

JANUARY 27, 2009 MINUTES

FLORIDA KEYS NATIONAL MARINE SANCTUARY WATER QUALITY PROTECTION PROGRAM

STEERING COMMITTEE MEETING

Members Present:

Charlie Brooks– Key Largo Wastewater Treatment District
Charles Causey – Florida Keys Environmental Fund
Roman Gastesi – Monroe County Administrator, representing Mayor Neugent
Jim Reynolds – Florida Keys Aqueduct Authority
Shelly Trulock – South Florida Restoration Branch, U.S. Army Corps of Engineers/Jacksonville, sitting in for Col. Paul Grosskruger.
Ed Fussell– Mosquito Control District
Jon Iglehart – Florida Department of Environmental Protection, representing DEP Secretary Mike Sole
Mike Peyton, representing Regional administrator for EPA Region IV
Billy Causey – Southeast Regional Director, NOAA’s Office of National Marine Sanctuaries
Dave Score – Superintendent, Florida Keys National Marine Sanctuary
Gerald Briggs – Bureau of Onsite Sewage Programs Florida Department of Health
Sandy Walters – SWC, Inc., local environmental consultant, representing maritime interests of the Florida Keys
Chris Bergh – South Florida/Florida Keys Program, The Nature Conservancy
Rusty Stevens, Commissioner Key Colony Beach, representing Mayor Sutton

- I. Opening Remarks:** Mr. Mike Peyton - Director, Science and Ecosystem Support Division, U.S. Environmental Protection Agency, Region 4 and Mr. Jon Iglehart - Director, South Florida District, Florida Department of Environmental Protection

As the co-chair Mike Peyton, welcomed everyone to the meeting today. He explained that there have been changes in EPA, including some organizational shifts. He is the director of EPA’s Science Support Division in Athens, Georgia. That office is now taking some responsibility for science support for the WQPP’s research and monitoring programs. He added that he was raised in Key Largo and has always had a fondness for the area. He wants to keep up this stellar work that has been taking place as long as the funding is available.

Mr. Peyton introduced Jon Iglehart, FDEP, who is co-chair of the meeting today and explained that Representative Saunders could not be here today, but hopefully he will be on the phone to give an update on funding.

Mr. Peyton announced that Fred McManus took on a new supervisory position and will not be working with the WQPP any longer. Fred did some stellar work and he will be sorely missed. Mr. Peyton has asked Pete Kalla to work with people down here. Pete has experience in research in the Keys and recently completed restoration research in the Everglades. Mr. Peyton wants his group to add some value to the work already being done. He would like to stand poised in case budget changes affect the Keys programs.

Dr. Billy Causey asked if he could say a few words about Fred to the committee. Dr. Causey can't think of a more dedicated person than Fred McManus. He began working with the Sanctuary and WQPP in November 1990 and put his heart and soul into this program. Please express our heartfelt thanks and congratulations. We appreciate everything he did over the years.

Mr. Richard Harvey added that Fred agonized over this career decision, but had to move on to another opportunity. Although he is already working in his new position, Fred is so dedicated that he even pulled together information for this meeting. Mike will carry the message of appreciation back to Fred in Georgia.

Mr. Iglehart moved that the committee to pass a resolution to prepare a plaque to formalize Fred's contribution. Mike asked for discussion and there was none. The resolution passed unanimously.

Mr. Peyton thanked Ed Fussell, Monroe County Mosquito Control District, for the providing this wonderful facility and meeting room. Mr. Fussell replied by stating that he is glad to have this meeting here and if it works out for your schedule, it can be a permanent meeting place for you. He also thanked Nancy Diersing and Joy Tatgenhorst, Florida Keys National Marine Sanctuary, for setting up the room and logistics. Mr. Peyton mentioned that the speaker cards for speakers should be filled out and returned if anyone wants to speak at public comment period this afternoon.

A. Review Agenda: Mike Peyton

Mr. Peyton mentioned that this is the time to change the agenda, if requested. Mr. Iglehart would like to move that #6 on the agenda, an update by DEP Gus Rios, to the afternoon and replace it with #12, steering committee budget, so that a quorum will be present when the budget is discussed. So agreed.

B. Discussion and Approval of Minutes: Mike Peyton - Steering Committee Vote

Steering committee members introduced themselves. There is a quorum present. There was motion and a second to pass the minutes from July's meeting. They were passed unanimously without comment.

II. Status of Federal Funding to Support Wastewater and Storm Water Infrastructure in the Florida Keys: Ms. Shelley Trulock - U.S. Army Corps of Engineers/Jacksonville District

Mr. Peyton suggested that Ms. Shelly Trulock report first about the good news that she has after 6.5 years.

Ms. Trulock, Project Manager for Florida Keys Water Quality Improvements Program, explained that Public law 106554 authorized the Army Corps to get involved in the planning, design and construction of stormwater and wastewater projects in the Florida Keys. There is a limit of \$100 million, so the federal government can contribute up to that amount. The cost-share for this federal money is a 65:35 split. If all funds were allocated, the federal contribution would be \$100 million and the local contribution would be about \$53 million. An intergovernmental task force decided how the money would be distributed in the Keys back in 2001.

Ms. Trulock announced that PCAs (Project Cooperation Agreements) for Key Largo, Key West and Key Colony were approved in January. Key Largo requested an amendment to their PCA and it was approved in July. Islamorada's PCA was approved in July. Marathon's PCA was approved in October. Layton has required special approval to move forward with their PCA. That has been granted by headquarters and the agreement has been reviewed and approved by Layton. The PCA will now go to the Assistant Secretary's office for execution.

Reimbursements have already begun to be provided for this program. Local municipalities have to spend the money first and then be reimbursed by submitting invoices. She has paid several invoices and she understands that other invoices have been sent to her for payment. Ms. Trulock thanked everyone and reminded everyone to keep the invoices coming into her office. Invoices are being paid within 30 days of receipt. The process is very fluid right now.

Ms. Trulock showed a slide that summarized the spending to date. The program has received about \$8.8 million to spend and \$7 million is in the bank yet to spend. She is hoping that all of that is spent in the next 30 days. She pointed out that they are on a continuing resolution with respect to their budget. She hopes that they will see additional money when Congressional add money comes through. Both the Senate and the House had money for this program. They usually appropriate a certain amount and then hold back a little and that money is never received.

There was a question regarding whether Army Corps was seeking federal stimulus money for this program. Ms. Trulock has applied for federal stimulus money--\$20 million. She doesn't know what restrictions will be on that money, though. She has also put in for additional money in 2010 and 2011. Ms. Trulock showed another chart that summarized how much had been allocated for each municipality and how much had been spent by this time. Handouts with more detail were provided. At the last meeting, it was decided that

any future money received will be divided between the last four municipalities remaining. The \$7 million does not include any additional money for 2009. Hopefully, they will see Congressional money once the budget is passed and stimulus money, too.

Mr. Harvey announced that Representative Saunders could not call in for the meeting.

Ms. Trulock took questions from the committee and audience. A question was asked if there was any possibility of getting the full \$100 million funded through stimulus money. Ms. Trulock had not heard that idea proposed, but thought it would be fantastic if we received \$20-\$30 million since there are so many competing projects.

Mr. Harvey added that stimulus money will require that all permits and plans be in place in advance and be ready to spend the money and employ people. Mr. Peyton is taking this information about the interest in the stimulus package and the readiness for the Keys back to the Water Division and Regional Administrator for EPA. He sees no better place to get that money flowing than here. A suggestion was made by Mayor Clyde Burnett to ask for the full authorization in the stimulus package. Ms. Trulock added that could be done.

Dr. Causey added that there are many shovel-ready projects here in the Keys. CDR Score noted that NOAA has also been hearing about habitat restoration projects that are shovel-ready for the stimulus package. He explained that whenever possible, it might be wise to connect the idea of water quality improvements with habitat restoration. Habitat cannot be restored without restoring water quality, too. Mr. Rios added that he received some stimulus grant information from Kent Edwards, DEP Environmental Administrator for the Florida Keys National Marine Sanctuary. He passed the email along to everyone else. It has a very short notice of response—by tomorrow COB. But, it is short form that only requires a one-page description.

Dr. Causey said that NOAA received word yesterday that a part of the package going to NOAA for habitat restoration will be divided between a NOAA restoration program in St. Petersburg and the Coral Reef Conservation Program. The projects that are geared up and shovel-ready will be the ones that are selected for funding. The amount is \$400 million to NOAA for habitat restoration.

Mayor Worthington mentioned that in the Florida budget, there is \$7 billion in the wish list from FDOT for roads and bridges with none of it planned for the Keys. He thinks that a very good point could be raised that if stimulus money is not going to be spent on the Florida Keys, at least they should do as promised and give the Keys their share of the road money.

Mike thanked Shelley and noted the good news that she brought to the committee.

III. Florida Legislative Update on State Funding to Support Wastewater and Storm Water Infrastructure in the Florida Keys: Representative Ron Saunders - Florida House of Representatives

Mr. Peyton introduced Representative Ron Saunders representative, Elaine Higgins. She apologized for the fact that Representative Saunders could not be at the meeting. He is in Tallahassee preparing for the budget and upcoming committees hearings scheduled for February. There is nothing new to report. The Congressman is scheduled to meet with a budget committee in February and to meet with a congressional committee to update him on the stimulus package. Mr. Peyton suggested that an open line of communication be kept between the parties. He noted that a conference call in the future might be beneficial, especially after Mr. Harvey presents the budget for our studies. EPA could get an update from Representative Saunders at that time, too. Mr. Peyton called for any further discussion, but there was none.

IV. Report on Environmental Finance Assistance to Low-Income Residents of the Florida Keys for Wastewater/Storm Water Infrastructure Upgrades: Dr. Susan Hammaker - Florida Keys Wastewater Assistance Foundation, Inc. and Key Largo Wastewater Treatment District

Dr. Hammaker discussed the need for assistance to low income residents of Florida Keys. When she became chairperson of the KLWTD, she had to resign her position as chairperson of the Florida Keys Wastewater Assistance Foundation. Mr. Chris Sante is the new director of the foundation and Mr. Chris Bull is the executive director. Mr. Bull will be a few minutes late. He can provide an update at a later time today.

Dr. Causey addressed the quorum issue. Ms. Jody Thomas, The Nature Conservancy, recently took another position working on climate change issues. Her replacement is Chris Bergh. Dr. Causey made a motion to have Chris take Jody's place. The motion passed unanimously. Chris said a few words about himself. He is a lifetime Keys resident who lives on Big Pine Key. He is the director of TNC and oversees the Coral Reef Resilience Program. He is also a member of the Sanctuary Advisory Council. Mr. Peyton welcomed Chris to the committee.

Mr. Charlie Brooks noticed that Islamorada is not seated at the committee table and he thinks that they should be on this committee along with Marathon and the District. He would like to invite them on the board if they are interested. The Mayor and Vice mayor are present. A motion was made by Mr. Brooks, but a discussion followed as to whether or not Islamorada had a permanent seat or not. The procedure is that a 2/3 vote is required to add a new member, but not for a replacement. Islamorada can sit at the table because they have a permanent seat. Dr. Hammaker pointed out that she and Mr. Brooks will replace one another from time to time and that was set up with Fred McManus previously.

V. Review and Take Action on the Proposed FY 2010 Budget for the Water Quality Protection Program: Mr. Richard Harvey, U.S. EPA, Region4; Steering Committee Vote

Mr. Harvey presented the budget to the committee. He directed everyone to turn to tab 5 in their briefing booklets. Normally, they would ask for approval of next year's budget at this time since they forward fund the WQPP. However, the federal government is on a continuing resolution at this time. If EPA were to continue with programs in place today, then they would propose to spend \$580k for water quality, seagrass and coral reef monitoring, data management, FKNMS office, public education/outreach component \$30K, SEAKEYS project. When all of this is added up, the budget would be \$1.385 million for 2010. This money is not in hand, though. This is a transition time. He pointed out that the WQPP is fortunate to have the Ecosystem Science Support Division directed by Mr. Peyton available to work for the WQPP. Their contribution can add value to the process. Mr. Peyton and Mr. Harvey have discussed this support extensively during last few months. This might be a good time to take another look at the Battelle report and see what is being done to address the recommendations contained in that report. This will allow them to report back to Congress through the Coral Reef Task Force on the status of the resource.

Mr. Harvey would also like to identify water quality improvements. He offered to take a look at the budget, but did not ask the committee for approval today. He suggested that he and Dr. Kruczynski and others take a few months to review things and then update where we are in the budget at that time through a conference call. Mr. Harvey noted that they might choose to schedule another meeting if needed. The budget is tentative at this point. They have been able to fend off budget attacks for this program in the past by making people understand that this program is a mandated activity.

Mr. Peyton added that the work done in the Keys has been stellar. His division only wants to add value to the process. Every year Region IV has been losing money and he knows that budgets are tight. Mr. Peyton added that they don't want to change the projects, just to add value. They hope to hold onto the budget for this program.

Dr. Causey added that he has heard that Mr. Peyton's science program is geared to enhance what research is being conducted. He also noted that he is really excited about the new scientist heading up NOAA, Dr. Jane Lubchenco. She is a marine ecologist who is a strong proponent of science driving policy.

Mr. Charlie Causey noted that he has always been in favor of this program over the years. He was hoping that somehow the special studies could be brought back. He suggested that perhaps a few dollars from here and there could be gleaned from the monitoring programs to support special studies, even though budgets are tight. He agrees that monitoring is important, but special studies find out quickly about things. There are needs in the area of water quality and seagrass. He would like to see some discussion into starting special studies again.

Mr. Peyton stated that this was a perfect segue into this next topic. He and his group would be happy to talk with members of the committee about science needs. He would like to get a game plan together and has set some time aside to address these needs. Mr. Charlie Causey asked to EPA to think about carving out some funds for special studies from the existing budget, especially since it had not been approved yet. Mr. Peyton pointed out that if they helped with special studies, his division would be using their appropriated resources and staff and not WQPP funds. Dr. Billy Causey added that it was the special studies that gave the WQPP monitoring studies so much credibility in the science and management communities. Dr. Kruczynski ran a stellar program with a peer review process. That made it squeaky clean and the science results could be defended. Mr. Peyton stated that his division in Athens, Georgia was the first in the country to be fully accredited both in the field and laboratory. His lab has taken the necessary steps to enhance its credibility.

Mr. Bergh pointed out that if they are planning to examine existing monitoring programs, they might want to know that FWC is in process of reviewing the FWRI coral monitoring program and has asked for comments on the coral monitoring. Mr. Bergh suggested that EPA might consider weighing in on the coral program to make it more like the seagrass program, which is based on random sampling approach and not just the fixed site monitoring.

Mr. Harvey said that was an excellent suggestion and added that if anyone has any suggestions for special studies or other related comments while things are being reevaluated over the next few months, please contact him, Mike Peyton or Pete Kalla. Mr. Harvey wanted to emphasize that they are trying to find better ways to get better information. Mr. Peyton suggested that they set up a conference call to get input on this topic.

The question was asked as to whether the special studies would include a study on the green water located off Islamorada for the past two years, which has been really bad and had a major impact on fishing in the area. Mr. Charlie Causey noted that the blooms in Islamorada have been very visible and have been known to kill sponges in Everglades National Park. The Sanctuary/NOAA sponsored one algae bloom workshop to summarize all that is known about blooms of this sort in the area. CDR Score suggested that the algae bloom report might provide a basis for further research actions. It is posted on the Sanctuary's website.

Dr. Bill Kruczynski thanked Mr. Causey for justifying the special studies. In the past, a panel of scientists called the Technical Advisory Committee (TAC) for the WQPP reviewed the proposals for the special studies and the final reports for the special studies are posted on the sanctuary website. There are few still outstanding, but most are posted.

The idea of getting a small group together to vet ideas before bringing them back to the committee was raised again and it was agreed that this should be done soon, perhaps when Dr. Kruczynski returns to the Keys in early March.

Mr. Iglehart asked about the funding of the special studies in the past. Dr. Kruczynski explained that they were mostly funded by EPA's WQPP. At one time, the SFWMD provided funding as did the Sanctuary Friends. Specialist studies total \$1.2 million with almost all funds from EPA. Dr. Kruczynski pointed out that DEP has funded some very specific targeted research in the past few years. They are not technically special studies, but function similarly.

Mr. Reynolds asked as to whether the Little Venice project was a special study. FCAA is helped fund that study at times. The primary funding has come from DEP. Dr. Boyer stated that there is still some monitoring going on for that project. It requires about \$200k per year. It is slated to end this summer/fall, primarily because of funding. Mr. Harvey added that they are committed to finishing the study and then the results will be examined. Mr. Iglehart stated that DEP had placed the study on the list for removal of funding. They chose that project because they felt that enough work was done on the project and that they could revisit the study in the future.

Dr. Boyer agreed that it doesn't seem viable to continue. They have done what can be done at this level of effort. He would like to revisit it in the future at some reduced level. Dr. Boyer did add into this year's study plan a microbial source tracking and are looking at bacterial fecal coliforms and other indicators that are specific for humans. This is being done through a subcontract with NOAA AOML. The program can be carried through next year. It was expected to continue, but instead Dr. Boyer recommended that the \$100k for the second year of that study go toward continued seagrass and coral reef monitoring.

Mr. Harvey suggested that they have a meeting locally when Dr. Kruczynski returns to the Keys. In the mean time, they can collect suggestions for possible studies, etc.

It was agreed that at this time the committee is not ready to move forward with approval of the budget and all were assured that no work would stop if the budget is not approved since funds are planned for well in advance.

Mr. Iglehart moved to put a bullet on the budget for special projects even though money is not available now. He would like to see that bullet included on the list. The motion was seconded and approved without further discussion.

The Chair recognized that Chris Bull from Wastewater assistance program has arrived. Mr. Peyton recognized him and stated that he could give his presentation after Ms. Wood.

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VI. Status of Implementation of Monroe County Wastewater Master Plan and Wastewater Upgrades by Municipalities and Key Largo Wastewater Treatment District: Ms. Liz Wood - Monroe County, Representatives of Municipalities and Key Largo Wastewater Treatment District

Ms. Wood thanked everyone for their time. She stated that they have made a great deal of progress in the past 18 months and many projects will be ready to proceed as of July 1st and many are already under construction. Currently, less than 10% of the EDUs in the county are in the planning phase. Ten percent have moved into design. Full hook-up has been implemented for 44% of the total Keys-wide. A couple of projects that have moved forward include a couple of service areas in Marathon going into construction, a couple of basins in Key Largo going to design, and Islamorada beginning to levy taxes for design for treatment plant. Specifically, they have been putting staff effort toward keeping projects funded and moving ahead. She reported that a bid was received for an upgrade of the plant in North Key Largo Utility Corp. State-federal or State funding for this project would be very helpful to keep that moving long. Construction timeline depends upon funding completion of funding plan. For Islamorada, a design engineer was selected to complete final planning and preliminary design for remaining service area. Connections are proceeding for North Plantation Key Phase 2 and a request for proposal packages are being developed for decentralized central system for Windley Key. They are working County-wide with package plant owners on whether or not their area will be on central sewage, so that they can avoid having to pay twice. She does not know the status of whether the North Plantation Key Plant may be used to connect to Indian Waterways, but she expects that will be in the design contract report that was contracted for several months back.

Ms. Wood reported on the status of Marathon's six service areas:

Area 1 – Treatment plant location being finalized;

Area 2 – Boot Key bridge is closed;

Area 3 – Collection system bid and treatment plant bid closes February 12, 2009;

Area 4 – Collection system is approximately 55% complete; treatment plant is 65% complete;

Area 5 – Collection system for commercial area of Little Venice is under construction and the WWTP expansion is expected to be bid in first quarter 2009 (new construction since last meeting);

Area 6-- Collection system is 30% complete; WWTP is 35% complete (new construction since last meeting); and Area 7– Decentralized system planned.

In the Key Largo Wastewater Treatment District, the transmission main is complete, as was stated at the last meeting. Basin A construction is complete. Basin D construction scheduled for completion in May 2009. Basin B construction is scheduled for completion in mid 2009 and Basin C construction is scheduled for completion in late 2009.

For the south components in KLWTD, the design of transmission main is 90% complete. The design for Basins E and F is 30% complete. A preliminary Design Report has been submitted for Basins G and H and she believes that the final contracts are in place for design of remaining collection systems (Basins I, J, and K). If not, they will be able to move the final basins into design this June.

As for the rest of Monroe County, the WWTP construction is 85% complete on Big Coppitt and scheduled for completion early this year. The connections will occur when the plant is ready to receive the effluent.

The Duck Key collection system plans and specifications are still not bid and are waiting for the funding plan to be developed. As many people are aware, the undergoing major changes at the County are to move all available funds into construction funds for wastewater projects, including looking at the proposed capital plan to see where money can be found to move things forward. They expect to have a permit for Duck Key plant in July.

The Cudjoe regional design includes the area from Lower Sugarloaf to the Seven-mile Bridge combined in one service area. The alternative collection system recommended the expansion of the central service area. This is really good because there will be a significant overall cost savings because the design has been optimized and the boundary moved to include home that would otherwise have been on onsite systems.

One of the ways that the County and FKAA are looking at reducing costs of projects in the lower Keys is by reducing the number of plants by combining them. A study was done and reported that building one plant on Cudjoe would be less expensive right now from the capital standpoint and would save lots of money over time. By looking at alternative collection systems, they saved money in interest by using SRF and clean water program for that program. They hope to save more money in costs and that makes funding better. Ms. Wood asked if Chuck, Myles or Suzy had anything to add on what she had presented.

Mr. Fishburn represented the KLWTD. He passed out a handout with the updated information since last June. He presented this to the County Commission. Essentially, the entire plan is done and that includes 14,000 EDUs. They do still have some open issues to resolve including those with gated communities, MM 106 to the County line, and property owners living on CR 905. There is a special meeting in February to address the 905 issue.

The regional plant engineering is complete. Basins A, B, C, D are completely designed. Basin E and F are 90% and Basins I, J, and K are 20% complete. All 11 basins are under engineering contract. The transmission line design to the north is complete and the design for the line to the south is 90% complete. The deep well design is complete and legislation for the deep well was included last week with the help of FDEP and that represents a big savings. Basically, everything is under contract. Construction-wise, the north line is 98% complete, Basin A is 98% complete, B is 20% complete, D is 60 % and

E is 80% complete. The treatment plant is 15% complete. The deep well is 50% complete. They are currently at 3700 feet. Hopefully, with the legislation, they will not have to dig the second deep well. Vacuum station is under contract. Grants for the KLWTD includes the county, FDEP, EPA and others.

He explained that they are spending money in other parts of the country because they are purchasing equipment from other states, specifically Illinois, Kentucky, and Indiana. Five of the six vacuum sites have been secured and that is good because there were concerns about the real estate costs. This down-turn in the economy has been good for construction costs and now is making the purchase of property easier, too.

Construction-wise, KLWTD is well underway. He can provide more detail about costs per EDU, etc. In terms of operations, the pilot project for the plant is operational and it is meeting AWT requirements. All district employees in the field have been through Air-Vac school for training and they now have four licensed treatment plant operators and four more employees are pursuing licensing. Operating costs are within budget. They picked rates in 2006 and have been able to maintain them. The funding plans show our assessment history. They used the County's \$4500 as an assessment fee at first and have raised it every year by the consumer price index and it is now at \$5200, but do not forecast it to go up next year. About \$80 million of the \$150 million total was funded from these assessments, almost half, and \$30 million from grants so far. That leaves a shortfall of \$45 million. If they receive no additional grant money, the people of Key Largo will have funded 80% of this project. They are hoping to receive additional money to put that ratio down to 60-40%.

As for the package plants, they have been assessed if they are to be included in the central system. The remaining basin areas to the south will be assessed this year so all assessments will be made by this year and that addresses these open issues. KWTD expects to be done with assessments by the May or June of this year. They have four on-the-ground contractors right now and two are very large and can staff up if we give them more work. If we can get additional funding, we can add more contractors. They hope to get up to more firms on the ground. KLWTD can award change orders on publically bid phases and keep the process moving along. They are benefiting from engineers and construction people who are very experienced, but have been laid off from other jobs. Mr. Peyton asked about the time frame to get things done if more funds were to become available. Mr. Fishburn stated that they have already identified other phases that they are ready to award and they have those contractors on board already.

Dr. Hammaker added that the contractors are being federally certified so that they can use federal funds if money comes along from federal sources like the Army Corps. Mr. Fishburn explained that all new contracts have to will have federally required contract provisions that are now in all federal contracts.

Mr. Peyton wants to make sure that this information about being ready gets integrated into the decision making at his senior meeting. They will not only employ people down here, but will also spend money in other parts of the country.

Dr. Causey added that sometimes people in the Keys don't stress enough the importance of this area to the rest of the country. International and national visitors spend a lot of visitor days and money in the Keys. People love this place and when politicians do something for the Keys, they do something for more than just people in the Keys. Mr. Fishburn added that the Little Venice project is good for everyone because its results can be applied elsewhere.

Ms. Walters commented that in terms of being shovel-ready, in relation for the need to meet our goals and requirements, it might be good to emphasize that there are lots of people who work on the planning and design phases of these projects. People designing projects should also be willing to employ people in other phases, not just the construction part of things. Mr. Fishburn agreed and stated that the Keys are treated to AWT standards and this is not the case elsewhere in the country. That is an expense born by the people in the Keys and not by the rest of the country.

A question was asked about whether or not there will be onsite systems in the KLWTD. Mr. Fishburn responded by stating that CR 905 has 15 or 17 existing FAST systems that are already approved. It looks like that now it will be worthwhile to add those homes on central using grinder pumps and then transmitting to the plant. For those that already on the FAST systems, they will give those people a choice. The KLWTD will put in more FAST systems for a few homes that are too far from the plant. The bottom line, only 4 homes, will probably receive additional FAST systems. There may be additional FAST systems going into Manatee Bay area. They will be having additional special meetings to address these issues in the future, including gated communities, package plants, etc. Mr. Rios asked how many package plants will be left to upgrade in KLWTD. Mr. Fishburn stated that they expect to have two, but there may also be a third one near the County line.

Ms. Susan Thomas, City of Marathon, expressed appreciations for finally having a signed PCA with Army Corps and for the help from DEP, waste management, and SFWMD. She thinks it is important to use established path to get money to us and not waiting for someone to give us money. They have an established path with Army Corps. She encourages this group to encourage Shelley to ask for the full \$100 million authorization. They have been receiving small amounts so far for a long time. Marathon did not qualify for some Army Corp funding because they had about 40% of their construction underway before the PCA was signed. They are under construction in 4 of 7 service areas and fully anticipate meeting the July 2010 deadline with wastewater and with storm water. They currently have four underground contractors and just like Key Largo, when they are fully ramped up, they will expect to have 265 construction, engineering, city employees and consultants working on these projects. She doesn't want to see Marathon penalized for going forward and doing what is supposed to be done.

Mr. Myles Milander, Director for Islamorada's Public Works and Utilities, recognized Islamorada Mayor Cathi Hill and Vice-Mayor Don Achenberg. Ken Fields, manager, is expected to be here shortly. Basically, at this time, they have about 449 connections made

in Phase I on Plantation Key. Phase II is coming online. They have contractors finishing up and hope to bring it online in the next 60 to 90 days and that will help with revenue that is very much needed. They have made a lot of progress in the last six months because of the mayor and council. They have put together a library and seven engineering firms are in place.

The Village designated a firm to manage the projects, Hazen and Sawyer, who will be in charge of land acquisition, engineering and scheduling. They are currently putting a place in at Venetian Shores and have been meeting with the village 2-3 times per week. The Village residents were assessed \$631 per household for planning. That gave them the initial money to get started. They have a \$1million coming from Army Corps toward Indian Waterways and Indian Harbor project. They are planning to work with FDEP to see if they can utilize the capacity of the existing plant. Windley Key is relatively small so they will have a forced main instead of a vacuum because there are so many package plants there. Upper Matecumbe is a challenge. Hazen and Sawyer will be going with the decentralized program. They are grateful for EPA grant money, which is about \$5 million with the Village contribution. It is a struggle to find sites for these small plants, but Hazen and Sawyer will be helping with that task. They have passed the mandatory connection ordinance and that is Village-wide. That will allow us to collect revenue once the construction is complete. He thanked FDEP for working with us on the package plant issue. They don't want them to have to pay to upgrade and then have to pay for the connection fees in addition. They have a meeting with FDEP to finalize the plans, so that they won't have to pay twice. He again thanked FDEP for their assistance in this area.

Mr. Harvey pointed out that there is very much a need to get the word out that EPA has been successful with the WQPP. Many other initiatives around the country have failed for one reason or another. Here, however, he considers this a successful project and in implementing corrective actions.

Mr. Iglehart would like to recognize the leadership of Islamorada with regards to bringing the package plant issues to their attention and working with FDEP on addressing them.

Mr. Chris Bull came forward to give his report on the wastewater assistance foundation. Dr. Hammaker was the driving force and chair for the past year and half. She is now chairperson of KLWTD, so she had to resign. He is now the new executive director. Mr. Chris Sante is the new chair. Mr. Bull explained that the foundation came into existence to help with cost of the connection from the road to house. The prices can be anywhere from \$3K to \$12K dollars to complete that connection. A study completed last year stated that over 40% of the people who live and work here would be burdened by that cost alone. Their mission is two-fold—to be a clearing house for information and use of best practices to save money to lower costs in neighborhoods. They also would like to find money to reduce or eliminate costs for lower income residents. The website is currently under construction. They hope that it will be up there in the next month. They are working with other communities to help eliminate or reduce costs for low income residents. They had a board meeting last week and he is pleased to report that they are focused on getting money here from federal, state, private foundations and the business

community. He sees everyone working together to pool resources, so that less fortunate people can receive help with the project. They plan to provide assistance in the next 6 weeks. His final thought is that we need a coordinated effort to be able to do this without bankrupting the people. Much of the land is government owned, but the much of the costs are being born locally. He hopes that government will work to keep from burdening the Keys people for this area enjoyed by so many.

Mr. Peyton said that he understands how expensive it can be for people living down here and wishes the foundation luck in their endeavors. He wished Mr. Bull a lot of luck in his mission and offered to help in any way he can.

VII. Update on the Development of the Comprehensive Report Summarizing the State of Knowledge on the South Florida Marine Ecosystem: Dr. Bill Kruczynski - U.S. EPA, Region 4

Dr. Kruczynski provided an update of the ecological synthesis book. The Steering Committee received a copy of the one chapter of the book at the last meeting. EPA budget funds totaling \$120K are being used for producing the book in conjunction with Sea Grant at University of Florida. Sea Grant received the initial funds and is in the process of transferring \$103k to University of Maryland for cartoons to illustrate the book. The remaining money will be used to print the first 2500 copies to be given away free. The book has been redesigned to the 7" x 10" format to save money. The font will be a little bit smaller. It will be full color publication with a laminated soft cover. The University of Maryland has agreed to print additional copies of the book for sale. Today, he will be asking for an additional \$25k to get the second printing underway. The book has 180 topics with 90 submittals and will be peer reviewed from the science advisory board from Florida Bay Program Management Committee. The WQPP Steering Committee will also receive a draft copy. The schedule is to have 100 pages ready by March 31 and to have 200 pages ready by October/November 2009. They have contracted a printer in Miami for 2500 copies. The book may be up to 275 pages in length.

Dr. Kruczynski requested help with some tasks that are still left undone. He needs somebody to write a page on the uniqueness of south Florida habitat. Dr. Causey is slated to author a page on biogeography and Brian Keller will be writing about connectivity in the system. Dr. Kruczynski still needs authors for 11 pages. There are a lot of gaps on the section that covers the impacts from people on the Keys. He thought that John Viele might be able to write that section. Ms. Walters said that she had contact with him.

Dr. Kruczynski reviewed the outline of the book, making comments on various topics and showing where some topics still needed authors, including the following: shifting baselines, fishing now and then, effects of hurricanes, managing the Sanctuary for uses (needs someone from FKNMS), wildlife refuges, exotic species. Lad Akins might be a possible author for the exotic page/lionfish. Mr. McClelland could write a page on water quality modeling/canal water quality for the water quality chapter.

Mr. Peyton commended Dr. Kruczynski for his efforts and this extraordinary endeavor. The motion to approve an additional \$25K was made, seconded. Mr. Bergh made a suggestion to have a web-based version in the future. Ms. Walters added that this is a good thing to think about right now so that the deliverables can be in the right format for using again, not a PDF. Dr. Kruczynski explained that the pages are being done in Adobe InDesign, which is a program that can be used by the printers. He is not sure as to how to turn those into a web page. She also suggested that the people producing the book be informed that another possible use in the future is having the information web-based. Ms. Walters also suggested that people need to think about alternative funding sources in the long run for supporting this effort. There are many creative ways that funding can be acquired, including from the private sector.

Mr. Harvey reminded everyone that they have to be careful with a government document and to make sure that the proceeds go to an acceptable entity. There may be a way to make sure everything is done the right way and to get the proceeds back to helping the Sanctuary. Dr. Kruczynski said that they have addressed this issue at this time by planning to print 2500 free copies.

Dr. Kruczynski stated that everyone in WQSC will have their logo on the book. Dr. Causey reminded everyone that the Sanctuary Friends Foundation of the Florida Keys is a non-profit organization that focuses on research and education/outreach for the sanctuary. Mr. Harvey stated that they have been identified as the recipient of the proceeds, but EPA needs to make sure it is completely legal. Eastern National is the company that runs the gift shop in the Eco-Discovery Center and could be one of the many good outlets for sale.

Ms. Walters explained that her comments about fund-raising opportunities were not meant to interact with the budget item.

The motion to approve the \$25K passed unanimously.

Mr. Peyton thanked Dr. Kruczynski again for his presentation and for the effort on this project.

VIII. Update on the Total Maximum Daily Load (TMDL) Reasonable Assurance Process for the Florida Keys: Mr. Scott McClelland - CDM, Inc.

Mr. Scott McClelland provided an update on TMDL process and the status of Florida Keys Reasonable Assurance Document (FKRAD). Reasonable assurance is a process for impaired water bodies. The Florida Keys is an impaired body and everyone agrees on that fact. The Reasonable Assurance Document demonstrates that there are sufficient management activities in place now and in the future to restore water body. The elements of the document are: description, targets, activities, schedule, monitoring and corrective actions. They spent a lot of time on developing the water quality targets. They modeled several conditions for comparison:

1500 –Natural Conditions (Retrocast);

1999 –Baseline

2007 – Current Conditions;

2010 – Ch. 99-395 Wastewater Compliance with Limited Stormwater Facilities;

2020 – Additional Stormwater Facilities.

They first examined resource based targets when looking at nutrient targets. They spent a lot of time down here with stakeholders addressing this target, but they couldn't find existing targets that would be justified for the EPA and the state's TMDL program. Their first approach was to use insignificant increase targets—the concentration increase above natural conditions within 500 meters. They decided upon:

10 µg/l Increase Above Natural TN Concentration

2 µg/l Increase Above Natural TP Concentration.

In distilled water, these numbers/concentrations cannot be measured so these numbers seemed to be pretty insignificant. They also looked at some Outstanding Florida Water (OFW) data from 1985. This sampling was done when the Keys were designated as an OFW. These data showed that TN and TP in 1985 were less than the measurements for 1999, the baseline condition. The second goal became to get better than the 1985 OFW condition. This actually turns out to be the better of the two goals. They examined the regulatory constraints and relied on compliance with State Statute Ch. 99-395 in order to achieve the goals. They met with stakeholders to get their information and wastewater plans. This was a moving target so that might have changed somewhat. They also assumed the worst case for effluent discharge aspects. They used shallow wells for direct discharge and assumed all of the injected water eventually made it to the surface waters. For storm water, the best management practices are not the same in the Keys as in the rest of Florida, so they used a very small removal amount (10%). Again, they wanted to use the worst case scenario.

Mr. McClelland showed the model results graphically with each of the WBIDs delineated on the map. Twenty individual models were used for the entire Keys to model from 100 out meters to 12000 meters. The model was based on the Florida Keys Carrying Capacity study. Model results for TP at various distances from shore for 2020 were represented graphically. In most cases, they saw the effects of the Keys land about 6000 meters out from shore and the boundary conditions are apparent at 1200 meters. This is unique environment. There is a very large receiving body from a very small watershed. This is very unusual and isn't typical except maybe in Hawaii, so they have examined Hawaii, too. The RAD will be reviewed by others in EPA region IV and by others across the country to make sure that it does not cause any concerns.

Mr. McClelland then showed a table with the model results and explained that the TN targets were met at the 2020 and noted that the TP numbers were extremely small. Most people outside and even within the State consider these numbers in the tens of micrograms to be very small. Model results for 2020 included all wastewater and storm water improvements at the 500 meter point from shore. It was noted that conditions may be somewhat different between that point and the shore.

Dr. Boyer noted that number 10 for TP is the standard for the Everglades and that the Keys waters are way below the Everglades standards. The Keys are in the “noise” range and they are adding it above natural and not what it is today, so that value was thought to be pretty insignificant. The other case comparison was made to Outstanding Florida Waters (OFW). The bayside TP is more than ocean side and is clearly better than the OFW measured data, which is a clear standard than many recognize. The OFW designation is one that was given by State of Florida that fixes the water quality at the time of designation, 1986. The regulatory response is to keep things from getting worse or degrading from that point.

Dr. Causey pointed out that some sources of nitrogen are natural and there is water exchange between the bay and the Keys through the channels, so there is conveyance of nutrients in the system.

Mr. McClelland made a comparison with the water quality standards from Hawaii. Typically in embayments, the nitrogen number is lower, but the phosphorus is higher. He noted that the islands of Hawaii were significantly larger than those of the Keys. Mr. Harvey pointed out that there are no EPA or State of Florida numeric criteria for the Keys, which is why a target number has to be developed.

The study also looked 10 canals as they exist today and with the management conditions applied. Phosphorus could be reduced up to 70% in the main canal and 70-80% in the tributary canals. This is a potential huge reduction in phosphorus. For nitrogen there are also improvements from 40-50% based on the removal of septic systems. Dr. Boyer asked whether or not these predictions included the contributions from wrack and other floating organic material? The model only addresses improvements in waste and storm water. While the canals are not part of the OFW and not defined as impaired, they were included because they believe there will be positive benefits in the canals as well as the nearshore waters and wanted to include that information.

The FKRAD Reports were delivered formally to FDEP on January 9, 2009. The document should be posted to the website soon. As part of the assurance process, they obtained signed agreements from everyone, letters of commitment from the various municipalities, etc. Mr. McClelland thanked everyone for their assistance. The US Navy was also included at the last minute. It is a milestone for all of us. He provided the reports and technical reference documents. If they are approved by FDEP, that will change the listing for the Florida Keys as impaired, but does not require a TMDL because the water quality standards will be achieved. They will send to EPA for approval. If approval is not given, TMDL standards will go into effect. FDOT is committing to what is already in their plan for storm water improvements. The review process put in place by FDEP includes a public notice for the listing change that is a formal process.

Mr. Peyton asked whether there is any follow-up to make certain that the results are achieved. Mr. McClelland stated that there is a documentation process, but they rely to a large degree on what is already being done and documented in the status reports. It is not really a permit issue, but a reporting issue and what this group does should be sufficient

to document improvements and that is included in the RAD. It will not be a different monitoring program or reporting process than what is already taking place with the WQPP.

Dr. Boyer commented that a few years ago, Mr. McManus asked him to develop with some strategic water quality targets for EPA. Each year they compare that year's data with the set target and this is another way of tracking water quality.

Dr. Kruczynski acknowledged the wonderful work that Steve Leinhart and Scott McClelland have done. DEP could not have picked two better, more experienced consultants. Mr. Rios echoed Dr. Kruczynski's comments and reminded everyone that the 2010 standards are a major factor in achieving approval. If these 2010 standards are not met, then the requirements will not be met. EPA and DEP are relying on compliance with the 2010 standards. The justification for meeting the 2020 goals falls apart if the upgrades do not get done.

A discussion ensued about the difficulty of the TMDL process and the regulatory nature of that environment, including proving that things have improved with the large grids they use in sampling. The Water Division of EPA, not the one that Mr. Peyton is associated with, is the part of EPA that will be reviewing and approving/disapproving the RAD. Mr. Harvey noted that the RAD was revised to water quality standards language is be very specific and must be addressed in a certain way and that was not done in the first draft of the RAD. This document has national implications and once approved, people will look toward this document and plan as an example. Mr. McClelland stated that is exactly why they spent time explaining the uniqueness of the Keys and how the Keys are not like anywhere else, except maybe Hawaii.

LUNCH

The meeting recovened at 1:20 P.M.

IX. Report on Water Quality Awareness Month (February 2009):

Ms. Karrie Carnes - Florida Keys National Marine Sanctuary

Ms. Karrie Cairns represented the education and communication programs in the Sanctuary. She announced the recognition of Water Quality Awareness Month (WQAM) for Feb 2009. Proclamations from various municipalities and entities are being issued in recognition of the month. As part of WQAM, there will also be live radio shows. Ms. Mary Tagliareni sent out an email with the open slots for radio programs, so if you are interested, you can contact her. If you want to pair up with someone else, that can be done. In an email, Mary provided a slide show, a FAQ and some talking points as background for people who agree to appear on live radio programs. The shows are usually very conversational and comfortable. Ms. Cairns also explained that in the email from Mary was a request for people to submit letters on this topic to the editors of local newspapers. A letter can carry a lot of weight in the community. She also noted that

PSAs with water quality messages will be distributed to radio stations and they are looking into getting finances to buy air time for them.

Ms. Cairns' contact information is contained in the email from Mary that was forwarded by Richard. For letter to the editors, contact me and for radio, contact Mary. Ms. Walters complimented the committee for the excellent slide presentation on things people can do to prevent degradation to nearshore waters. Ms. Cairns noted that the slide program was developed by Nancy Diersing. Ms. Walters pointed out that it included so much valuable information, including not disposing of fish carcasses in the canals, a fact that many people do not know in the Keys. Dr. Causey agreed that it was important to get such messages out. There are always new people as happens every year with mini-lobster season. Mr. Peyton thanked Ms. Cairns for her presentation.

X. Presentations on Climate Change/Sea Level Rise and Question/Answer Session Regarding Vulnerabilities of the Florida Keys and the Coral Reef Ecosystem: Dr. Hal Wanless - Chair, Department of Geological Sciences, University of Miami; Dr. Stephen Leatherman - Professor and Director, Laboratory for Coastal Research, Florida International University; and Dr. Brian Keller - Regional Science Coordinator for the Southeast, Gulf of Mexico, and Caribbean Region of NOAA's National Marine Sanctuary Program

Dr. Wanless thanked the committee for inviting him to speak today. He noted that everyone here is on the forefront of global warming. Some people liken what is going on to rearranging the chairs on the Titanic and in fact this area is the Titanic. It is low and porous and there is not much that can be done to keep water out. The area is not like the Netherlands or New Orleans. Human induced global warming is real and has started. For South Florida, global warming is well underway. Those who are young now will see incredible changes in coming century. The way global warming works is that as greenhouse gases (CO₂, nitrous oxide, methane) build up, they warm up the atmosphere. The heat in the atmosphere gradually warms the ocean and the process continues. Right now, there is no equilibrium between the ocean and atmosphere. The ocean is slow to absorb heat from the atmosphere and is still in the process of absorbing heat already in the atmosphere. It will take a long time to reach an equilibrium and is not something that we stop right now.

In spite of any efforts by people, CO₂ is increasing at an increasing rate and so are methane and the other greenhouse gasses. Methane is a problem because it traps more heat than CO₂. Sea level records show that something happened about 1930. Beginning in 1930, the rate of relative sea level rise increased about 8 fold over that of the past 2,000 years. It is presently rising at 30 cm (1') / 100 years! Rates are different in different places. South Florida is basically the same as the global rate, which is about 30 cm per century. Most of the rise over the past century is rise due to thermal expansion of the oceans. The peninsula of Florida has experienced sea level rise and fall through the geological time. About 120,000 years ago, the sea level was 6 meters higher than today and most of Florida was underwater. About 18,000 years ago, sea level dropped about 420 feet below present day. The Holocene sea-level curve is not smooth, but has

numerous pauses and steps or high frequency oscillations. Sea level rise takes place in a series of steps, rapid rises followed by stable conditions. Geological work has been done on the Texas coast that documents the stops and starts and jumps in sea level rise that have been correlated with major melt-water pulses in Antarctica.

When more recent times are examined, it is evident that sea levels respond similarly in Carolina, South America, Cape Sable. After that warming a little bit, there is a rapid change. Today, the curve is drawn to reflect those fluctuations instead of being smoothed out to show a gradual change. Ice melt, climate and consequently sea level changes take place in pulses. Destabilizing climate is associated with sudden rises in sea level. One of his students drilled cores in the Gopher creek area on Florida's southwest coast and found that an old mudflat existed under the veneer of mangroves that grew on top.

The lesson is that sea level does not respond gradually to climate change. The problem is that all models, including those used by the IPCC, are based on gradual rise and do not have the capability to predict the rate of rise, just the trend toward overall increases. In 2001 the IPCC used gradual linear responses to forecast a 2 foot rise by end of this century. At this time, the rise is already greater than the median that was projected. In the 2007 report, the rate of rise was reduced so that the median forecast now is 1.3 ft and maybe up to 2 ft. The IPCC report included the following statements: "Thermal expansion is projected to contribute more than half of the average rise, but land ice will lose mass increasingly rapidly as the century progresses. An important uncertainty relates to whether discharge of ice from the ice sheets will continue to increase as a consequence of accelerated ice flow, as has been observed in recent years. This would add to the amount of sea level rise, but quantitative projections of how much it would add cannot be made with confidence, owing to limited understanding of the relevant processes. More than half of the contribution will be from thermal expansion, but land ice will lose mass increasingly rapidly in the next century progresses."

Beginning in about 2000, Greenland ice began to rapidly melt. This lower projection 1.3 feet median does not include what is happening in Greenland and is already out of date. Since 2000, Greenland pack ice has been rapidly melting. There has been massive loss around edges and some buildup in the high parts. Moulins are sinkholes in the ice and water flows into moulins, getting underneath ice, lubricating it and causing pulses of rapid downhill movement toward the ocean and that fractures the ice sheet. In 2007, the floating Arctic pack ice covered 33% less area than the previous record low in 2005. It is so thin and broken, it could easily just float out into the Atlantic. Five years ago the Arctic was projected to lose summer pack ice by 2070. Today scientists project the summer Arctic will ice free by 2013! Arctic ice melts release CO₂ and methane and organics trapped in ice, which reinforce feedbacks in the Arctic. In Greenland and in the Arctic, feedbacks are present that were not included in the original models. These things accelerate the melting and loss of ice.

Wind shear is affecting the ice in Antarctica. Antarctica is rapidly melting and has been for some time. The air has been warming at the global average (0.2 degrees C. per

decade) since 1957. That was not known until recently. That means that Antarctica is at risk of melting, too. If Antarctica melts, that will raise sea level a couple hundred feet.

Dr. Wanless is on the Miami-Dade County Climate Change taskforce, which was asked to make a statement on sea-level rise. The task force provided a little more accurate statement, predicting rise at 1.5 feet in the next 50 years and a total of 3 to 5 feet by the end of the century, possibly more. That means, spring high tides would be at plus 9 feet. Whatever the situation at the end of the century, the process will be accelerated, even if humans stopped putting CO₂ into the atmosphere. Dr. Wanless showed a map of South Florida and discussed what a 2 foot rise would mean for the area. Mangroves will not be able to keep up with the rise, especially with hurricanes. Wetlands will be diminishing. Turkey Point will be in the middle of Biscayne/Florida Bay. A 5-6 foot rise will cover Miami-Dade, the Keys except for the highest spots and the world's barrier islands.

Dr. Wanless discussed the unusual high tides that took place in late September during the Spring high tides. He showed a picture of Bayshore Drive in downtown Miami during that time and it was flooded. He also discussed reef growth and what that may be doing to the low energy coastlines. Basically, the 9" sea level rise that has taken place is rapidly eroding our low energy coastlines- resulting in increased turbidity and nutrient loading in our coastal waters. Saline intrusion into freshwater marshes results in death of marsh and rapid decay-collapse of the organic peat leaving vast areas of open water, not mangroves.

More open water is being created as marshes are flooding. There is also the reality of catastrophic events like fire and hurricanes. Hurricane Andrew impacted the mangroves on the west coast of South Florida. When the red mangroves died, the biomass of the roots decayed creating a large unstable environment. Vast areas of mangrove swamp destroyed by the major hurricanes of 1935, 1960 and 1992 have evolved into shallow bays because the rapid subsidence of the root peat prevents recovery as a mangrove community. The major hurricanes over the years have decimated the mangrove forests. Rapid loss of saline and freshwater wetlands is occurring throughout south Florida's coastal complex in response to sea level rise and saline intrusion. Rising sea level is a time of high nutrients and turbidity. Much of that decaying plant matter is washing out into the oceans (Gulf). They have also noted a destabilization along Cape Sable, Lake Ingraham and mud is moving around the system and shorelines are eroding. The freshwater and mangrove areas are falling apart around the coast and adding organics to the water column and it has been seen from satellite images going across the reef tract. Times of high sea level rise are not good for reef development.

The question was asked as to whether or not these organics being released could be contributing to the perpetual algal bloom in Florida Bay that has been persisted in recent years. Dr. Wanless answered that sometimes it takes the mixture of one nutrient with another to foster a bloom. That was true for the blackwater event of 2002.

Dr. Wanless stated that he knew the committee was concerned with wastewater and that is important because all of this change is going to stress the system. He discussed that the

substrate is really important for determining how the coastline will be shaped. The problem is that sandy barrier islands will try to move landward or if the rise is too fast, will just be overridden and abandoned. For every foot of rise, land shore will shift landward 500 to 2000 feet. With a 4-5 foot rise in sea level, essentially all sandy barrier islands will be abandoned rapidly migrating landward or being overridden. Tidal inlets will become more numerous, and many lagoons will become basically open to the sea. Barrier islands will be inundated and yield huge amounts of materials. Envision a world without livable barrier islands by the end of the century. The Keys are rigid limestone and may be inundated.

Even if people stop right now producing and burning fossil fuels and it is almost inconceivable that people will stop burning fossil fuels, there will be problems. People need to get serious about reducing CO₂ input and find a way to reduce atmospheric levels. He concluded by mentioning that he did not address Everglades restoration in this talk. He thanked the audience.

Dr. Causey asked Dr. Wanless to address the question as to whether or not Everglades restoration is worth the money in light of sea level rise. He noted that Dr. Wanless gave an excellent response to that question at the Everglades coalition meeting in 2008. Dr. Wanless pointed to words that Dr. Jim Hansen has written—stating that people need to get CO₂ levels in the atmosphere from 387 ppm down to 350 ppm. Lowering atmospheric CO₂ will slow the heat imbalance between the atmosphere and the ocean. This probably will not slow the first 3-5 feet of sea level rise, but will be a step for limiting a catastrophic greater rise.

The United States is still the leading cause of global warming. The country must take the lead in drastically reducing our greenhouse gas and fine particulate soot production and release and in rapid development and implementation of truly clean energy sources and in removing CO₂ from the atmosphere. Then, this country can take the leadership that the world will follow.

Low-lying coastal wetlands, such as the Everglades will be largely overwhelmed by a 4-5 foot rise of sea level. The underlying bedrock is low and most of the peat has been lost. So, there is little elevation provided by peat buildup to help hold back encroachment by rising sea level. Thus, a broad shallow river basin that used to be full of peat (which kept in moist during the dry season). Now, in the dry season, the water table goes low and it can't hold the freshwater well. The Everglades restoration will build back the peat levels by raising the water levels and that will help keep out saltwater intrusion. Properly done, Everglades restoration will greatly prolong the viability of the freshwater Everglades and the sources of fresh groundwater. Restoration involves the re-establishment of a reliable flow and increased level of southward flowing freshwater and is now more important than ever. Without peat, the Everglades as it is today will become an open-water estuary. Anything that helps maintain the freshwater head is important. How this can be accomplished is the question. Research is needed to quickly learn how to most rapidly build resilient peat substrates back up and a commitment to cleaning and reusing water needs to be made.

Dr. Wanless also addressed the reason why South Florida cannot follow the New Orleans or Amsterdam models. One reason is that limestone is porous and water finds way in no matter what is done to prevent it. The other areas are clay.

Dr. Wanless noted that there are still many people who refuse to accept global warming and some scientists are stating that this is not true. It has been hard for some people, even scientists, to accept. People are now starting to listen more to this message in more recent times, including up at the Florida legislature. Dr. Wanless discussed how people need to work together at the highest levels, including the White House, to address this issue and consider things that will remove CO2 from the atmosphere, like planting millions of acres of trees where appropriate.

Dr. Billy Causey added a few thoughts to the discussion regarding how people have become more aware of global warming in most recent times. Federal agency representatives met to discuss the impacts on federal lands in November 2007. After that meeting, attitudes started to change and the GAO reported on the impacts of global warming on federal lands. Now, the science is out in the open. Dr. Causey noted that federal agencies like the Army Corps are planning to comment on the future in light of sea level rise. Mr. Collins added that could be used as an argument by the Corps against projects in Florida. Dr. Wanless noted that already some of the original restoration plans may not be funded as originally expected and that should be questioned.

Mr. Bergh asked about whether or not the new wastewater systems are being designed with sea level in mind. Mr. Reynolds answered that basically the flood zone has not changed and when the roads have to be refitted, the wastewater system will have to be upgraded. It would be too expensive to build for the future at this time.

Mr. Collins added that an argument could be found here to not do anything because of sea level rise or the view can be taken that the investment for reducing sewage impacts is worth it for the next 50 years. He still thinks plans should move forward and the reuse plan for Biscayne Bay and other similar projects should still be considered. . Taking responsibility for current actions is one step, like planting the trees, and then the second step is to try to fix things by planning for the future and acting in the present.

Mr. Peyton thanked Dr. Wanless for his presentation. Dr. Wanless pointed out that one thing that can be done is to actively try to plant mangroves to help preserve that zone as things change. That will prevent a huge amount of organic decay along the coast.

Mr. Peyton introduced Mr. Gus Rios, FDEP. Mr. Rios presented a FDEP award in the form of a plaque and certificate to Mayor Worthington, City of Marathon. The award is for innovative use of SRF's, especially in the combined wastewater and storm water improvements to address pollutants. Tim Banks, FDEP manager of the SRFs, could not be here today to make the presentation. Mayor Worthington responded by saying how important the SRF funding source has been and that the residents are making their assessment commitments.

XI. Update on Actions Proposed by the Florida Department of Environmental Protection to Assist Package Plant Owners to Comply with the Requirements of Chapter 99-395, Laws of Florida: Mr. Jon Iglehart and Mr. Gus Rios - Florida Department of Environmental Protection

Mr. Rios reviewed the minimum standards for wastewater treatment that existed in the Keys before the passage of the State Law, Chapter 99-395. He also reviewed the current regulations that apply as part of Ch. 99-395 for all sewage disposal systems in Monroe Section 6 of Chapter 99-395, Laws of Florida (L.O.F.) requires all sewage disposal systems in Monroe County to meet new treatment and disposal standards by July 1, 2010. Large sewage facilities with design capacities of 100,000 gallons per day (GPD), or greater, are required to meet the highest level of treatment or advanced waste treatment (AWT). Smaller sewage facilities are required to meet less stringent effluent limits under this law. Owners of FDEP-permitted facilities have been notified of these requirements.

Mr. Rios recognized Steve Johnson for helping with the data for the package plants. Mr. Rios showed a graph comparing the effluents from three different systems: secondary treatment, plants that meet the 10:10:1 standard, Best Available Technology (BAT) and those that meet Advanced Wastewater Treatment (AWT). AWT results in the lowest nutrients, followed by BAT and then secondary treatment. It is harder to get rid of the nitrogen in the package plants than it is to reduce the phosphorus.

The June 2000 Monroe County Sanitary Wastewater Master Plan defines the areas in the Keys that will receive a community wastewater collection and treatment system, or central sewers, by the year 2010. The plan defined what would be considered BAT (10:10:1) standards; the AWT standards were already defined. Local governments in Monroe County are currently, planning, designing and building public wastewater systems and central sewers in designated areas where these systems are feasible and cost effective. However, not all these systems will be completed by July 1, 2010.

The FDEP does not have the authority to extend or waive the July 1, 2010 deadline required by the Florida Legislation. However, if a sewage treatment plant will be abandoned and connected to an approved central sewer system within a reasonable period of time after July 1, 2010, the plant owners and the local govt./sewer authority could enter into a consent order to establish a legally-binding schedule for connection in lieu of upgrading the plant by July 1, 2010. In order to enter into the consent agreement, the plant owners must provide a letter of commitment with a date certain of service. The local government must also sign the consent order and would be committed as a third party in this agreement. Orders must be signed and completed by July. Costs for the preparation paperwork should be a few hundred dollars. The local government sewer authority needs to make the connection available by the date in the order. Facility owner shall abandon the on-site wastewater facility in accordance with FDEP requirements and complete the connection to the central sewer by the designated deadline. The Order shall include Dept. costs for entering the Order and penalties for failure to comply with the required deadlines.

Mr. Rios encouraged everyone to work with Tim Banks in the SRF program, which is back in business now, and provided his contact information, along with other parties that might be of assistance:

*Dr. Abdul Ahmadi, Water Facilities Program Administrator, FDEP South District Office. Phone (239) 332-6975 (Jon Iglehart's office in Ft. Myers)

*Gus Rios, FDEP Marathon Branch Office. Phone (305) 289-2310.

*Tim Banks, FDEP State Revolving Fund Loan, Tallahassee. Phone: (850) 245-8360.

Mr. Peyton asked Mr. Rios how many plants will be in this position. Mr. Rios stated that the intent is for this to be available to owners that would be required to be connected to central sewer and DEP can do this for all plants in that category. All owners will need to know what areas will be offered central connections and what areas will be on their own and can be expected to meet the criteria on their own. In some cases, deep injection wells will be required. The timeline is tight and the deadline needs to be enforced.

Mr. Collins thinks this is fine as far as it goes, but 10 years ago, when he and Nora Williams drafted the idea for this legislation, they were encouraged not to put deliverables in the law. He feels that leaving deliverables out of this consent order is a mistake. He doesn't want people to have to do it twice, but worried that as the deadline approaches, people will make excuses for not getting it done. Mr. Collins stated that he can't support this idea unless there are deliverables and he has talked to the legislators and some of them may have problems with this process, too. He wants to work out what deliverables will show up and when they will be due, just the way that water management did it with the FKAA a few years ago. The FKAA had 5 years to complete the project with six month deliverables. Mr. Reynolds responded that they also had the funding and that helped a lot. Funding plays a big role in determining a date specific deadline. Mr. Collins understands the cost aspect, but it is not going to get any cheaper. He wants to see deliverables that are specific on a regular basis. Some of this federal incentive money could be available to the Keys, but not for communities that are not ready right now and that money may be lost. Some of the deliverables he envisions need to involve bricks and mortar.

Mr. Rios responded that he made an excellent point and added that the consent order templates exist in manuals and have standards applied by the legal people. These are required for plants that do not have permits. This process already has deadlines and penalties built into it and it would be the same for these consent orders.

Mr. Ken Fields pointed out that the package plant owners came to FDEP and the Village with this problem and this process is in place to help them to avoid paying twice. The package plant owners have been strong supporters of village central system, but if Monroe County doesn't make the 2010 deadline, what does that mean to the individual property owner? He is dealing with this as the manger in Islamorada. Does this mean that a person cannot sell their home because of they are not in compliance at that point?

People do not understand what not meeting the deadline means for the individual property owner on their property, its economic impact. Consent orders only apply to plant owners. Since there is no consent order, individual citizens will be on the hook for the fine the way that the law is written.

Commissioner Neugent stated that the key to moving forward is the money promised through authorizations to us from federal and state sources. No money has been appropriated by the State in the last two years. It might be that a one penny tax needs to be levied locally for the cost to reduce the impacts to homeowners, which can be 10-\$25k. This is an issue and Monroe County is responsible, too, for not moving forward to meet the deadline and so is the state for not funding the projects. Right now, there is authorization from Mayfield Grant, but that appropriation is not definite at this time. Everyone needs to move forward in an uninterrupted manner. If the State is not going to appropriate money, then they need to let Monroe County implement a sales tax for tourists and residents to offset costs.

Mr. Collins added that there are many organizations and people will that will file suit if there is not an aggressive campaign to accomplish this task. Even at the first meeting of this group, it was known that the single biggest environmental issue was human waste. The legislature is not going to back down on this law and it is not going to get cheaper. The law calls for a daily fine. Even if DOH doesn't enforce it, they could be sued to enforce it.

Ms. Fields stated that the problem is that 395 does not apply to municipalities, but to individual owners. Some individual owners say that they don't plan to connect.

Mr. Rios added that if nothing is done that the individual systems will operate and then at some point, the municipalities will have to enforce ordinances on these people. FDEP is trying to avoid this path.

Ms. Walters added that because some communities are not being served by the deadline, some homeowners associations will file suit against local governments for not providing mechanism. The alternative of having to put aerobic systems for \$20K vs. having to pay a hookup fee of \$4500 like people in the central areas is enough to drive people to sue. Such lawsuits will not help the situation. There is an equity issue in relation to private property owners and there have to be ways to address them.

Dr. Causey applauds Commissioner Neugent for going after the tax because the Keys are a national treasure. If supports this effort and it needs to be done. Mr. Harvey noted that this morning a discussion took place regarding being ready for the economic stimulus package from the president. Mr. Harvey and the EPA team will take the message back to Atlanta that the Keys are a good place for economic stimulus money. Ms. Wood noted that there are contracts underway in most places in the Keys that is intended for central sewer.

Mayor Worthington commended Mr. Rios for bringing forward this issue. This is really two issues. Mr. Rios is addressing the FDEP letter to package plant owners stating that they needed to submit engineering plans for system by 2009. Such plans could be considered a deliverable. The most recent letter sent by FDEP also provided consent order option. The big picture is with the residential units and that is a separate issue.

Mr. Rios stated a decision needs to be made soon as to which areas will be not be part of the central sewer. This is very important for the property owners because they will need to plan ahead. Knowing this will also help the package plant owners. FDEP cannot do anything without a date certain.

Mr. Collins thinks that most plant owners will hook up to the system. The only way to avoid problems for the homeowners is to get municipalities to assume responsibility. That is where the original legislation was not right. It should have made the municipalities responsible and not the individual homeowner. The legislature didn't fund other municipalities with their wastewater projects. They were sincere about the \$200 million authorization, but the economy is an issue. There is a price to be paid for not moving this down the road. He really appreciates what Marathon has done and how they are a good example.

Mr. Reynolds noted that if there is no funding in Marathon, they may be facing \$175 per month for operating costs. Mayor Worthington stated that they are looking for grant money and without that, they will have higher fees. However, there are some project costs that are less than expected and that has been good for the residents.

Ms. Susan Thomas commented if the annual caps could be increased for SRFs, that would help tremendously. These are a real drawback at this time. She added that they love SRF money.

Mr. Peyton called for public comment. There were no public cards filled out and no one offered to comment.

Mr. Peyton thanked the members for their active participation and careful thought. He also acknowledged Dr. Causey and CDR Score for arranging for Nancy Diersing and Joy Tatgenhorst to help with meeting arrangements. He also thanked Mr. Ed Fussel again for use of the wonderful facility. The idea of moving to Key Largo or Tavernier was brought up to the group. Mr. Bergh pointed out that since Marathon is in the middle of the Keys, it was the logical place to meet. It was agreed that the meeting place will stay in Marathon.

Mr. Peyton wants to hear about special projects from people and move forward with reviving the Technical Advisory Committee (TAC). He hopes that his section can add value to these projects.

Mr. Charlie Causey noted that the SRF cannot loan money to individual homeowners. So if there is not to be a mass exodus from the Keys after July 2010, there has got to be a

way to do that and we could work with Tim Banks and some other folks to brainstorm on this issue. If can't find a way to finance the homeowners, then will lose blue-collar workers from the Keys.

Mayor Worthington emphasized that the Keys are a national treasure and 96% owned by federal and State government. This estimate does not include the National Marine Sanctuary. He traveled to D.C. in April to lobby for federal funds for wastewater and he brought this fact up to everyone and used maps to illustrate his points. There is only a small fraction of land in private ownership. The government is the major land owner and many government employees are being assessed these fees. That message needs to be carried forward. Mr. Peyton stated that he would point that out in his capacity. Mayor Worthington offered to email the maps to Mr. Peyton. Mr. Peyton said that would be great.

Dr. Causey reminded everyone to get their water quality projects ready in preparation for the stimulus funds. CDR Score added that there is \$400 million from NOAA for habitat restoration and without water quality improvements, there is no complete habitat restoration. A sentence like that could be added into a proposal. Dr. Causey pointed out the importance of emphasizing (in a proposal) the national significance of the Keys and how it is shared resource.

Ms. Walters brought up the fact that comparing this community with 75,000 permanent residents having to go to AWT standards to other communities in the country is like comparing apples and oranges. No other place has to upgrade like this area, except maybe Hawaii. So many communities in South Florida have made very little progress in this area, if any at all. They are not being required to install AWT or even BAT in some cases. A condominium on Biscayne Bay has a package plant and untreated sewage empties into Naples Bay, which is an impaired body of water. Yet, there seems to be little attention given to these other areas.

Mr. Causey added that it should be emphasized that the economy down here is based on marine and land habitat and that should be a huge selling point for getting the projects funded.

Ms. Walters stated that if it is appropriate and there are particular legislators that require follow-up contact, please let the committee members know. However it can be phrased, people can weigh in to be supportive of conversations that you are having on that topic.

Mr. Iglehart stated that typically the Management Committee has an interim teleconference meeting about 3 months from now, about mid-way between this and the next meeting. He wondered whether or not the replacement for Mr. McManus would be there. Mr. Harvey added that they have selected the individual to replace Mr. McManus, but have not announced it yet. Mr. Iglehart added that there might be a need for a longer call than the usual 45 minutes for this teleconference call to help prepare this individual for upcoming meetings, etc. He also reminded everyone that for the July meeting, they always to try to schedule outside of the lobster min-season/weekend. Mr. Harvey

reminded everyone that they were welcome to send suggestions for special studies to Harvey.richard@epa.gov and will talk about them in 5-6 weeks here in the Keys and then bring that information back to the full committee. This information will dictate the overall decision making process for the overall budget and should be done before the management committee call. Mr. Iglehart will be chairing the next meeting in July. Dr. Kruczynski suggested that it might be time to get the TAC involved. Mr. Peyton stated how he enjoyed this meeting and is looking forward to working with everyone. Mr. Iglehart stated that he was glad to have him here.

Meeting adjourned at 3:40