the Lacy Act and prohibit importation and interstate transport. They received 56,500 comments on the proposed rule and they are currently sifting through them with a final decision expected in late spring or summer of 2011. Another issue is calf depravation by panthers and they are looking at some of the programs used out west with the wolf so they can fashion a similar program in SW Florida.

Dan Kimball reported they are advancing a pole and troll zone in Florida Bay, an area of about 8,900 acres and have gotten great support from the fisherman and the recreational community. They are advancing a large plug in project for two canals (Homestead and East Cape) that were built in the 1920s, stimulus projects worth $9 million. Down in Key Largo they are building a new lab and dormitory. There are also reports that the vultures are back and visitors to the Anhinga Trail are urged to use plastic bags on door handles and wipers.

Executive Director's Report

Greg May noted the October Task Force meeting took place in Miami and started with a good news story on habitat conservation. Earlier this year the President announced the America's Great Outdoors Initiative, designed to identify and leverage all the creative conservation activities that are taking place and sponsored by local communities. The Land Acquisition Strategy (LAS) which is now known as the Land Conservation Strategy is helping to fulfill the intent of this program. There were two presentations, one on the Fisheating Creek Wetland Reserve Easement Project which has identified 26,000 acres at almost $88 million and the other on the Greater Everglades Strategic Habitat Conservation Initiative that is looking at opportunities north of Lake Okeechobee through either land acquisition or easements. The National Research Council presented the third Biennial Report. A number of agenda items such as the Integrated Delivery Schedule (IDS), water quality and cost sharing that focused on

moving restoration forward were discussed. A number of issues to include crediting are affecting the state and SFWMD's ability to move forward. Without state financial contributions the federal government can move forward on CERP projects until 2013 or 2014. Beyond that they will need future WRDAs. Follow-up actions: the Strategy and Biennial Report, Plan for Coordinating Science Update and the Land Conservation Strategy (formerly the Land Acquisition Strategy) were approved by the Task Force. Gene Duncan recommended that the Strategy and Biennial Report include the South Florida Environmental Reports for 2009 and 2010. An update was provided on the Climate Change conceptual ecological model (CEM). The invasive exotics recommendations were accepted by the Task Force and the WG and SCG will begin to work on implementing them. The NRC Report acknowledges the strong science taking place in Everglades restoration but work is needed in linking science and management. Greg suggested they spend some time talking about the framework for linking science and management and what they really need in terms of systems, organizational structure, people or translators. That will help them determine where additional work is needed.

Linking Science and Management

Greg May noted that in spite of the great science there is uncertainty as to how the system is going to respond to the changes in the hydrology. The scientific process and the management process are very different, yet it is necessary to link those two concepts. Science is useful when it is synthesized and when managers and scientists come together early on and agree on a common structure that will be useful to both sides. It has to be related to things the managers can control either through a project or operations. Because of the complex nature of the subtropical systems and substantial alterations, the responses of these systems will be difficult to predict with high levels of certainty. Over time system-wide ecological indicators and other tools can help reduce the level of scientific uncertainty and improve their confidence in the correctness of restoration plans. This is done on many different scales. From a project planning point of view, from his perspective, the use of the Oyster Habitat Suitability Index (HSI) model was the best example he has seen so far of being able to link the science and management. At the system-wide planning level, the system-wide ecological indicators are the best example.

Paul Souza said the public participation process is critical. It has provided wonderful results when done well such as the model used by the SFWMD for the River of Grass (ROG), the C-111 Spreader Canal and the CSOP Advisory Committee. David Policansky said the NRC report said two things: have heard from some that science is not getting into management decisions and heard from others that they are taking advantage of what the science is saying in their management decisions. The NRC recommended CERP look into this and see if there is a problem and how it could be done better. They recommended to the degree they can to be clear in developing, identifying, strengthening and describing mechanisms for integrating science into policy, management and implementation decisions. He said that it was his sense that the ROG process was incorporating public participation into a management decision, not a science decision. If things get really difficult, there is literature on boundary organizations that straddles scientific versus management boundaries and the theory is that by being rooted in both management and science they are therefore anchored from straying too far from either. He said that it could be argued that the QRB, WG and SCG are such organizations. He pointed

to the California Bay Delta Ecosystem which has bigger problems and down here they have created institutions to deal with the issue of getting science and management to work together.

Joe Walsh said they don't have a clearly communicated ethical model that supports decision-making and management. He agreed that using a boundary organization and he believes this is one, to come up with principles that show how they relate back to science. Science is just one category of information and they use a lot of different categories, some of it is economic and some of it is sociological and showing how the science fits in with those other concerns would be helpful. Kelly Keefe said it is important to make sure information is accessible and delivered to managers using language that everyone can understand. The format in which it is presented is also important, for example the System Status Report (SSR) is available online and has different layers of detail. The delivery of the science has to be unbiased. David Policansky acknowledged that sometimes the scientific information is uncertain and there is no solution only approaches to the problem.

Susan Gray said there is a lot of good science out there and a lot of important management decisions that need to be made. She did not think it was broken, just a matter of communication and temporal scale. The answers that management is asking for may take longer to achieve than management is aware of. For years there have been a series of management questions on the table but the answers are coming back slowly. She suggested they do a survey of the management and ask them how they want the information communicated to them and how they are going to use the information. Greg May noted the Task Force talked about having a workshop or retreat dealing with the issue of linking science and management. The question is timing and when do you have that conversation. He added that from his research on the oyster HSI that conversation took place early on. Susan Markley said the tools they have for communicating and synthesizing are working best at the system level and there are more opportunities for scientists outside the agencies to be involved. Restoration gets implemented on a project level and at that level it is a lot more difficult to find tools that have enough refinement to quantify benefits between project alternatives. Important in the process to document the decisions made to formulate plans that are going to provide the best environmental benefit or achieve restoration objectives cost effectively and sometimes the quantitative tools are not there. She said she did think there is a big difference between how science is incorporated at the system level in a conceptual way and at the finer scale. The uncertainties become more significant when you are trying to deal with these small scales. Chris Kelble said communication seems to be one-way a lot of times. Feedback from the managers on how the SSR could be more useful is missing and that feedback could help improve it.

Todd Hopkins agreed it is definitely a communication issue. He suggested they bring in the operations people to the first PDT meeting. Communications start with one group and that gets communicated to another group and so on and then given to someone else to design or implement. It is rare that someone is "soup to nuts" on a project and that is one of the challenges. They've had successes when they have had people go through the entire process. Matt Harwell noted that they have been talking about mechanisms, forums and tools. He suggested they distill the top 4 or 5 take home messages for each one and then figure out what

the next steps are to advance this dialogue to the next step. Barry Rosen asked whether they had any examples or existing case studies where science has been used to influence management here in south Florida. Greg May pointed to the oyster HSI planning process. It did alter the planning process by having a clearly defined integration of science and management in depicting an array of management options that would result in scientifically sound outcomes.

Susan Gray noted they went through a yearlong process to develop adaptive protocols for Lake Okeechobee operations and put it into an operations framework which hit up against policy decisions that were difficult and not resolved to anyone's satisfaction. People have to understand what it is they are working with so they can communicate it to the public and managers. Important to have some continuity and take the time to understand it in order to communicate it better. If there is a sense that management is not giving feedback on the SSR, she asked if they ever asked them for the feedback. What do you need to know? What types of decisions do you need to make? What needs to be brought to the table?

Paul Souza offered the Everglades Restoration Transition Plan (ERTP) first phase as an example. They have long known the performance measures for the Cape Sable Seaside Sparrow (CSSS) but they have not known the types of performance measures necessary to sustain the Everglades Snail Kite, Apple Snails and other species in WCA 3. For over 18 months they worked with the scientific community to understand that information and it is now being used by the Corps and the SFWMD to help redefine the water regulation schedule for WCA 3. They wish they could do more but there are major limitations on what can be done with this infrastructure. The science to help transition these bird populations is with them on a multi-species level. Greg May noted that Carol Wehle mentioned at the Task Force meeting that the SFWMD was forming a committee to investigate how to better integrate science into management decisions and at the Everglades Summit she mentioned she had met with MIT on systems integration and modeling and he asked if they could hear more about that from the SFWMD staff later that afternoon.

National Research Council Report

David Policansky noted the 10 ppb criterion is a science driven criterion even if there are arguments about it. He provided a presentation (Encl. 3) on the Committee's Third Biennial Review. Congress charged them with providing reviews every two years of Everglades restoration progress. He reviewed the statement of tasks. The Committee has found that there are a number of changes in the environment. There have been droughts and floods. Snail kites, trees islands and other species are declining, the invasive species challenge is huge and there are water quality challenges. In many ways the restoration of the Everglades is being run by a number of different judges. There are huge financial challenges and this Committee reaffirmed its predecessor's conclusion that continued declines of some aspects of the ecosystem make accelerated progress of Everglades restoration even more important. Restoration progress has begun with construction of four CERP projects but no CERP projects have been completed. There seems to be improvement in relations between federal and state partners. Maintaining momentum is very important and includes political and public support. The Committee generally thought the scientific foundation for decision-making is good, research

is providing a sound basis for critical CERP decisions and adaptive management, however there needs to be more progress in developing integrated hydrologic, ecological, and biogeochemical models to inform decision making and provide input for adaptive management. CERP leaders should examine the effectiveness of linkages between science and decision making. That includes being clear and specific about the mechanisms for including the science into the actual adaptive management process.

Restoration challenges are the heart of the report. It is not feasible to achieve the same degree of restoration throughout the remnant ecosystem. Ecological trade-offs need to be analyzed from a whole system perspective. What you get is going to be a function of the order in which projects are implemented as well as the sum total of what those projects do. If they analyze the trade-offs and they do "x" then what happens to water quality, water quantity, species and the landscape. If they use as a yard stick for evaluating those trade-offs the time scale of reversibility or irreversibility the Committee thinks that that should lead them to make more productive, effective decisions on implementing the restoration. Improved species models and multi-objective decision tools are needed to make these decisions. The Committee felt there is room for improving the way water is operated in WCA-3. Committee concluded that attaining water quality goals throughout the system is likely to be very costly and take many decades. A system-wide integrated effort is needed to address source controls, storage and treatment. Comprehensive cost effective analysis is needed. Rigorous research and analysis is needed to address the sustainability and performance of STAs, source control effectiveness and phosphorus mass balances.

Given that restoration originally envisioned by CERP is decades away, the agencies should rigorously analyze the consequences of short and longer term trade-offs between water quality and quantity in the Everglades ecosystem. The Committee is not endorsing any particular trade-offs at this time because analyses have not been performed to support such decisions. If you withhold water from ENP because it is not of the high enough quality you have made a decision trading off water quality against water quantity. If on the other hand you decide to release more water to ENP and you can't meet the water quality criteria, you have then made a decision.

Overall summary of the report is that tangible improvements recently have taken place and it is very encouraging to see things have happened since the last report and that includes a breakthrough in starting MWDs. Science program is addressing important issues but more transparent mechanisms for integrating science into decision-making are needed. Several important challenges related to water quality and quantity has become increasingly clear, highlighting the difficulty of achieving restorations goals simultaneously for all ecosystem components. Achieving those goals will be very costly and will take decades, at least.

Assuming that CERP is completed according to plan the O&M costs are going to be hundreds of millions a year. Finally, rigorous scientific analyses are needed of potential conflicts among hydrologic requirements of various Everglades landscape features and species and tradeoffs between water quality and quantity. Understanding and communicating these tradeoffs to stakeholders are critical. If they lose an endangered species that's not reversible, if they lose

significant landscape features what is the timescale of reversibility. If they put water of unacceptable quality into the ecosystem what is the reversibility of that. Those are the sorts of questions that need to be addressed and analyzed. These things are going to happen and if they have been analyzed and thought about then they will be better able to manage them.

Dan Kimball asked if there were any changes in the way the report looks at climate change. David Policansky said there were no changes from previous reports. If projections of sea level rise of half a meter by the end of the century are correct that implies big changes. He hasn't seen huge projected changes in precipitation and temperature but the aspect of climate change that is large is the sea level rise issue. The Committee has never said what they should do about it except it has advised that it be carefully taken into account. Committee believes CERP is taking it into account. David Policansky said some of the rainfall data is wrong and that along with a couple of other things are being corrected in the report. Dan Kimball stressed that it shouldn't reduce their motivation to restore the Everglades. David agreed and added that there is enough topographic relief that there is some adaptation possible for sea level rise.

Greg May noted the report said that the System-wide Ecological Indicators Stoplight Assessment Report is an effective tool for communicating in plain language the status of the ecosystem and the report went on to say that they shouldn't assume it's a good communication tool and they should actually test it with the managers and the policy makers. He asked how they could best measure the effectiveness of a communication tool like the SSR or the System-wide Ecological Indicators. David Policansky said that when they send it out for review they should include the managers and share it with the people who need to use it for their feedback. Kelly Keefe suggested they check the vocabulary that is used and make sure it is at a common level and jargon is translated into words anyone can understand.

Nick Aumen stated that the whole idea of science and management is something they have been talking about for a very long time, important but not new topic. He noted his concern that the reasons they are where they are right now are as a result of decisions that were made at the policy and management level. In the end he is not sure that having a greater amount of information is going to make those management and policy decisions any easier. Some of the real problems and issues have to be hammered out at the management and policy level.

David Policansky said it was the Committee's impression that there are some major science answers that are not known or haven't been explicated in a way that would help managers. Looking at different scenarios for constructing projects and orders of constructing projects and asking what the consequences are for various ecosystem components. Committee was under the impression that some of those answers could be made clearer scientifically. Secondly, there is utility of getting together with the managers, operators and decision-makers to talk about what their constraints are and to the degree that they are scientific then the scientists could help address those things. The critical part of the whole equation is that they all work together in a venue like this one or the QRB and it seemed to him this is the place to start and ask those questions. He added that they have written reports in which somebody has said it's all very well to do this but there is a judge sitting here making decisions. David said it is his

hope that the judge will be aware of the conclusions of the Committee's report and that it will influence the judge's decisions.

Public Comment
John Arthur Marshall (Arthur R. Marshall Foundation) said that climate change and sea level rise is a reason to accelerate restoration. David Policansky said the Committee would agree.

Todd Hopkins asked what the Committee would be pursuing in the next report. David Policansky stated they are putting together a new Committee. As soon as they have all the members that will work on the fourth biennial review they will let everyone know. He along with Stephanie had the opportunity to speak to a number of people at the October TF meeting asking for advice on what the Committee should consider. Other than water quality, which he thinks the new Committee will have to deal with it is not clear to him what they will focus on. They continue to be open to this group's advice based on what they see as their needs and the Committee welcomes the advice.

Linking Science and Management
Overall of the 2009 System Status Report (SSR)
Matt Harwell said it is about mechanisms, forums and tools. He will talk about mechanisms, Agnes McLean will talk about forums and Stephanie Romanach will talk about the tools. Matt provided a presentation (Encl. 4a) reminding folks that RECOVER is the science arm of CERP although it is not the only science. They are trying to better integrate RECOVER with CERP at the project level and better integrate it with the functions of the SCG. Some of the RECOVER products include an applied science strategy, Monitoring and Assessment Plan (MAP), Assessment Strategy, System Status Reports (SSRs) and MAP Refinement in 2009 where they streamlined the hypotheses, performance measures and monitoring. RECOVER is currently doing extensive monitoring and research, applying their assessment protocols to try and detect change. They are trying to work on the interface of MAP monitoring and CERP projects at the project level. RECOVER is also integrating Adaptive Management plans at the project level, finalizing the Scientific Knowledge Gained document and working on the release of the 2009 SSR. In looking forward RECOVER is working on a SSR after action, SSR Scoping for 2012. They will work more on effective communication among scientists and decision makers and use Adaptive Management to reduce risk and uncertainty and delve into things like benchmarks and thresholds. RECOVER will spend a lot of time on issues of scale particularly on integration across boundaries. They will also work on integration of system-wide and CERP project level data for assessment and refinement of the Plan and implement the MAP given the challenges and constraints. The 2009 SSR is the third report RECOVER has done. It provides a thorough accounting of the CERP MAP and documents status and trends of the essential and defining attributes of the south Florida ecosystem. The information in the SSR provides a baseline. They used a similar conceptual report that was used for the stoplight indicators focusing on different hierarchal level of information. The SSR will be available as a hard copy and as a webument that will be interactive, live and real time.

Matt reviewed the 2009 SSR Key Findings (Encl. 4b) which is a 23 page graphic rich document that outlines the components of the SSR, characterizes the interim goals, key findings, stoplight

indicators, management relevance. He reviewed page 4 of the document which is an example of their key findings for the Northern Estuaries. In 23 pages they can tell the managers why they need to pay attention to what is going on and in this instance it is with oysters. On page 9 there is a more general broad brushed example such as sheetflow. The Executive Summary (Encl. 4c) is a 4 page document that provides a quick overview of the SSR and walks one through how to view the SSR webument. Matt provided a live demonstration of the webument which is currently undergoing its final tweaks. Reports will be updated every two years. Still working on how they will go about updating it and archiving information.

Paul Souza asked if there were any findings that were not anticipated. Matt said they learned some things, for example this process has made it easier for them to bring in information not captured in the original MAP framework. In the key findings there is brief discussion about the cattail expansion in upper Taylor Slough which was outside of the RECOVER umbrella. They have also done some salinity performance measure model work in the southern coastal systems which have pushed the boundary of where they are working. They have four years of information distilled in this document. One of the key findings was that the conditions in the refuge seem to be favorable in general for fish and wildlife resources so the management recommendation would be don't do anything different until they figure out what they did right.

Robert Johnson referring to benchmarks and thresholds, managers want to know what it is they look at to know 'we are recovered'. He asked whether they have a way to look at these parameters to know how far along this continuum of restoration may take. NAS talks about 60 years, is there a way to use modeling to get some prediction of what it will be. Matt replied that the SSR does not explicitly provide a mechanism to do that, however, the webument forum creates the ability to do that. They have not linked their hypothesis clusters or stoplight indicators to the IDS yet but they do have the potential to do that. Susan Gray added that the information that is being generated can be used in a variety of forums and having it available on the web allows the information to be used as broadly as possible.

Greg May congratulated everyone that worked on this adding that is an exceptional way of organizing and communicating the science. In terms of linking the science and management, he asked for examples of how they would expect a manager to use the SSR. Matt said they spent a lot of time trying to get their arms around that discussion, in particular at which point RECOVER should not be making management recommendations versus serving up science relevant to a management decision. The solution for them was the key findings document where they provided the management relevance bullets. They are looking for feedback to see if any of those pieces of information were used. Some were very explicit and some very generic. Dan Kimball asked what kind of additional information technology could be weaved into this. Matt said they hired IT people and there are some potential tools like tweeting or blogging.

David Policansky asked whether they have a way of finding out who is using the document and what parts they are looking at. Matt said he would take those questions back adding it was a great suggestion. Joe Walsh said they have a survey on their Florida Wildlife Conservation Guide to help improve the website. Chris Kelble said they received conflicting recommendations on what they should include in this report. In the SSR they kept things vague

as far as what management can do but they need that guidance on whether they should be incorporating those management recommendations. Matt Harwell agreed this is a phenomenal issue and they need specific guidance as to how far to go and not go. Susan Gray added it was important to them to not make management decisions but to highlight the science that may be important to managers. The statements are technically based statements that may have policy implications. Greg May suggested that it might be useful to bring in managers at different levels as a useful way of coming up with the information for the next report. Having a mini GEER type forum where they get the managers and scientists together every six months for an interactive discussion. Todd Hopkins congratulated RECOVER adding this is great as a communication tool that addresses the things he needs to know.

Adaptive Management (AM) Program for CERP

Agnes McLean introduced Andy LoSchiavo from the Corps in Jacksonville. She provided a presentation (Encl. 5) reviewing the background from 1999 where the Restudy described uncertainty in predicting ecosystem response to restoration projects and the need for an adaptive management approach. In WRDA 2000 Congress recognized CERP as a framework for restoration and authorized an Adaptive Assessment and Monitoring Program. In 2003 the Pro Regs required development of an adaptive management program so that new information, monitoring modeling, etc. is used to refine CERP. In 2003, the CERP Monitoring and Assessment Plan (MAP) was developed. In 2006, the CERP Adaptive Management Strategy was published. The Strategy is a framework for seeking a better understanding of the south Florida ecosystem and using new scientific/technical information to improve the Plan. In 2009 the USACE received guidance that all ecosystem restoration projects Corps wide are required to have adaptive management plans. In 2010 the Adaptive Management Integration Guide and CERP Guidance Memorandum were released. The Adaptive Management Integration Guide provides the details on how to implement adaptive management within the USACE six-step planning process, which governs the planning and implementation of CERP projects. Adaptive Management is defined as a structure management approach that links science to decision-making in order to improve the probability of restoration success. They want a deliberate approach to getting the science into the hands of decision makers so the effort will be successful. She reviewed the AM principles which, among other things, promote stakeholder engagement, interagency collaboration and conflict resolution and employs a formal science-based management approach using learning to address scientific/technical uncertainties.

The NAS Report states that “given the enormous scope and complexity of the restoration effort, the success of CERP depends on strategic, high quality, responsive and sustained science and an effective, adaptive management framework.” The Committee felt they have a good foundation for AM ready to put theory into practice and will need stronger institutional mechanisms to make that successful.

The Adaptive Management Integration Guide has two levels: program level and project level. At the program level they are just beginning to identify key program uncertainties. There were uncertainties identified in the course of the feasibility study and others that have developed over the past ten years. They will be identifying potential actions to reduce those uncertainties and when it is all packaged together into a system-wide plan they will be going to managers and

policy makers and review their findings. At the project level they want to incorporate adaptive management principles into the Corps six step planning process. There was concern that AM would add one more burden so they are trying show how this should make the planning process stronger by having an early listing of project uncertainties and potential actions and early management review and approval. The goal is to address uncertainties, improve restoration success and avoid delays. Agnes reviewed the AM activities for CERP and the current feedback to CERP decision making process. She reviewed the ongoing initiatives at both the program and project level.

Challenges include stakeholder engagement and collaboration with non-agency stakeholders, integrating applied science, clarifying feedback to the CERP decision-making process and achieving institutional change that embraces AM principles. FACA limits the ability of teams (PDTs and RECOVER) to engage in two-way dialogue with non-agency stakeholders. That has been quite a hindrance in getting open dialogue with their constituency. They have come up with three options that could help with this issue including using the Working Group (WG) and Science Coordination Group (SCG) or Task Force (TF). Another challenge that they are doing fairly well at is maintaining interagency collaboration and relationships as they move through the restoration process. The Adaptive Management Integration Guide is available online at Evergladesplan.org

Dawn Shirreffs (NPCA) said that WRAC has been looking to open up the lines of communication and said she thought this was a great approach. David Policansky said it was his understanding that FACA is to promote communication and openness and asked how this hinders their ability to dialogue with stakeholders. Kim Taplin said it has to be through a sanctioned committee to ensure that the advice being given to the federal government is balanced and appropriate interests are represented in any such committee. It is a long process and few committees have been established.

Dave Policansky said there are many forums that do not involve providing advice but information gathering and would not have to be a FACA committee. Kim Taplin said yes they can do that but their experience in south Florida is that they have been challenged on this, such as with the Southern Everglades Restoration Alliance (SERA) where the litigation is still ongoing. If challenged and they lose, then anything that group comes up with cannot be used.

Todd Hopkins noted that the only group he sees as continuous from plan formulation to operations and maintenance is RECOVER. They will have a big role for project and system-wide level AM which will be quite a challenge. Agnes Mclean noted that the Pro Regs state that the Corps and the SFWMD shall develop an AM program and RECOVER started developing this program back in 2000. A good question is whether RECOVER has the resources to follow that all the way through fifty years. Susan Gray said there is an expectation that RECOVER staff will take on the issue of performance of the projects, in terms of whether they are meeting their goals, precisely because the PDTs will be going away. There is no one person taking the projects from cradle to grave. If this ends up on RECOVERs plate she wonders how they are going to get it all done. Andy LoSchiavo added it has to be interdisciplinary and RECOVER

tends to be mostly scientists. They are trying to interact with different disciplines throughout the process.

Dan Kimball said they have a session scheduled the following day for planning for 2011 for the WG and SCG. Agnes McLean's second on her slide in terms of the stakeholder engagement and collaboration was using the FACA exemption they have through the Task Force and what role this body may have in advancing the AM concept. Dan suggested they talk about it as a group and then bring it up to the Task Force.

Linking Ecological and Hydrologic Models
Stephanie Romanach provided a presentation (Encl. 6) summarizing recent progress over the last few years. Joint Ecosystem Modeling (JEM) was established in 2004 as an umbrella group of ecological model practitioners in the Everglades. Agencies currently participating include USGS, NPS, USFWS, SFWMD and the USACE. Cooperators include the University of FL, Audubon of FL, FAU, University of West FL and the University of Tennessee. The goal is to get models into the hands of the users. The team consists of hydrologists, ecologists, modelers and computer programmers. JEM was conceived in response to the need for ecological models to be accessible in the decision process in a timely manner. They went out and talked to people using data at various agencies and asked them what would help. People said they needed ecological models linked to hydrologic models as well as desktop tools to make models, data, and outputs accessible, user friendly and easily understood. JEM has been using this interagency collaboration as a mechanism to achieve these goals. They are building tools people need but they are not making people use them. They understand that agencies have their own way of things being done.

Progress made during the last two years include standard data formatting system and model development and review protocols. This was a multi-agency effort to develop 'CERP standard' for the way they handle data. It is a way they are trying to use a common data format so they can share and use information. This reduces duplication of effort and allows for a shared suite of tools. Ecological models are available and have been used in projects such as the Cape Sable Seaside Sparrow Hydrologic Impact Evaluator, Slough Model and Performance Measure and Fish Density Model. Several additional models are in the development and review process. Tools have been developed and are available for data manipulation and visualization. EverVIEW not to be confused with the SFWMD's Everviews is the tool they developed like Google Earth and available on multiple operating systems and in a plug in environment. This software developed for the Everglades is so easy to use that it is now being used worldwide. They are going to begin helping groups like RECOVER and others that are making decisions since they are able to show visually and quantitatively things that can help make decisions. She reviewed an example for apple snail population for DECOMP that allows the user to slice and dice input (spatially, numerically, temporally). They are working on a lot of things and answering a lot of calls as a community. All of their work is posted on the JEM website hosted by USGS and they are hoping to get permission for a JEM.gov website. They will continue working with the IMC, federal and state partners and welcome additional partners.

Kelly Keefe asked whether they could have access to reviews of the models that have taken place. Stephanie Romanach said they document the reviews and changes or updates are marked with a version. Reviews themselves are not available on the web. Carol Mitchell added that the models developed within USGS go through their peer review process and those that are developed within the Park Service go through their peer review process and they are documenting those reviews. They offered to provide that information to anyone who is interested.

Public Comment

John Marshall (Arthur R Marshall Foundation) challenged David Policansky on the River of Grass (ROG) workshop evolution being science based. Personally, he thought that there was a lot of science that went into the ROG Workshops. There was a three day workshop convened after extensive modeling by some of the park folks such as Bob Johnson and Bob Finema. It was revealed that the Everglades was considerably wetter than first contemplated in early CERP. It was a good science based management decision to go into the workshop and figure out how to get from 1 1/2 million acre feet over 2 million acre feet into Florida Bay by re-looking at the entire CERP program. It got folks engaged to a total system approach rather than a regional approach. He said he thought the Adaptive Management activities outlined by Agnes McLean were done in the ROG process with the exception of the Conceptual Ecological Model where they do not have one for the EAA. The Marshall Foundation said that ecosystem services valuation in terms of benefits provides a synthesis and gets to the economics of the matter. Most of the time management decisions are based on economics and the foundation hopes to see more of this. Glad to see the Task Force having declared ecosystem services valuation as an emerging theme. Several of them in the Everglades and Rivers Coalition think the ROG workshops are a key element to restoring the entire system as Art Marshall envisioned.

David Policansky said he was happy to be corrected in his misimpression of those workshops and he did not mean to imply that they weren't good things. He was trying to distinguish between science and management and did not mind at all that he got it wrong.

Meeting adjourned at 4:45PM.

Approved Meeting Minutes
Joint Working Group and Science Coordination Group
West Palm Beach, FL
December 15, 2010

Opening Remarks
Dan Kimball called meeting to order at 8:30 AM. September meeting minutes were presented and Barry Rosen made a motion to approve which was seconded by Chad Kennedy. The minutes were approved as presented. He recognized Gene Duncan member of the Task Force who was present.

Implementing Invasive Exotics Recommendations
Dan Kimball welcomed Jon Lane representing Everglades Cooperative Invasive Species Management Area (ECISMA). He noted that Dan Thayer made a presentation at the October Task Force meeting on the nature of the exotics problem, focusing on the wildlife. He was struck by the invasion curve and the cost to cure the problem and that chances for success are easier earlier on in the problem. He provided a presentation (Encl. 7) reviewing the four recommendations (promote federal prevention initiatives, establish Everglades Early Detection/Rapid Response (EDRR) Coordinator and dedicated EDRR funding, coordinate development of cross-cut budget, promote continued improvements to coordination) presented to the Task Force. They realize the most effective way to deal with this problem is preventing the problem before it starts. At the national level they have been looking at things such as the Non-native Wildlife Invasive Prevention Act which is trying to fix the broken screen. They also need to refine the assessment tools, particularly the ecological and economic risks. It is important for them to talk to the Task Force and others to look at things that can be done at the national level.

John Lane said they need to look at the beginning of all the projects to evaluate the fact that these projects may be exacerbating the problem. Some projects have allowed invasive fish to come into ENP which was not the Corps' intent but they did not have anything in the planning process to look at the potential for that happening. They need to look at plants and animals and the potential project impacts during the planning process. Dan Kimball added the Park Service has Exotic Plant Management Teams that deal with plants but they don't have anything to deal with wildlife. They are talking about a dedicated position on the federal side and possibly pool money together. They need to develop a Cross Cut Budget with the National Invasive Species Council (NISC) and will need the help of the Task Force and staff. They also need to enhance coordination and get a better framework for a regional response and do everything they can to improve resource sharing capabilities with staff and money. There are some some activities they are trying to look at nationally.

Paul Souza said it was important to "tell our story". Much has been made of the Burmese pythons that have consumed the Key Largo Wood Rats but there are other examples such as the green iguanas causing the extirpation of the Miami blue butterfly in Bahia Honda State Park in the keys. To the extent they can tell their story in a comprehensive way and explain how these issues could have been avoided will be compelling. Greg May noted that before Sam

Hamilton passed away they talked about having a field trip associated with the Task Force meeting at the Port of Miami, second highest density for exotic plants and animals and that would allow them to tell their story. Chad Kennedy noted there was discussion the prior day about getting the stakeholders involved early in the process and the pet industry in the U.S. is huge. He suggested they get a better understanding of that industry and see where there are some "win wins" where they could possibly self regulate which could save a lot of time, effort and money. Paul Souza applauded the efforts of the FFWCC, bill signed by the Governor during the last legislative session that bans the sale of reptiles of concern within the state boundaries and FWCC has implemented regulations for it.

Bob Johnson added the identification issue is the key. A lot of the invasive plants look similar to native plants such as the mile a minute vine that has been found for the first time in the Redlands. A major part of rapid response is trying to educate the public to know the difference. Paul Souza said he thinks the assessment tools will improve over time. He noted that the cold snaps last year and reports that pythons were perishing, question the degree to which pythons can exist in North Carolina, for example. It needs to be made clear that that debate is still ongoing.

Susan Markley said there is a lot of sensitivity to the economic situation, wondering if there is receptiveness at the highest level to some of these issues that have to do with compliance and regulation. A lot of the ecological impacts are compelling but said it would be helpful to document the costs of trying to deal with the situation and how it compromises other investments. If the FWC Commissioners have been showing leadership and there is a field trip then they should be invited. She asked whether there is receptiveness or resistance to the front end remedies. Paul Souza said there is a real recognition of a major problem. There are costs associated with regulatory approaches but there are costs in dealing with the issue. There was a lot of support in the state legislature. Given the dire economic climate they need to have a careful eye on what the repercussions will be. Greg Knecht added that from the state's perspective, adopting any rules will be harder now that HB 1565 was passed during the last special session. They are going to have the economic impact of not just what it does to sales but what it costs the state to manage those things, which becomes the important part of the cross cut budget. They need to put real dollars on what they are investing on those things and it may be compelling to weigh those decisions.

Gil McRae said there are real economic consequences if they don't act early on in the process and those consequences can be put in economic terms that are good for business. The climate for rulemaking at the state level has changed significantly and if a rule will impact business to a certain level it will have to go to the Legislature. That will mean less rulemaking and longer timeframes for rules to be approved. Chris Kelble said they need to also incorporate what it will cost the state to manage it and he suggested they incorporate the loss of ecosystem services and function which will make the value go up dramatically. Susan Markley noted that besides the cost to respond there are a lot of investments being made in managing fisheries resources or acquiring and managing environmentally endangered lands (EEL) and the benefits those things provide should be factored into the calculation. She noted that Cynthia Guerra, EEL Program Director is watching online and sent her a note that they have already spent $4 million

on exotic control on some of their lands they have already acquired. The taxpayers voted to tax themselves for a small period of time to build the fund and it is not a renewing resource. There has been a big investment made and problems with invasive plants and animals are compromising that investment. John Lane suggested they need a natural resource economist to pull this data together and put it in a format that it makes sense for the decision makers. Greg May stated he has already contacted Phil Andreozzi with NISC and hoping Phil can point them in the right direction. Intent is that once they have the framework established they will open conversations up to a broader group and build from there.

Chuck Collins added there is now internet trade and law enforcement playing into this. They found a python in a Fed Ex truck the other day that got out of the box. They have an internet crimes section in their agency but the key is to get the right people together. Gil McRae added people are ordering what they want over the internet.

Public Comment
John Arthur Marshall (ARM Foundation) recommended keeping Senator Bill Nelson in the loop on this issue.

Dan Kimball, on the next steps for national screening agreed it was a good idea for the Task Force to meet in Miami visit the Port of Miami. They should also track the federal legislation. John Lane said they do have a person who is doing that. Dan Kimball asked him to provide that information to Greg May and his team. Dan Kimball said they should have a natural resource economist focus on the impacts of regulation, ecosystem services, clean-up, control and eradication efforts on their lands.

Paul Souza noted that the Burmese python issue has captured the national stage. The program Python Hunters which airs on the National Geographic channel is filming in North Key Largo and he saw it as a moment to shed a light on this need by telling their story. Chuck Collins added that it is a big issue when working across different boundaries to get the proper permits to coordinate efforts like the python hunters and they are working closely with the District to actually permit some of these guys to go on their lands. It brings out the bureaucratic problems they have associated with tackling these issues and simply allowing people to remove these exotics. It is something that needs to be addressed for the rapid response.

Dan Kimball, on the early detection/rapid response capabilities, said the park has been trying to cobble together some dollars for a federal position and they need that position to provide that coordination. He has been talking to Sean Morton and others about the lionfish problem. There may be an opportunity here to for some type of coordinated response to do an attack. Gil McRae agreed it may be too late for an early detection response for lionfish but it is never too late to do something. They are finding lionfish in most of the places they have looked for them. He agreed they should form a group because it may be controllable. Paul Souza said the early detection rapid response recommendation is extraordinarily important adding that they now have confirmation of a breeding population of northern African pythons close to ENP. There was an effort earlier this year to try and eradicate that snake which did not happen. There will be other species coming into their sub tropical climate and having the capacity in place to keep them from establishing a foothold is essential. Kim Taplin suggested having an outreach effort

to get the locals (dive clubs, fishermen, etc) involved. John Lane said the lionfish are out there and they are not going to be able to control them. They have a team of dogs to get the African python under control. They need the economic data to show it why it is that they need that EDRR position.

Dan Kimball said they have talked with their budget examiners and based on their priorities it will not be until 2014 before they can expect base increases. They are exploring the use of entrance fee money. They are looking to the federal entities around this table to see if they could cobble together enough money for a position as well as money to carry out that program. Greg May said they need to touch base with Ronnie Best who had said there may be some funds available.

Dan Kimball said he went to a lionfish derby down in Key West encouraged anyone who is able to attend one of these events.

Greg May, on the interagency funding to implement the EDRR, noted that everyone has their own pot of money and spend it on their jurisdictional boundaries. Fighting invasive is like fighting a fire and they can't stop at a boundary. He asked what the issues were that were preventing the folks on the ground from pooling their funds to use in the most efficient manner. John Lane said the Park Service does have the authority to treat invasives outside of their borders, the Corps doesn't. This is something this group could help on.

Todd Hopkins said the jurisdictional issues quickly lead to gridlock. He suggested this group put together a white paper on the fastest way to approach these things given the jurisdictional restrictions. It could include the various ways you can and can't act and be updated as laws change. It could be used by the ECISMA.

Joe Walsh noted how valuable Ed Wright's participation has been. NRCS has a very lucrative program for private lands access with several funding sources. They do not get at managing wildlife species but the framework and the relationships, Partners for Wildlife Program, are habitat restoration programs that look at the ecological services end of it. The relationships and outreach with private landowners is there and the framework is there and he encouraged the group to contact NRCS.

John Lane said NRCS is a major component of the other CISMAs (Treasure Coast and Southwest). They are working on not only sending people across borders but also pooling money and are hoping to develop an EDRR fund so they can all put a little in. Pooling of federal and state money has been done through the National Guard who crosses those borders. There are also examples after 9/11 when there was concern of biological attacks and there are regional groups made up of state and federal agencies where money is pooled. He suggested this could be included in the white paper in terms of pooling money.

Greg May, on developing a cross cut budget, said that the basic premise is that before they can make informed recommendations on how much funding is necessary to meet this challenge they need to know how much money they have and where it is being spent. A couple of years ago with the help of the National Invasive Species Council (NISC), the ECISMA started

developing a cross cut budget. They have an opportunity to re-engage with the NISC and pick up where they left off. In addition to the invasion curve the other thing is that they have made a lot of progress in controlling species such as Melaleuca but they can't forget about it because if they drop the ball because they could lose ground where they have made success. The cross cut budget is the foundation for understanding where they are and where they need to be. He has started to exchange e-mails with Phil Andreozzi to begin that dialogue.

John Lane added the idea behind the cross cut budget was initially done through NEWTT and the idea behind it was that the NISC had a top ten priority list that would go to OMB that would be a high priority and theoretically the request would be funded more readily. This could benefit us in these hard economic times.

Dan Kimball noted they touched on enhancing coordination, building on success, developing a regional framework, discussed some of the compliance issues with EDRR as well as access to lands and improving resource sharing capabilities. John Lane thanked the agencies for allowing their people to be a part of ECISMA and urged for that support to continue. Dan Kimball said that in terms of coordination would be the white paper that Todd Hopkins recommended. They should think about the ability for a programmatic NEPA document so they can take action and he will work with the Task Force office on that. They have some good ideas and the main thing is to keep the Task Force focused on this topic.

Climate Change Conceptual Model

Barry Rosen provided a Power Point (Encl. 8) on what they have been working on. The Task Force asked that a conceptual model for climate change related to Everglades restoration be developed. The use of conceptual models has been an effective tool in the past for systematically organizing and prioritizing complex Everglades issues. The 2005 Wetlands Journal has eleven conceptual models most are geographic based with one being a total system model. There is very little information in them regarding climate change and sea level rise and the WG and SCG decided to go back and add those features to either the total system model or the individual models. They held a workshop on October 19th and they want to understand what the drivers and stressors are. At the October Task Force meeting they provided a status update and the Task Force supported this effort completely.

At the Oct 19th workshop they took all the information people provided and came to a common understanding that for this task the model should be a simple, user friendly format to help managers, stakeholders and members of the public understand the model and that additional details should be conveyed in attached text. Participants help create an initial list of Drivers and Stressors that was formatted and sent out for additional review. Several participants provided presentations to help guide the discussion and thinking. Lisa Beever presented on the CEM they are working on in the Charlotte Harbor National Estuaries Program that is funded by EPA, Glenn Landers provided some baseline understanding of what sea level rise will look like and reviewed the three planning scenarios that the Corps was working on. Chris Kelble presented on the MARES approach which is different from the current CEM they are working on. Jayantha Obeysekera described the efforts being undertaken by the SFWMD. The brainstorming led to a suite of drivers and stressors. He has already asked for feedback from the workshop

participants. He noted that they had representatives that understood the built environment at the workshop and they said at the driver and stressor level these are the same things that they were going to have to deal with for the built environment. He asked for feedback from the WG and SCG members on whether this is an inclusive enough list.

They had one break-out called the "policy box" which had things such as insurance for example, which could change if insurance companies stopped insuring because of climate change. They recognized that there are things out there that are out of their control. Next steps are to group the drivers and stressors and make it easier to understand. The whole concept is to make this useful for managers and the public. They have to work on the ecological effects from those drivers and stressors. Carl Havens approached them and said he has some funding he would like to put into sea level rise in the Everglades. They can use the funding to support a workshop on the ecological effects and they are having a teleconference to figure out what this workshop will include. They also plan to document this in a peer reviewed publication.

Chuck Collins said that what troubles him is the policy box, the laws that exist. The legal framework is built on a static system rather a dynamic climate change system and those could be impediments and stressors. They are going to have to put Adaptive Management into high gear as climate changes. Paul Souza added that when Congress envisioned critical habitat for endangered species in 1978 he is not sure they had a climate change environment in mind. The notion of a designating a fixed line on the ground in a dynamic system needs to be thought through the lens of change and agree there are a host of legal aspects and needs to be addressed.

He added that FWS has a partnership with MIT and USGS that is trying to look at alternative futures based upon a variety of different climate change scenarios and look at the impacts on natural resources. It also looked, building upon on FWC leadership with the 2060 Report, at potential land use changes and it was charged with coming up with a baseline of the future. Paul said he was impressed with how the work turned out, they tried to focus on their refuges because of their coastal vulnerability but it is broader and includes the entire Everglades ecosystem. He said he is willing to work with Ronnie Best and see if that effort could be presented at some appropriate time.

Greg May noted that the four counties (Miami-Dade, Broward, Palm Beach and Monroe) recently met and had reached some sort of agreement on sea level rise. Susan Markley clarified they are leaning towards using the Corps' scenario but only looking at the two scenarios with the shortest time frame because the uncertainties are greater with the other two. Miami Dade is concerned with a lot of the policy issues on the Power Point and there is ongoing discussion about the best way to communicate the information and scenarios without speculating about policy impacts. Glenn Landers said there is a Working Group looking at sea level rise projections for common planning use across the four counties. They have done an extensive literature review of the peer reviewed literature and have compared that to the projections the Corps is using based on NAS guidance and they came to the conclusion that the Corps' curve captures what the newer literature shows. The WG is recommending they use the Corps' projections (intermediate and high rate curves). The longer planning horizons are critical

for the developed areas because of the lead time in some projects. Their report has to be ready by the middle of January.

Barry Rosen said Ronnie Best funded a study on the impacts of sea level rise on the urban areas and suggested that if they bring in MIT to talk about the wildlife they can have Bill Labiosa report on the built environment side. Barry Rosen stressed that time frame is less important to him than knowing what is going to happen at the one foot level, two foot level and higher across all the disciples. One foot is going to happen and they need to understand the impacts. Not sure what approach they will use and that needs to be decided. Ken Todd suggested they get the local municipal engineers involved since they design a lot of these things and could prove invaluable. The human population is part of the environment and will be very interested. Barry Rosen said it would be a separate workshop but agreed it is needed. Todd Hopkins said the MIT study would be an interesting way to approach a new angle on CEMs. They have talked to every county and regional planning agency south of St. Augustine and are doing a scenario specifically for Broward County. For example, I-4 corridor will be un-accessible for wildlife. The scenarios are very powerful and something they may also want to see.

Bob Johnson encouraged everyone to also look at what is happening now. Group has been briefed on the Cape Sable project and their effort to plug some of these historic canals. Buttonwood Ridge which is a natural barrier to sea level rise now sees sea level overtopping the Buttonwood embankment in excess of 30 times a year. Once water gets on the other side of the embankment salt water will intrude incredibly fast. The freshwater marsh collapses in response to salt water intrusion. They have to talk about the things they can do now such as adding additional fresh water to the system to offset the potential of saltwater intrusion. No one wants to talk about water quality versus water quantity but they have to have these discussions. The mangroves are not migrating inland to keep up with the rate of sea level rise today and they are disappearing.

Susan Markley said they started with the conceptual model approach because they have experience with that and it has worked well. Once they identify the drivers and stressors and figure out how to communicate them they are more or less the same for ecological effects as they are for effects on the built part of the system. They wanted to start with the ecological side and when they get through with this they will have a set of models that will help them identify priorities. They told the TF they see this going to the built environment too. There are policy concerns about speculation that may arise because of scenarios such as property values, insurance, how to deal with submerged lands, etc. She noted that Barry Rosen has shown great leadership but they need more help to bring this to the next step.

Terry Rice asked Bob Johnson if he was willing to consider dirty water going into the park to prevent the salt water intrusion. Bob Johnson said these are the discussions that the NAS had. Everyone understands they don't want to put dirty water in the Everglades meanwhile the ground is dropping out from below them. The NPS does not want to put dirty water into the Everglades. The trade-off is that the Everglades is subsiding in the absence of water being added. Barry Rosen asked that if anyone can think about what they could do in terms of adaptation or things that can be done in response they could add that to the workshop.

Planning for 2011

Susan Markley said the final item is planning for activities for the coming year. She provided the members with the proposed meeting schedule for 2011 (Encl. 9). Greg May reminded the group that with the Deep Water Horizon they had scheduling conflicts this past year. He asked for feedback on the draft meeting calendar. He noted that several members are not present at this meeting because of budget restrictions and they recognize this is going to be an issue for 2011. They may want to consider having teleconferences which work best to put the finishing touches on an issue. They can also make use of video teleconferencing facilities given the budget realities and travel restrictions for the upcoming year.

Eric Hughes noted the Legislature wraps up in early May. Greg Knecht said it is hard to predict what is on the Legislature's calendar this coming year. Kim Taplin said there are joint PRB meetings in March and October. Susan Grey said the RECOVER leadership meetings are not on the calendar yet but they tend to meet on Thursdays.

Greg May said in terms of logistics they have discussed having all day meetings it is a challenge to focus and concentrate for eight hours straight which is why they have tended to go to the half day schedule. He asked whether there was any preference for a one-day meeting versus two half day meetings. Susan Markley said they should explore video conferencing more for a lot of reasons. It is harder for members of the public to have access to those types of meetings so it may be appropriate for some topics and not others. John Arthur Marshall said he did not mind the travel. At the foundation they use skype.

Greg May reviewed the follow-on actions from the October Task Force meeting. They are continuing with the development of the Climate Change Conceptual model and implementing the recommendations for the invasive exotics response. There are two themes (linking science and management) the prior day they had the three science management topics (Adaptive Management, System Status Report and Integrated Modeling). They need some type of forum where the scientists and the managers can sit down and talk about an issue and have an opportunity to go back and forth. They need emphasis on linking the science and management. The Task Force asked for a workshop or retreat to deal with this issue of linking science and management. The WG/SCG could consider hosting a forum at the nuts and bolts level. Obviously they have to link science and management at various scales (ecosystem, project level, or species level). No single forum will be the silver bullet to solve what they need to solve. He asked whether there was interest in pursuing that for the next TF and WG/SCG meetings.

Bob Johnson noted February is right around the corner and asked if the themes discussed the prior day would be the types of topics for Task Force discussion. Greg May noted the planning for the Task Force meeting is already in full scale and they are not talking about the kinds of details they got into the prior day. At the system level they could present them with System-wide Ecological Indicators. All the federal Task Force members are new and were not around when those indicators were developed. They could provide a presentation on how they came about selecting those indicators and have a couple of the indicator scientists provide an update of the two assessments. They can use that as an opportunity to dialogue with them and get that

science management connection. At the project level they could present a ROG or an ERTP – present some science and show the management options as a result.

Susan Gray said the scientists feel they are not being listened to and RECOVER does not know how to hand off its products. They need to ask the managers what they want and how they want it. They can make presentation after presentation but until they have that discussion it is not going to matter. The SSR should be fully web enabled at that point and that along with the key findings and discussion about management relevance. Greg May said one thing that has been used successfully is the oyster HSI. What encouraged him was not when he heard the presentations but when he talked to the scientists and managers involved. SSR is a fantastic science product but he has not seen the widespread science/management meeting of the minds. Susan Gray said they have made a lot of progress.

Greg May clarified the WG and SCG could host a forum where they bring in all the scientists, NGOs, universities, tribes and key managers that would be users of the SSR. Susan Markley said they have to be clear about these categories or labels they are using. The types of management questions and categories of scientists at the project level and at a higher level will be different and this needs to be thought through as well.

Bob Johnson noted that they had the science synthesis projects presented and he tried to make a compelling argument that this is their role to deal with this. There will be progress on all of the efforts and they will be ready for the Task Force by June. That is one forum where the process did go out to the managers and ask them what for the questions they needed answered. On the coastal marine side, MARES project, specifically went out and talked to all the coastal managers. The synthesis project on the freshwater system is similar as well as the next steps with the Knowledge Gained with the Corps is also there. The science synthesis projects are very valuable because they are all touching on ecosystem services.

Greg May said another related topic is the idea of systems tools to analyze options to try and determine, given finite resources, where is the best use and sequence of using those resources. The integrated modeling is one aspect of the decision support tools. Carole Wehle talked to MIT and it would be good to hear about that as it unfolds. Susan Gray said they are convening an internal team to start looking at this science/management interface that tie into bigger issues such as trade-off analysis. Greg May said another theme is priorities. They have the IDS with CERP and non CERP hydrologic projects that currently goes out to 2020. From the Corps' analysis they can continue without state funding contributions until 2013 or 2014, beyond that they will be dependent on future WRDAs.

He asked whether they could make the schedule better. Maybe if they had better decision support tools it would be easier to make those types of analysis. Several of the things they have looked at this year have been cost sharing and crediting opportunities and they will continue to look at that in 2011. They also have their reports (Land Conservation Strategy, Strategy and Biennial Report and the Plan for Coordinating Science). They have made great strides in improving and consolidating those reports and they want to continue to look for opportunities to streamline and consolidate the reports where they can in 2011.

Paul Souza said that the 2013 or 2014 is one of the most important issues the TF can grapple with. At a minimum the WG and SCG needs to stay current and at a maximum provide some policy considerations for the Task Force. There is nothing more important than keeping the momentum and they can't let Everglades restoration stop. WRDA is out of their hands but the TF has influence on Congressional considerations. If there are other policy considerations such as land crediting, then they should consider those. Bob Johnson noted that at the TF meeting Carol Wehle discussed the cost of water quality clean-up and he heard that the TF said the WG and SCG ought to be on this thing – trying to figure out – the interagency forum is a good thing to address this. It ties back to project sequencing and prioritization – impression the TF is looking for an update from the WG and SCG. Greg May said the TF ended up focusing on potential cost sharing for water quality features going back to WRDA 96. The WG and SCG may be able to help is in the integrated modeling to provide the decision support tools to make the information more accessible and easier to understand. Greg Knecht said there is a desire of not having one more group trying to weigh in on these complicated issues but if nothing else what's the status, where are we on this. There is a lot of stuff out there and just trying to keep track of it and knowing the status would be helpful.

Bob Johnson said one other thing is the growing effort to look at the Central and Southern Everglades as a planning process from the EAA southward, the Everglades Protection Area. The most recent DECOMP workshop in December and the project sequencing document on DECOMP and sheetflow enhancement projects brought it home for him. Labeled in the Yellow Book as the heart of Everglades restoration and the first phase is back to 2019 for completion and the pieces that really move water in a way that affects a large part of the ecosystem (Phases 2 and 3) aren't in 2020. That is a huge change from what was in the Plan when the Yellow Book was approved and they need to talk about the consequences of doing that. If that is where the planning horizon is now it says something about this Central and Southern Everglades planning process, they can spend 10 years planning this because the construction is 10 years off. Greg May added the Corps has been looking at the Pro Regs with a view towards trying to find efficiencies in the process of analyzing and justifying projects for Congress to authorize and fund. There have been a number of workshops on how the process can be streamlined. They are looking throughout the country for a more streamlined planning process. The Central Everglades idea may be a pilot project to explore that and they will continue to hear more about that in the future.

Greg May said they would revise the meeting schedule and send it out to the members. Science/Management workshop planned for the TF in February 2011 and for the WG/SCG.

Public Comment

John Arthur Marshall (ARM Foundation) reminded everyone that every time he speaks it is on behalf of his late uncle who had the right vision of getting the Everglades restored. When he makes public comments and requests his general approach has been to put it in context with what was promised in CERP. He has discussed the potential of getting an EAA CEM established. The WG and SCG have been asked that a CEM for the ROG Workshops related to Everglades restoration be considered. A status of the effort has been requested at the next WG and SCG meeting in March. He noted that one reason he has pushed this for quite a while

is that this particular region was where the pond apple forests existed and their role of the pond apple forest south of the Lake should be considered. The ROG workshops will resume and this is important at this point in time of transition to raise the issue of continuing the Governor's initiative to restore the missing link. NGO community is worried that the Governor elect is not as familiar with the needs for Everglades restoration. They look forward to working with this group in the future.

Kelly Keefe said there is an effort getting started that is being implemented by RECOVER. The CERP Monitoring Implementation Strategy in response to budget cuts that have happened and are anticipated. RECOVER wants to make sure that the monitoring that takes place in the future is leaner and more efficient and at the same time remains effective. They don't want to lose any monitoring that is really needed and at the same time don't want to continue any monitoring that is redundant. This will be an opportunity for everyone to get involved in the science and management communication. All CERP Monitoring will be on the table.

Susan Gray added they had an unexpected budget shortfall and it affected the southern coastal systems monitoring and they had a great effort looking at what was critical to maintain and they looked at all of it for a specific region and decided to do this for all the regions. A kick-off meeting scheduled for this Friday in Davie starting at 9:30AM. They will establish the criteria and expectations of what they will accomplish. They recognize that times are tough and they need to be conscientious. Susan Markley said that to avoid possible any possible misperception when CERP MAP and other monitoring programs out there they already are optimized. No one should think there is unnecessary monitoring going on. There is simply not enough funding and additional assessments need to be made if they cut something further, what is the consequence.

Susan Gray said they are trying to see what they can salvage in some cases and the bare bones necessity to get through this shortfall. They want to be creative without sacrifice the science. Chris Kelble said that if you scale down completely you can't detect any trends and determine the effect of a project. When you scale back up there are initial start-up costs (staff, equipment) so savings may not be as much as it appears in the beginning.

Barry Rosen one a broad scale it is their responsibility to show that their CERP projects have done some good. If they don't have enough monitoring in place before and after and show what they have done with the restoration then shame on them. His agency does a lot on ground monitoring but there are anti-deficiencies and if a project is not funded they have to go out and remove the equipment.

Meeting adjourned at 11:40AM.

<u>Handouts:</u>

1. Agenda
2. Draft meeting minutes, September 2010
3. Progress Towards Restoring the Everglades presentation
4. Overview of the 2009 System Status Report (SSR)

    a. Presentation
    b. 2009 SSR Key Findings
    c. Executive Summary
5. Adaptive Management for CERP
    a. Establishing and Implementing Adaptive Management for CERP presentation
    b. Overview brochure
    c. CERP Adaptive Management Strategy
6. Linking Ecological and Hydrologic Models presentation
7. Invasive Species: Next Steps presentation
8. Climate Change Conceptual Model Update presentation
9. Draft 2011 Meeting Schedule