

**FLORIDA KEYS NATIONAL MARINE SANCTUARY
WATER QUALITY PROTECTION PROGRAM**

STEERING COMMITTEE MEETING

January 30, 2007

**Key Colony Beach City Hall
600 West Ocean Drive, Key Colony Beach, Florida 33051**

Minutes

I. Opening Remarks: Mr. Jim Giattina - Director, Water Management Division, U.S. Environmental Protection Agency, Region 4 and Mr. Jon Iglehart – Director, South Florida District, Florida Department of Environmental Protection

Mr. Jim Giattina welcomed everyone and introduced his co-chair, Mr. John Iglehart, DEP. Mr. Iglehart noted that Mike Sole, the new secretary for DEP, has a military background and many years of experience in DEP, especially in beaches and coastal areas. Secretary Sole often poses the question, “What is the environmental benefit of what we are doing?” in reference to projects. Secretary Sole will most likely nominate a new person for this committee.

Mr. Jim Giattina introduced new members to the committee: Ed Fussell, Director of Mosquito Control District; Councilman Peter Worthington, City of Marathon; and Commissioner Gary Bauman from Key Largo Wastewater Treatment District;

Members introduced themselves:

Peter Worthington, Marathon City Council, Wastewater Advisory Committee in 02-03

Ed Fussell--Director of Monroe County Mosquito Control District

Jody Thomas--The Nature Conservancy

Sandy Walters--SWC, Inc., represents maritime interests;

George Neugent--Monroe County Board of County Commissioners

Chris Sante--Mayor of Islamorada

Cecelia Weaver--FK Service Center Director, sitting in for Mike Collins, SFWMD,'

Richard Bonner--Deputy District engineer from USACOE

Charlie Causey--Florida Keys Environmental Plan

Bob Johnson--National Park Service, Everglades/Dry Tortugas, sitting in for Dan Kimball

Jack Curlett,--sitting in for Bruce Popham, also serves on SAC;

Clyde Burnett--Mayor of Key Colony Beach

Jim Reynolds--Director, FCAA

Billy Causey--Southeast Regional Director of Office of National Marine Sanctuaries, formerly superintendent of FKNMS, now held by Commander Dave Score

Anne Morkill--Manager for four National Wildlife Refuges in the Florida Keys

Gerald Briggs, Bureau Chief, Department of Health,

Gary Bauman—Commissioner, Key Largo Wastewater Treatment District

Mr. Jim Giattini thanked Cdr. Dave Score, Superintendent of the Florida Keys NMS, and sanctuary employees Ms. Joy Tatgenhorst and Ms. Nancy Diersing for meeting support. He also thanked Mayor Clyde Burnett for providing Key Colony Beach City Hall as a meeting location. Mr. Giattina also introduced Ms. Dee Stuart, Deputy Water Division Director in Atlanta who will be working on South Florida issues and Dr. Jeff Hughes, Director of Environmental Finance Center in UNC. Dr. Hughes was invited down in October for subcommittee meeting because of his extensive experience with financing infrastructure for water projects. His expertise can be useful to this committee.

Mr. Giattina also announced that Richard Harvey's hip surgery had gone well and he was recuperating. Unfortunately, an investigator for the Coral Reef Monitoring and Evaluation Project, Dr. Carl Beaver, was tragically killed in a vehicle accident. If people wish to contribute to his memorial fund, then the information is in your packets. Dr. Beaver was a trusted scientist and friend. There was a moment of silence in memory of Dr. Beaver.

Mr. Giattina noted that speaker cards were available at the back of the room. Please turn in cards and limit comments to five minutes.

A. Review Agenda: Mr. Jim Giattina

There were no suggested changes or objections to the agenda.

B. Discussion and Approval of Minutes: Mr. Jim Giattina – Steering Committee Vote; the July 25 minutes were approved unanimously.

II. Review and Discuss the Water Quality Protection Program “Communication Strategy” and Ongoing/Planned Activities: Ms. Cheva Heck – Florida Keys National Marine Sanctuary

Before Cheva Heck began her presentation, Billy Causey publicly thanked the EPA for their leadership in supporting water quality improvements. He also thanked other partners, including DEP.

Sanctuary Communications Manager Ms. Cheva Heck explained that last year Fred McManus and Nancy Blum, DEP, had developed a draft Water Quality Communications Plan that is included in the meeting packets. An interagency communications sub-committee was convened to review and add to the draft communications plan. The sub-committee evaluated what was already being done by the various agencies in the area of water quality awareness and education. After the assessment, the committee developed five central messages and target audiences that were incorporated into the revised communications plan. A *Frequently Asked Questions about Water Quality in the Florida Keys* document has been developed and is available at this meeting and for distribution. An awareness campaign was planned and is currently being implemented. As part of the awareness campaign, February 2007 has been declared Water Quality Awareness Month by the Monroe County Board of County Commissioners. Other municipalities have also participated in declaring February as Water Quality Awareness Month: Layton, Key Colony Beach, Cities of Marathon and Key West. The Key Largo Wastewater District and the Board of FKAA have also recognized the month. Ms. Heck also mentioned that Elijah Fleishauer, DEP, has been very involved with this effort along with many others. As part of Water Quality Awareness Month, 9 Public Service Announcements (PSAs) about water quality have been written and will be broadcast on radio stations in the Keys. In addition, members of the Water Quality Steering Committee

and communications sub-committee have agreed to appear on several “live” Keys radio shows to discuss water quality issues. Several municipalities will also be appearing on “On Tap”, a weekly 30-minute television program sponsored by the FCAA. They will highlight wastewater projects taking place in the various communities. There will be a new episode produced on nutrients for the “Waterways” television program, a joint project between the sanctuary, EPA and National Park Service. The sanctuary is redesigning its website, including the water quality protection program section.

There were many agencies involved in this outreach effort: the sanctuary, EPA, DEP, FCAA, WWF, TNC, the Key Largo Wastewater Treatment District; Department of Health, Army Corps of Engineers. Ms. Heck also recognized Anne Morkill and Jim Bell from the National Wildlife Refuges, Commissioner Neugent, and Sandy Walters for their contributions.

Ms. Heck noted that this campaign was being planned and executed using existing budgets from the agency participants and that the work to plan Water Quality Awareness Month only began in October. Many things were accomplished this first year, but hope to do more next year. She also mentioned that radio is a very effective and inexpensive means of communication in the Florida Keys. The Water Quality Communications plan and the PSAs were provided in the member packets.

Jody Thomas publicly thanked Ms Heck and the committee for their work.

III. Review and Discuss the Activities and Brainstorming Ideas of the Sub-Committee on Innovative/Alternative Financing of Wastewater and Storm Water Upgrades: Mr. Fred McManus – U.S. EPA, Region 4

Before beginning his presentation, Mr. McManus noted that in 2005 there was a goal to reinvigorate the WQSC and that goal has been met as evidenced by the interest level shown and attendance today.

The committee consisted of representatives from the following agencies: EPA, FDEP, KLWTD, Monroe County, City of Marathon. Mr. Charles Causey from the Steering committee and Dr. Jeff Hughes also attended the brainstorming meeting.

Mr. McManus provided a handout that listed the brainstorming ideas developed by the Sub-committee at their meeting in October. Mr. McManus explained the ideas, which fell into each of five subject categories: Funding Strategies, Actual/Real Costs of Wastewater Upgrades, Evaluation of Proposed Wastewater Improvements Programs/Plans, Affordability and Rate Structure, and Political Support.

Some of the funding strategies examined included looking at U.S. Department of Agriculture funding opportunities for rural areas; investigating whether revolving funds are being used; utilizing community development block grants for low-income citizens and looking at revenue sources noted in the Monroe County Wastewater Master Plan. There is recognition that most projects will require multiple funding sources and that patience and planning are required to tie all sources together. One possible revenue generating idea is a toll on US 1.

Dr. Jeff Hughes noted that it is important to make sure that the people who are lax and slow about upgrades should not be rewarded first. Instead, rewards should go to the people who have spent own money and accomplished things early. He also noted that it would be worthwhile to look at the efficiency of different types of collection systems, especially low cost alternatives. It was agreed that multiple sources of money were needed for most projects and that getting money for upgrades will require a “patchwork quilt” approach.

A brief discussion took place about getting zero interest loans from the government and whether or not that is feasible for some municipalities.

Dr. Billy Causey informed everyone that the President Bush announced that there is 140 million in funding in the next year's budget. Much of this money will go to NOAA and be divided in the following way: 25 million for sustainable use of ocean resources; 28 million for protection and restoration, and 68 million for enhanced science ocean research for coastal projects, including restoration. Twenty million will go to the National Science Foundation and 3 million will go to the US Geological Survey for mapping and water quality projects.

Jody Thomas requested assistance from agency lawyers to help make the multiple source funding approach work better. It has been difficult for communities to work through the different restrictions placed on the different pots of money.

Commissioner Neugent noted that most of the financial burden has fallen on the taxpayer and local communities and that they would welcome funding from federal sources. He acknowledged that federal monies are being used to pay for Everglades restoration and that restoration is important for water quality in the Keys. Mr. McManus pointed out that local communities have lobbied extensively and yet have only received 7 million total for wastewater upgrades out of a much larger pot of money.

An extensive discussion took place about affordability and rate structures. The actual costs of the upgrades have been increasing every year and a good estimate for the actual cost is hard to obtain, but very important. Communities seem to underestimate the actual costs. The idea of upgrading only a portion of the wastewater structure was also brought up, but it was noted that that would require amending the state law that will go into effect in July 2010. Mr. Jon Iglehart pointed out that they can not change the law and there is no support for doing so, but DEP is examining different enforcement actions and strategies.

The idea of using smaller package plants was discussed. These plants do not have the large expense associated with putting pipes in the ground. Older package plants can be upgraded for less than it costs to build new ones.

It was noted that it is the responsibility of homeowners to upgrade if they are in a "cold" spot that is not included in a plan. There are thousands of homes that fall into this category. It was mentioned that it would be unfair to subsidize those residents that are part of a planned system, but not the individual homeowners who are also burdened with meeting the 2010 deadline. In past years, some funding was made available to homeowners on cesspits and undocumented systems for upgrades. There are some concerns with the onsite systems. They have maintenance needs that must be met and there could be no treatment at all if the electricity goes out and there is no backup generator for the onsite system.

The Sub-committee also examined the idea of evaluating Monroe County's proposed wastewater improvement program for the Lower Keys to determine its adequacy, especially in terms of funding.

The idea of having one rate structure for everyone and subsidizing low-income households with grants, etc. was discussed. A suggestion was made to see if we could generate those numbers for Monroe County because that would present a unified message.

Mayor Sante noted that it has been unfortunate that one municipality has had to compete with another for money to upgrade and quite often the money is split so that there is really not enough to do anything

significant. It might be better to fully fund projects that are cost effective first and then future money could be used on projects that are not complete.

Political support is also very important for obtaining the necessary funding. It would be great if the Keys had a champion in this area. Dr. Billy Causey pointed out that Commissioner Neugent has been a champion for this area and Congresswoman Ros-Lehtinen has worked very hard for the Keys, too.

Mr. Jim Giattina summarized the discussion for the committee. It is important to know costs in order to take further steps. There is a need to work on baseline funding and a need to monitor and access any federal funding sources that become available, even though this may be difficult to carry out. Someone who is skilled at writing grants and conducting the associated research to find out how to access these grants would be most helpful to municipalities. The ideas of exploring zero interest loans and revolving loan programs were discussed. For the different communities, there is a need to address what is the most efficient rate structure and look at low-income issues. The notion of pursuing onsite treatment with a centralized management approach was mentioned. And finally, funds coming into the county for this purpose could be prioritized. Maybe the PDT could be asked to do prioritization since they deal with those kinds of issues.

Commissioner Neugent agreed with Mr. Giattina's summary of the discussion and added that whatever is done with funding should be equitable for all constituents. Ms. Jody Thomas followed by requesting that the South Florida Ecosystem Task Force agency people look for funding that might be applied.

Councilman Worthington pointed out that the City of Marathon is moving forward with their plans and is using revolving loan trust funds to make it happen. Mr. Gary Bauman added that Key Largo is using four different ways of funding projects: development loan; clean water funds; community development block grants, and providing subsidies to low-income residents.

Mr. Giattina made a motion that the subcommittee continue to function and as the first order of business, that it undertake this analysis of costs and then as a second evaluate and know criteria for each the available funding. After this, EPA will look at the resources that they can bring to bear toward this evaluation, etc. Onsite costs will be included in this option and a timeline will be developed for the different options. The motion passed unanimously.

Ms. Liz Wood had already agreed to track the progress of wastewater upgrades in the county and accept information from the municipalities to do the same thing. She agreed to track the cost for each EDU if the municipalities could provide the information needed. This will provide an estimate of total costs. Ms. Wood pointed out that this information will be included on a web-based system eventually.

IV. Status of Federal Funds for Florida Keys Water Quality Improvements Program and Update on Activities of the Florida Keys Water Quality Improvements Program's Project Development Team (PDT): Mr. Richard Bonner and Ms. Shelley Trulock – U.S. Army Corps of Engineers, Jacksonville District

Ms. Shelley Trulock introduced Mr. Richard Bonner and Ms. Cecelia Weaver. Ms. Weaver also assists with the PDT. The PDT provides technical assistance for wastewater in FKNMS. There is a total of 100 million dollars, and as with other programs, there is a 65-35% split. This means there is 53.8 million from locals with a total program cost of 153.8 million. At this time, several things have been completed. The program EIS and Program Management Plan is complete. The NEPA for all six municipalities has also been done. This will allow us to move forward when money is in place. Six decision documents for

all municipalities are complete and the first round of program cooperation agreements (PCAs) has been done. The second draft was developed based on new guidance. This is a contract between local municipalities and government that clearly outlines what federal dollars are funding. It is critical to have the PCAs in place to receive the money. The Corps hopes to receive comments from municipalities by next week and then send these packages as one unit to headquarters for review by the third week in February. The review should go forward fairly quickly. In 2001, an intergovernmental task force determined how the money would be split amongst the municipalities as shown in the handout.

Ms. Trulock reviewed the funding history: the carryover funding is 2 million dollars, to be distributed once there are PCAs in place. Another 2.9 million is expected to come back to this pot, making it a total of 4.9 million that will be distributed to the municipalities based upon the PDT's recommendations. The PDT will meet with municipalities to hear their plans for the money before allocations are determined. In terms of the percent of funds allocated, Key Colony Beach and Layton are 100% each, Key West is 25%, and the others are 1.6% funded thus far. The PDT determines how this money is divided.

The Army Corps had not been involved in wastewater/stormwater projects in the past, so protocols had to be developed. They had many challenges and then new guidance as to how the money should be implemented. Ms. Trulock noted that they do not know how much they will receive from Congress each year.

Mr. Billy Causey publicly thanked the Corps of Engineers for Monitoring Program for past two years. They provided 1.8 million from Everglades Restoration funding to cover the sanctuary monitoring program.

Mr. Bonner addressed the committee, pointing out that there are three things that should be done in terms of securing funding: recognize and advertise the progress that has been made; integrate the efforts to recognize that a mix of local, state and federal funds are behind these projects; and have a common goal with a unified message. The Keys are seen as a high priority.

Ms. Jody Thomas acknowledged how the process had gone smoothly and been expedited in this situation and this was very much appreciated. She noted that there were some obstacles with getting the money because of specific language that needs to be changed. Congresswoman Ros-Lehtinen will be introducing a bill that corrects this obstacle. Dr. Billy Causey noted that it was Congresswoman Ros-Lehtinen that was responsible for getting this money available to the municipalities through the Corps.

V. 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

Ms. Wood calculated that 17% of the total EDUs needed for the county are complete at this time. This includes Ocean Reef, Key Largo Trailer Village and Park, Islamorada Village Phases 1 and 2, Layton, Conch Key, Little Venice, Bay Point and Stock Island. At this time, there are approximately 18,000 or 42% of EDUs in the design phase. Key Largo is currently working on north part of service area mm 100 North. They are meeting their milestones. Ms. Wood presented a slide that identified projects needing large amounts of funding like Conch Key, where the wastewater is being conveyed to Duck Key. The Duck Key Project is in the design phase for a collection system, however, construction of plant will require additional dollars. Monroe County has committed to plan so that will be ready when money is available. They will need 12.5 million for the project. Marathon has two plants under design and needs additional money. Little Venice is complete and 86% connected. Big Pine Key will need additional

funding for construction and monies will be collected to design this system. The same is true for Lower Sugarloaf. Cudjoe and Summerland have been budgeted for design of their collection systems, but construction dollars are needed. Big Coppitt plant should be completed by end of next year. They are building force main from mm 8.5 to 11.5. They will open bids for collection system tomorrow. Bay Point is 83% complete and Stock Island is basically complete. Ocean Reef expects to have ATW available in 2008, with 99 percent connected.

Ms. Wood is reviewing permits for Key Largo. The Key Largo Trailer Village is 66% complete with connections happening somewhat smoothly. The North transmission main is complete from mm 103 to 106 and bids for mm 100 to 103 will begin shortly. Bids were received for Basin A and Basin D design is 90% complete, with plant construction scheduled to start in 2008. The South transmission main is in need of additional funding. Islamorada is working out the issues with the system and has 1,000 EDUs complete; Layton is 59% complete.

Ms. Wood pointed out that there is a need to look at the Big Pine Key and Sugarloaf areas. Some areas may need to be called cold spots to narrow in on size of project. The sooner that the county and FCAA work on this together, the better the final product.

In summary, Ms. Wood noted that the Keys are about half way toward the goal of being on AWT by 2010--17% of EDUs now have central service. Seven thousand of the total 44,000 EDUs in the county are complete; 18,000-19,000 are under design; and about 18,500 still need design.

VI. Update and Discussion on 1) The Development of the Comprehensive Report Summarizing the State of Knowledge on the Florida Keys Ecosystem, Dr. Bill Kruczynski U.S. EPA, Region 4

Before beginning his presentation, Dr. Bill Kruczynski made a few comments about the Florida Keys Environmental Restoration Fund, which was established in 1991 as a result of a lawsuit. The fund has now been in existence for 25 years and has produced a report that summarizes work for last 25 years. This report is available through Ginette Hobbes at (305) 289-9988. The number of acres restored for each habitat over the years was summarized for the committee. Dr. Kruczynski noted that the Environmental Trust Fund was the recipient of \$400,000 funds from the EPA for the various restoration projects.

Dr. Kruczynski mentioned that all special study reports are posted on the FKNMS website. Three newly funded studies that are currently ongoing. The University of Florida is working with the FWRI lab on queen conch reproduction. Copies of the executive summary for the queen conch study results were provided. Dr. Kruczynski explained that queen conch do reproduce offshore, but not inshore and even though they have not been harvested for many years, conch populations haven't increased as expected. An abstract summarized the results: when offshore conchs were transplanted to inshore areas, they lost the capability to reproduce within three months. High levels of heavy metals (cadmium, uranium and zinc) were found in gonadal tissues of inshore queen conch. The source and significance of these metals has not been determined. The investigators have also examined temperature influences and the loss of the egg laying hormone in nearshore animals. There seems to be growing indication that the decline in reproduction could be caused by nearshore pollution. Endocrine disrupters are also being examined as a possible cause for reproductive declines.

Dr. Kruczynski also summarized the results from another special study project that involved examining fecal bacteria and viruses and whether or not they can be used as a tracer for water flow. He noted that

this study has not been peer reviewed, yet, but has been posted to the FKNMS website. The study used a set of five stations that formed a transect from shore to offshore and were installed by USGS several years back. They found viral particles and pieces of DNA that may or may not be infectious in offshore wells. This is the first time that human viral activity is coming through the groundwater to 11 km offshore at the reef tract. They also showed that coral mucous offshore has a higher level of bacteria than nearshore ones. Even though nutrients may not show up offshore, bacteria and viruses may be making it out there.

This research team also performed a human health risk assessment analysis for two beaches in the Keys: Higgs Beach in Key West and Bahia Honda State Park. They noted that the acceptable risk level is EPA standard is .1 per thousand. At the time of the analysis, Bahia Honda had 2.5 per thousand and Higgs had 7.9 per thousand. Both beaches at this time were high risk swimming areas according to EPA's risk meter. Human vs. animal sources of bacteria are not distinguished in the study, but all viruses examined are human in origin. Another aspect of this study examined the effluent from the Port Largo and Big Pine Key canal systems. During tidal events, choliform was high and effluent was higher in the wet season than in the dry season.

Dr. Kruczynski provided an update and handout on the publication designed for the lay person that will summarize water quality and ecosystem function in the Florida Keys. The outline has expanded considerably since the first proposal that was presented at a previous WQSC meeting. The experts on water quality and seagrass have met with one another and agreed to draft pages for the book. The outline of the publication was provided in the handout. The outline includes: geographic setting, natural history of the Keys, Florida Bay, human influences, effects of hurricanes, establishment of the FKNMS and WQPP, oceanography, water quality, coral reefs and hardbottom communities, seagrass habitats, some key species like queen conch, grouper, and snapper, and management actions, case studies and future actions. Other topics that will be covered include seagrass dieoff in Florida Bay, blackwater events, and how Everglades restoration will affect the Keys. At this time, water quality scientists have committed to writing 26 pages of the water quality chapter and seagrass scientists have agreed to draft 22 pages of the seagrass chapter. Each page will explain a concept using illustrations and text. The publication is expected to take two years to complete. Publication details have not been determined at this time. Each chapter will include a section about what people can do to make things better.

2) Evaluation of the Florida Keys National Marine Sanctuary Science Program and Long-Term Monitoring and Special Studies Programs of the Water Quality Protection Program Mr. Fred McManus – U.S. EPA, Region 4

Mr. McManus explained that the monitoring programs have been evaluated and amended as they have been implemented, but that it is now time for an outside evaluation, similar to the one that was undertaken in 2000. At that time, EPA and DEP convened an advisory panel to review with us the monitoring projects and special studies. A draft of the statement of work is provided in the member packets. The goal is to have a comprehensive objective review from a third party to determine how the program can be improved. It is advised that this evaluation take place using an EPA approved contractor to shorten the process. One hundred thousand dollars has been set aside for this review from South Florida Geographic Initiative money. Task 2 is to compile, review and summarize the annual reports from monitoring and special studies, including reviewing the white paper from 1998. The contractor will be expected to prepare a summary draft document with recommendations; and present those recommendations at a workshop in the Keys. The workshop results will be incorporated into a revised document. The evaluation will focus on an evaluation of science plan and WQPP and provide suggestions, revisions, updates. The evaluation will identify duplication of efforts and focus on better integration and correlation of data sets.

VII. Lunch

Mr. Giattina called the meeting to order after lunch and offered a few comments about funding and the EPA strategic plans. In the EPA, future funding depends upon being able to demonstrate that program results are producing environmental results. Cuts have been made in programs that don't make those links. Recently, Mr. Giattina requested that a section about the South Florida ecosystem be placed in the EPA strategic plan, which covers through 2011. This will require that reporting on a routine basis to determine whether or not the goals and objectives are being met. Quantitative goals for this project were included in the EPA plan. Some of the other great water programs report quarterly to the deputy administrator. The Deputy administrator of EPA regularly reviews the progress toward the goals and offered to include South Florida in a similar reporting schedule. Although this program is not committed at this time, it is probably good to bring these issues before the deputy director of the EPA on a regular basis. Mr. Giattina and Mr. McManus will be considering what measures might be measured to show progress along the way.

VIII. Review EPA's New Strategic Plan for 2006-2011 and Targets and Measures Associated with the Water Quality Protection Program for the Florida Keys National Marine Sanctuary: Mr. Fred McManus – U.S. EPA, Region 4

Mr. McManus explained that the strategic plan now includes the South Florida Geographic Initiative, under goal 4, objective 4.3 and sub-objective 4.3.7, which calls for the restoration of the South Florida ecosystem, including Everglades and coral reef ecosystems. Specific measures need to be included that can be reported on annually (and eventually will include quarterly measures). The measures include: 1) by 2011 achieve no net loss of stony coral cover for FKNMS, used 2005 as a baseline; 2) maintain healthy seagrass beds using monitoring as a baseline and 3) maintain overall water quality. Dr. Fourqurean is developing an overall index of seagrass health that may be one or only a few numbers. Dr. Boyer has suggested several indicators that provide an overview of water quality, including vertical attenuation light coefficients; nitrogen, phosphorus concentrations, etc. Mr. McManus reviewed the parameters and values established for all sites in the Florida Keys and at the reef. These interim targets create some high levels of expectations. If these goals are not met, explanations as to why not will be needed, but having these measures will bring attention to the program.

Mr. Giattina noted that other federal agencies might have strategic plans that identify south Florida efforts. EPA is interested in knowing about those plans. If a unified multi-agency approach can be applied at the national level, that might be helpful.

It was mentioned that for Bill Dennison's group does a predictive report for Chesapeake Bay. An annual report that shows whether or not the predictions are met and provides an explanation. This report is produced by the Center for Marine Studies at University of Maryland and is built around user-friendly graphics that are understandable by the public.

Ms. Walters commented that the FWC report template is very understandable and usable. In addition, there are two other time lines that pertain to South Florida Ecosystem Restoration efforts. There are biannual reports to Congress from the National Research Council, which is charged with peer review of CERP. State and federal agencies have to report to congress every five years on construction projects, etc. Any linkages with these reports might be helpful, too.

IX. Presentation on the Total Maximum Daily Load (TMDL) Reasonable Assurance Process for the Florida Keys: Mr. Jerry Brooks or Mr. Eric Livingston - Florida Department of Environmental Protection

Mr. Eric Livingston gave a presentation about Total Mean Daily Loads (TMDLs) and impaired waters (those that do not meet the water quality criteria were proposed by the state). Federal law requires that TMDLs be determined for each impaired body of water in the state. This is a result of the Florida Watershed Restoration Act, which was enacted in 1999 and amended in 2005. In the Act, DEP has authority for the TMDLs. Essentially, a TMDL is “the maximum amount of pollutant loading that can be discharged to a healthy water body without degradation”. In the 2005 version of the Act, the law requires three things: 1) that decisions are based on good science; 2) when reducing pollutant loads, they are done in an equitable manner and 3) there is extensive public participation. Decisions are done by the rule, but they can be appealed.

A watershed approach is being applied by DEP. There are 52 major watersheds in Florida, divided into 29 groups, with about 5 basins per group. The TMDL is essentially a blueprint for restoration. In 2004-05, DEP collected data from canals and nearshore waters in the Keys to understand pollutant load levels.

The FWRA and EPA allow for “reasonable assurance” document. Before a list of impaired waters is adopted, stakeholders may submit documentation that existing or proposed pollution control mechanisms are sufficient to attain water quality standards. This reasonable assurance document must be approved by EPA and DEP. If accepted, the water body will not be placed on the list of impaired water bodies.

DEP is preparing such a document that outlines the basis for its decision, noting proposed pollution control mechanisms and expected improvements in water quality. DEP will attend local meetings to get buy-in from local communities and include data and management actions in the reasonable assurance document.

The plan has been to focus on nearshore waters where monitoring efforts have been taking place for several years. Data from FWC/FWRI and from Dr. Boyer have been helpful in providing background information. DEP recognizes that nutrients are our problem and most states don't have actual quantitative criteria for this parameter. The impaired water rule allows us to listing of nutrient impaired waters. A technical work group with representatives from the various entities has been formed. Anyone who would like to participate is welcome. Representation has been good thus far and some work has been done. Public participation is the key and this effort is all-inclusive.

The focus of this work begins with examining existing data and what is already being done, then evaluating the effectiveness of the projects. Water quality monitoring programs can serve as a baseline and models that have been developed previously will be used. Everybody agrees that nutrients are a problem in the Keys, even though there are also clarity and turbidity issues, too. but this effort will focus on nutrients in nearshore waters. DEP will be looking at halo zone in nearshore waters and will be developing some canal models and transport. They will be looking at nutrients in existence and in the future. Meetings have been held here in the Keys and a formal meeting will be held in February. A draft document will be produced in April. DEP offered to meet with any entities that are involved and would like to offer their assistance as needed.

There was a discussion about the role of nutrients from outside sources and how it was difficult to define the contributions/loadings made to the Keys by areas upstream and after certain events, like hurricanes. DEP is aware of the complications that arise from determining boundary conditions and contributions from outside sources, but will be moving forward to meet the deadlines based upon the best available information and modify its models as needed.

In summary, the focus remains on to how to reduce loading of nutrients to nearshore waters in the most expedient way. This process focuses on impairment causes and incorporates the use of local knowledge.

The goal is to have more protection, but less process. The process will move forward using existing information and be modified using adaptive management. No additional regulations are expected to result from this effort.

A suggestion was made to incorporate the fact that many marinas are becoming DEP Clean Marinas as they are upgraded. The reduction in pollution may be difficult to quantify, but worth investigating.

**X. Introduction and Overview of the Government Accounting Office's Florida Keys National Marine Sanctuary Case Study on Global Climate Change:
Dr. Billy Causey or Cdr. David Score – Florida Keys National Marine Sanctuary**

Dr. Billy Causey reported on climate change meeting that he and Ms. Anne Morkill participated in recently in Washington, D.C. This was a two-day GAO sponsored workshop that asked participants to answer questions relating to science and management. The science questions involved identifying most volatile ecosystem elements and characterizing the nature of the impacts and whether or not there is a threshold beyond which there is no reversing the process. The management questions focused on how climate change might affect land and water management practices and how management will need to change in order to accommodate for the direct or indirect impacts. In addition, the limitations, constraints and challenges associated with adapting to these impacts were addressed.

Another important questions involved identifying the most important type of research and monitoring measurements needed to better understand, prepare for, and address these impacts. Clearly, more monitoring programs are the most important and very much needed to address climate change now and in the future.

GAO decided to conduct four case studies, including the Florida Keys. The GAO is conducting interviews to be included in the final report. They have been down for a visit and been out to the reef where they have seen bleaching and its effects and healthy corals. The GAO report is expected to be issued in April.

Dr. Causey also attended an unrelated workshop that was also on climate change. The World Bank sponsored this workshop, which focused on how climate change will affect the Latin American region.

There are many things that are being done to address climate change for ecosystem managers. NOAA and Great Barrier Reef Marine Park Authority worked together to create a manual called the *Managers Guide to Coral Reef Bleaching*. It offers a framework for managers and gives ability to use *in situ* remote sensing operations to predict these bleaching events. It also covers how to engage the public in these activities; how to target our coral reef research; apply the concept of reef resiliency; and using models and *in situ* measurements to predict bleaching events.

Dr. Causey also explained the importance of the *BleachWatch* program, a volunteer program that has been instrumental in collecting observations and increasing public awareness of bleaching. Dr. Causey also showed a photograph of a coral that bleached, then became diseased, then died in less than a few months amount of time, illustrating that even though it may be difficult to prove, bleaching may play an important role in the long-term survival of corals. Another study that is of interest is investigating the mucous of the coral to see what lives there in the summer vs. the winter. There is some indication that corals are better able to resist invasive organisms when temperatures are not too high. TNC and the Florida Reef Resilience program has exhibited leadership in this area. In 1997-98, coral cover dropped off; but not for all types of reefs. Certain coral habitats have declined more than others (shallow-water

corals). Mid-channel reefs, which have been exposed to a wide variety of environmental conditions for thousands of years, are not as affected by higher temperatures seen in recent years.

Brian Keller added some comments about the management of coral reef ecosystems managing in light of climate change. A series of climate change documents is being developed by the US Climate Change Science Program. EPA is the lead agency on this project, which will evaluate management actions regarding federally managed lands (national parks, etc.) and marine protected areas. The process will involve teams of authors and workshops. Dr. Brian Keller is the lead on the MPA document and Dr. Billy Causey is a contributor. The Climate Change Science Program report will be out by the end of the calendar year.

XI. Discuss Coordination of Privately Funded Seagrass Restoration Projects in the FKNMS: Ms. Sandra Walters – SWC (Sandra Walters Consultants, Inc.)

Ms. Walters explained the need for developing a protocol for restoring seagrass habitat that has been damaged by boating impacts. This protocol would be used when mitigating for various projects that take place in the Keys. Such a protocol would be agreed upon by all involved agencies in advance. This protocol would promote restoration of seagrass scars using known and agreed upon methods. Although there was not a quorum present to pass a motion, the committee agreed that this would be a good endeavor to undertake. The sanctuary has agreed to sponsor a workshop to bring together interested parties, EPA, Army Corps, SFWMD, DEP, etc. to develop the protocol needed. Cdr. Dave Score will work with Sandy Walters to initiate this workshop.

Ms. Cecelia Weaver added some clarification about when mitigation can be applied by her agency, SFWMD. For permitting actions, restoration can not be used to offset civil penalty actions, a fine must be paid. However, in the case of enforcement actions; SFWMD is not opposed to putting money in escrow, so that it could be used in conjunction with other funds for larger projects and will consider this approach for the Keys;

XII. Public Comments

No speaker cards were received and no public comments were made.

XIII. Discuss Next Steps and Propose Date for Next Steering Committee Conference Call and Meeting: Steering Committee and Management Committee

The committee agreed to exchange emails to determine the exact date for the next face to face meeting in the Keys, which should fall in late June, early July. There will also be a conference call in three months. The Sub-committee on finance will still exist and be contacted about meeting to work on the tasks outlined in the motion passed today.

XIV. Closing Remarks: Steering Committee Co-Chairs and Others

The co-chairs thanked everyone for attending and participating.

XV. Adjourn

