

**FLORIDA KEYS NATIONAL MARINE SANCTUARY**

**WATER QUALITY PROTECTION PROGRAM**

**STEERING COMMITTEE MEETING**

**July 10, 2013**

**Marathon Government Center**

**FINAL MINUTES**

**Steering Committee Members Present**

Bill Cox, EPA Region IV (Co-Chair)

Jon Iglehart, FDEP (Co-Chair)

Gerald Briggs, Department of Health

Andrea Leal, Florida Keys Mosquito Control

Suzy Hammaker, FIU School of Environment, Arts and Society

Chris Bergh, The Nature Conservancy

Ron Sutton, City of Key Colony Beach

Charlie Causey, Florida Keys Environmental Fund

Billy Causey, NOAA Southeast Region National Marine Sanctuaries

Sandra Walters, SWC, Inc. citizen representative maritime interests of the Florida Keys

Carol Mitchell, Department of Interior, South Florida Natural Resources Center

George Neugent, Monroe County Board of County Commissioners

Gil McRae, Fish and Wildlife Conservation Commission

George Garrett, City of Marathon

**Management Committee Members Present**

Sean Morton, NOAA Florida Keys National Marine Sanctuary

John Hunt, FWC Florida Research and Wildlife Institute

Gus Rios, Florida Department of Environmental Protection

George Garrett, City of Marathon

**Meet and Greet**

**I. Call Meeting to Order** (Chair, Bill Cox)

**Opening Remarks, Bill Cox (EPA), Jon Iglehart (FDEP)**

Bill Cox informed the committee that he had attended the Sanctuary Advisory Council meeting held the previous day in an ongoing effort to better link the activities of the steering committee with those of the sanctuary and to move forward on achieving common goals. He found the advisory council meeting to be very informative and an excellent forum for dealing with issues. It was evident that stakeholders are contributing in a valuable way to managing the natural resources in the sanctuary. Bill explained that Steve Blackburn could not be here today. Jennifer Derby, Section Chief, EPA Coastal and Ocean Protection, is attending this meeting.

Jon Iglehart stated that Secretary Vinyard expressed his regret at not being able to attend today. Jon conveyed that the Secretary is very pleased with the work the canal subcommittee has done in bringing some of these projects to fruition and how things are progressing in this regard. Jon thanked the county for use of the facility and the sanctuary for providing support.

## **SC Member Introductions**

### **Review Agenda, Chair**

Agenda was accepted with the following changes: an additional public comment period will be offered before the break in the morning and there will not be a presentation from Ben Scaggs on the RESTORE Act because Mr. Scaggs was not able to attend the meeting.

### **Discussion and Approval of Minutes, Chair**

Minutes were approved with no changes.

## **II. Public comment**

A call for public comments was made, but no comments were made.

## **III. Status of Implementation of Monroe County Wastewater**

Ms. Liz Wood, Monroe County and Representatives of Municipalities and Key Largo Wastewater Treatment District

Mr. Kevin Wilson, Division Director Monroe County Public Works and Engineering, provided the presentation for Ms. Wood. To view his presentation describing the current status of wastewater projects in the Keys, visit [http://ocean.floridamarine.org/fknms\\_wqpp/pages/wqpp\\_minutes.html](http://ocean.floridamarine.org/fknms_wqpp/pages/wqpp_minutes.html).

Kevin explained that the Florida Keys Aqueduct Authority (FKAA) is responsible for implementing wastewater projects in unincorporated Monroe County (except Key Largo). The central wastewater system on Duck Key is nearly complete, with 6 of the 7 phases complete at this time. Phase 7 is projected to be done by September 2013. Cudjoe Regional project is underway on seven islands. Contracts are in place for the construction of the Cudjoe Regional Centralized Treatment Facility, which is being built on a closed land-fill site located off the road. Cudjoe projects are broken into three 3 contracts: treatment plant, inner island collection system and outer island collection system. Julie Cheon, FKAA, provided additional background. Julie explained that construction is underway on Cudjoe Key and will be starting in outer islands in August. Kevin showed a slide with a table showing the connections report and provided copies for everyone.

City of Marathon Utilities Manager Zully Hemeyer provided an update on Marathon's projects, which have been completed. Every month the utilities department provides a report to the city council (posted on their website). Marathon tracks its connections by parcels and 77% of parcels have a connection. If the number of EDUs is tracked, which accounts for the total system capacity, then 71% of the city is connected. George Garrett announced that Marathon's stormwater/wastewater system won the American Public Works Association Project of the Year Award for Sewer, Stormwater, Reclaimed Water and Road Rehabilitation. Gus Rios added that the county's website has information on wastewater projects, including the connection reports. Cudjoe wastewater progress is posted on the county's site, but Cudjoe also has a wastewater site: [cudjoewastewater.com](http://cudjoewastewater.com).

Gerald Briggs mentioned that there were some changes to the state statute this year that applies to onsite systems in the areas that are actively being sewerred. In the past, if the system needed a repair or modification, the owner was required to install a nitrogen reduction system. Now, with the new provisions, the owner can install a holding tank during the interim period (until sewer is available). This is a helpful action and is deserved because of the strides made here in the Keys in terms of wastewater and he commends everyone who has been involved. Gerald was thanked by Kevin Wilson for his efforts in assisting the county. Gerald noted that there is another new provision in the state statute that applies only to a few residences on Cudjoe Key. Anyone who has installed a nitrogen reduction system since 2010 is not required to connect to central until 2020.

Billy Causey recognized the efforts of Representative Holly Raschein who has worked hard to keep Monroe County's need for funding for wastewater projects before the governor and cabinet in Tallahassee. Kevin Wilson whole heartedly agreed on behalf of the county. Mayor Neugent commended Representative Raschein as well for her efforts at the state level and more funding may be in the governor's budget next year. This action is reflective of the hard work done by the state representative in her first year of office. The county administrator and staff have also worked very hard to secure funding. Mayor Neugent explained that the most important thing that municipalities can do is to continue to work together through an inter-local agreement on these issues. If more money is forthcoming from the state legislature, then this governor, cabinet and legislature have done more in a two out three years than the federal government and everyone else as far as contributing funding to this billion dollar underfunded mandate and he commends them for their efforts.

#### **IV. Canal Project Update / Using FDEP funds for bathymetric study**

Wendy Blondin (AMEC), Gus Rios (FDEP)

Ms. Blondin provided a presentation that was divided into several different sections (described below). To view this presentation, visit

[http://ocean.floridamarine.org/fknms\\_wqpp/pages/wqpp\\_minutes.html](http://ocean.floridamarine.org/fknms_wqpp/pages/wqpp_minutes.html).

#### **Background Canal Restoration Advisory Subcommittee/New Members**

Gus Rios provided an introduction to the canal restoration advisory subcommittee, which was formed to address canal restoration issues. Gus recognized the leadership that Monroe County has shown. Recently, the county has allocated 5 million dollars in funding for canal water quality improvement, which will allow progress to be made. Original members on the committee were: George Neugent, Charlie Causey, Billy Causey, Ron Sutton and his appointee John DeNeale. Rhonda Haag has also been spearheading the work for Monroe County and keeps the minutes for the meetings. The subcommittee wants to add new members and wants the approval of these members by the steering committee. Gus proposed that the steering committee approve adding the following people to the canal subcommittee: Susan Sprunt, Village of Islamorada; Skip Haring, City of Layton and Alison Higgins, Key West. The cities are now represented and this is important as some projects will be within municipalities.

#### **Sunshine Law and Public Outreach/Support for Demonstration Projects**

Gus explained that the subcommittee now operates as an advisory subcommittee to the steering committee, which means that all subcommittee meetings are publically noticed in accordance with Florida's Sunshine law. Citizens have attended the recent meetings held and provided input to the subcommittee. Rhonda has been handling public outreach and has numerous meetings with homeowners associations; the county has a very good web page that provides information on canal restoration. Gus requests input and permission and support from the steering committee to allow the

subcommittee to move forward on some demonstration projects. It is important not to have to wait until January (next WQSC meeting) to proceed with some of these projects.

### **Canal Bathymetry Keys-wide Surveys**

Wendy Blondin, AMEC, provided a presentation on several canal related projects. FDEP awarded Monroe County in association with AMEC a grant to survey the bathymetry of Keys canals. Survey profiles using an echo sounder mounted on a boat were taken throughout the entire Keys system (February through June 2013). The project deliverable was submitted on June 13, 2013. Of the 20 canals out of 502 that were not surveyed, most had entrances that were blocked in some way, making them inaccessible. A total of 164.2 out of 170 miles of canals were surveyed and many data were collected, including canal depth statistical information (min, max, average, range, difference between high and low). From these data, AMEC developed depth canal profiles and GIS layers and Google Earth Pro layers of the bathymetry data linked to each canal. A statistical evaluation for each canal is provided in GIS/Google Earth.

### **Sediment Characterization**

AMEC also provided an update on the FDEP grant sediment characterization. Ten sediment samples were taken from representative canals and analyzed for content and the presence of chemicals such as pesticides, metals, etc. These were canals without seaweed loading issues. The report was delivered on schedule on May 31, 2013. Very few canals have un-decomposed seaweed. Some canals have organics mixed with sediments. Seven of ten canals had sediments that exceeded arsenic FDEP residential levels. (Arsenic is common in south Florida and these levels are not that high, but will need to be dealt with appropriately). One sample exceeded the copper standard. Levels were non-detectable or below FDEP levels for pesticides, other metals, etc. and this was good news. Disposal options were provided.

### **Waterways Television Filming**

The film crew of Waterways Television program requested to videotape the canal bathymetry survey. Wendy spent time with them explaining the canal master plan, so that the producer has a good idea of the scope of the issue and related projects.

### **Canal Management Master Plan (CMMP)**

Wendy's presentation also provided an update on the canal master plan. EPA awarded a grant to Monroe County in association with AMEC to complete the Canal Management Master Plan, Phase 2. Wendy reviewed previous efforts (phase 1) in preparation for phase 2 and identified current management issues and goals as the following: water quality, eutrophication/dissolved oxygen, organic matter (weed wrack), sediment quality, habitat quality and public involvement. AMEC also prepared an updated canal master database, which includes water quality treatments, field parameters, tidal range, oxygen impairments, applicable restoration technologies and bathymetry data. Another task involved updating the draft canal management plan using actual data and a draft of the update should be available to the canal subcommittee next week.

AMEC is also charged with developing a Keys-wide ranking system that ranks canal conditions as good, fair or poor. Ranking is done through a scoring system that considers existing field data on water quality conditions, fish populations, physical parameters, etc. The scoring sheet criteria were approved by the canal restoration advisory subcommittee. A homeowner questionnaire was developed and administered to gain information on canal conditions. Homeowner funding is not part of the master plan scoring, but is part of the demonstration canal project ranking system. A separate

ranking system was developed by the subcommittee for evaluating homeowner potential for funding support for demonstration projects.

A draft Keys-wide Canal Management Master Plan (CMMP) will be provided by AMEC to Monroe County by August 20, 2013. For more information, visit Monroe County's Canal Restoration web link <http://www.monroecounty-fl.gov/index.aspx?NID=598>.

### **Canal Demonstration Projects**

Monroe County approved \$ 5 million of Unincorporated Monroe County Infrastructure tax funds for implementation of a minimum of 5 different restoration technologies as demonstration projects. Project objectives are to obtain realistic permitting, scheduling, and cost information to be utilized for future restoration planning and grant application purposes. Weed barriers/air curtains, organic removal, culverts, back-filling, pumping are the technologies being evaluated. The selection process for identifying which canals will be used in the demonstration project is similar, but slightly different from the process in the CMMP. In the demonstration selection process, only poor water canals are being considered, homeowner and public benefit and budget considerations are important. These criteria and the process are still under review and will be finalized at the subcommittee meeting this week. Using the criteria, 20 canals will be identified and undergo field assessments to evaluate factors that affect cost and design and homeowner funding support. Wendy asked for input on the criteria from the steering committee and this should be provided before the next subcommittee meeting this Friday. Preliminary engineering designs will be prepared with costs for construction bid price and top three ranked canals for each technology will be presented to the county. The Board of County Commissioners will make the final selection.

### **Comments/Discussion**

#### **Coral Restoration/Mapping**

Bill Cox made a suggestion that it might be worthwhile to see where restored canals are located in relation to areas proposed for coral reef restoration in the sanctuary's marine zoning and regulatory review and possibly conduct monitoring in association with these sites.

#### **Ranking Criteria Feedback/Mitigation**

Wendy reemphasized that feedback on the ranking criteria for the demonstration projects is welcome. AMEC had originally provided a scope of work for the demonstration canals that used existing conditions to rank the canals. It was brought up by Monroe County that it might be worth expanding that scope to include analysis of the cost benefits of the project. She thinks it is generally a good idea, but right now, the benefits of the restoration are not being quantified (only qualified). At this point, enough specific quantifiable data may not be available, making it difficult to complete this task. In order to rank the canals with a net benefit analysis, it would be necessary to know the delta increment improvement for mitigation, which can be difficult to quantify.

Billy Causey noted that some of the benefits could be in the area of health benefits because in some cases residents are suffering from respiratory effects. A field trip to see the canals would be very helpful for elected officials who have not seen canals first hand and will help generate support.

Jon Iglehart pointed out that private sector funding is also a possibility for these projects. Developers have already approached FDEP in regards to mitigating for seagrass impacts by doing canal projects. These projects do provide benefits to seagrass beds. Wendy noted that in order to take this approach, it would be necessary to have a more uniform evaluation of what mitigation credits would be equivalent to. She would like to see this approach, but there are difficulties in quantifying factors.

Rhonda Haag noted that there has been some criticism of the fact that they are not considering the cost-benefit analysis for the demonstration projects and she is seeking input from the steering committee on this topic.

Sandy Walters noted that there was a system developed for canals in Ft. Myers Beach that incorporated a factor for neighborhood funding and incorporated environmental benefits to nearby habitats (mangroves). In this instance, the majority of the cost was born by the residents and the contribution of local government was adjusted depending on the different factors. This example may be helpful to examine. She understands that the method taken was a relatively objective one that was acceptable to the public and successful.

Charlie Causey asked for more explanation regarding mitigating for development projects. Jon Iglehart noted that canals have impacts to seagrass beds and better water quality can serve to enhance nearby seagrass beds and therefore could mitigate for impacts to seagrass. This mitigation would be done, for example, when a dock was installed that impacted seagrass. Charlie Causey urged that such an approach be examined closely to avoid unintended consequences. Some projects may not have funding by public participation and it will be difficult to make choices when funding options are not available. George Garrett noted that right now mitigation money goes elsewhere and is being lost to the Keys. This money needs to be returned to the Keys. He suggested offering a field trip to the county and city commissions. He is committed to finding funding for such issues from the City of Marathon, too. Jon explained that if we focus on quantifying water quality improvements, then we might be able to bring that private sector money to these projects much more quickly. Rhonda outlined the next steps. She is issuing a solicitation and a contractor will be selected and begin implementation of the demonstration projects in 2014. Things are moving along quite nicely; she thanked the mayor for getting the project started.

### **Canal Restoration Permitting Issues**

A meeting was held with the sanctuary, army corps and FDEP to discuss canal permit requirements and how to expedite permits. The permitting requirements can be relatively complex, which is why the canal subcommittee recommends that each agency designate a representative who understands the restoration goals and process. The result would be an interagency team (sanctuary, fisheries, FDEP, army corps and municipalities) that address permit issues and recognize projects as a priority. This designation could be made in the form of a letter from the agency. The steering committee could make this request of the agencies through a letter.

### **MOTION (PASSED)**

Jon Iglehart made a motion for the steering committee to direct the subcommittee to establish permitting teams for the canal projects. The subcommittee will send a letter to each agency regarding forming a permitting team. The motion was seconded by George Garret.

Bill Cox added that the formation of this team will allow the mitigation discussion to begin. The motion passed unanimously.

### **MOTION (PASSED)**

Billy Causey would like to see the steering committee to draft an op ed for all Keys newspaper that explains the canal issue and is endorsed by the Water Quality Steering Committee. This canal

restoration could be a financial challenge for some folks and explaining the long-term benefits could be very helpful.

Suzy Hammaker made a motion that a group be formed to draft an op ed to be submitted by the co-chairs. The motion was seconded by George Neugent. Billy Causey will lead this charge with help from Susan, Rhonda and Wendy.

The motion passed unanimously.

### **MOTION (PASSED)**

Jon Iglehart made a motion that the subcommittee has the authority to determine the expenditure of FDEP funds, \$100k, for the next project in the queue. (Funds must be spent by July 1<sup>st</sup>, 2014). Motion was seconded by George Neugent.

Motion passed unanimously.

### **Canal Back-filling Sources**

Wendy explained that the canal restoration subcommittee is also examining canal back-filling materials. A sample of crushed glass is being sent from Broward County recycling. Its content will be analyzed by Dr. Sealey, University of Miami, at no cost. Port of Miami dredge project material is also an option and the logistics of transporting materials to the Keys have been discussed; cost estimates are being prepared by a company with the correct equipment, Adventure Environmental.

Mayor Neugent pointed out that the recent success that has been experienced in dealing with canals has been because of cooperation of all entities. A great deal of progress has been made and there is support for canal restoration. Charles Causey added that the county, state and federal governments have all begun to realize how important the marine waters are for tourism, etc. (and the economy) and development has to be done in accordance with protecting water quality.

### **Wrap-Up**

Bill Cox asked whether there was consensus on the following: adding the named new members to the canal subcommittee; having the subcommittee move forward with FDEP money (also included in a passed motion); having Billy Causey arrange a field trip for city commissioners.

There was consensus for supporting these three items.

### **V. Public Comment**

Peggy Matthews, Monroe County consultant RESTORE Act

In her previous position with FDEP in the early days of the sanctuary, Ms. Matthews worked on the Water Quality Protection Program with EPA. Much progress has been made in implementing the water quality plan and the canals are the last thing to do. She is very pleased with how far the Water Quality Protection Program has come since it was formed. She noted that the topics of water quality came up several times during the advisory council meeting held the previous day. With Mayor Neugent's leadership, Ms. Matthews was retained to represent the county on the RESTORE Act and other funding sources. The county is applying for all three pots of RESTORE act money, including local money tied to the Clean Water Act and National Fish and Wildlife criminal funds administered through the county. She has also identified funding opportunities for seafood promotion and tourism and proposals have been submitted by commercial fishermen and Friends of the sanctuary

Foundation. Ms. Matthews stated that it would be extremely helpful when applying for different funds to know the exact benefits that have resulted from canal restoration (or other) projects. A strong monitoring program that shows the results can be helpful when applying for additional funds in the future. Canal restoration projects will need a great deal of money.

## **Break**

## **MOTION (PASSED)**

Bill Cox proposed a motion that the task of selecting the final criteria for the project will be delegated by the steering committee to the subcommittee. Jon Iglehart seconded the motion.

Jon Iglehart noted that FDEP supports this notion because there is good FDEP representation on the subcommittee and there are often time considerations.

The motion passed unanimously.

Gil McRae made a motion to add John Hunt to the canal subcommittee. The motion was seconded by Jon Iglehart.

The motion passed unanimously.

## **VI. EPA Budget/Waterways TV**

### **EPA Budget**

Bill Cox stated that the EPA budget for FY 2014 is level (1.6 million), which means that monitoring of coral reefs, seagrass and water quality can continue and EPA can contribute to data management, which is so important. EPA will be working with Everglades National Park on a regional monitoring assessment program (Re-Map) to look at water quality in the Everglades. An assessment was first conducted in 2005. EPA will have about 300k available for canal restoration and how that money might be spent needs to be discussed at some point. The money has only recently become available and needs to be in play by September 5<sup>th</sup> ideally. The county has an existing contract with EPA that could be utilized; another possibility for the 300k is to add to the FIU grant to monitor canal restoration. Bill will look to Steve to work with the subcommittee to recommend how to spend the funds.

In general, EPA is looking at 20% cuts through personnel and cuts can be expected in 2014 (through attrition). There is wide recognition for the value of place based projects such as this one with canals. He noted that there are other funding avenues beyond EPA. One example is WRDA, Water Resources Development Act. WRDA funds may be available for coastal restoration and a group may be formed to put the Keys into that discussion.

### **FKWQIP (Florida Keys Water Quality Improvement Program) and other Funding Sources**

Suzy Hammaker mentioned that she received some documentation to explore the proposed 200 million dollar authorization that has been requested for the last four years. She recently received some documentation that proposed avenues for exploring this new authorization. Such funds would be a way of leveling the playing field for all of the parties involved in water quality projects in the Keys. This canal project is a major possibility for funding because it deals with nearshore waters. Key West and other municipalities have already been successful in applying for FKWQIP (Florida

Keys Water Quality Improvement Program) funds, which are administered by the US Army Corps of Engineers. Now this new authorization is an opportunity to apply for additional funds for canal restoration. In addition, both the Senate Energy and Water Appropriation Subcommittee and the House Natural Resources Committee may be funding avenues to pursue and need exploration. She would like to see a committee formed to explore funding sources.

Mayor Neugent added that RESTORE Act funds could stimulate FKWQIP and Army Corps funds. The Mayfield legislation needs to be expanded to include water quality restoration (canals, stormwater), not just wastewater.

#### **MOTION (Passed)**

Mayor Neugent made a motion to establish a subcommittee to investigate the proposed 200 million dollar authorization for nearshore water quality improvement and report back to the committee on the possibilities. This subcommittee will be a fact-finding one. The motion was seconded by Mayor Sutton.

The motion passed unanimously.

Suzy will collect names and contact information of people interested in being on the committee.

#### **VI. Waterways TV Support**

Sanctuary Superintendent Sean Morton provided background on Waterways Television Program, which is co-produced by the Everglades National Park, Florida Keys National Marine Sanctuary and the US Environmental Protection Agency. Over the past 23 years, more than 200 episodes have been produced covering a wide range of environmental issues affecting south Florida and the Florida Keys. Today the series airs on approximately 35 television stations in the state of Florida, reaching a potential three million viewers every week. Thanks to a recent partnership with Amp Media and the YourSanctuaryTV based in Monterey, CA, Waterways is now going to be shown on an additional 100 public access stations across the country and more stations are anticipated to pick up the shows. In the Florida Keys, Waterways can be viewed on: Monroe County TV Channel 76 - Saturday mornings at 9am; and WEYW Channel 19 - Saturdays at 4pm and Sundays at 6pm.

Since FY12, six episodes have been produced with another due out this month, and three more scheduled to be completed by the end of the year. The current production schedule is for five 26-minute episodes per fiscal year. Sometimes a single episode will include two, unrelated 13-minute segments, other times a single topic will be the focus of the entire 26-minute show. Under the most recent Waterways contract with Keys Digital Video, Waterways launched its own YouTube channel. Search for "WaterwaysTVShow" (one word) on [YouTube.com](http://YouTube.com). The YouTube channel contains only the episodes developed under the most recent contract. Waterways partners are seeking \$3,100 with which to upload the previous 62 past episodes to YouTube. Each episode costs \$5,850 to produce, edit, caption, narrate, duplicate and distribute. The following episodes were produced since FY12: Responsible Tourism - Eco-Mariner, Blue Star and Dolphin SMART, Invasive Exotics in South Florida, Cold Snap of 2010, Tamiami Trail, Ft Jefferson Preservation, Marine Zoning in the Florida Keys, Florida Panthers; and Pharmaceuticals in Our Waterways. The following episodes are currently in production for remainder of FY13: Sea level rise in South Florida, Fish Spawning Aggregations in the Keys, Tropical Connections the book, Canal Master Plan and Big Cypress National Preserve, Wading Bird Populations, and Benthic Communities of the Sanctuary.

#### **Discussion**

Billy Causey highly endorsed this program because of the wide audience it reaches across the state and the topics it covers. Jon Iglehart noted that outreach is part of the enabling legislation; he commends Rhonda Haag on the outreach that she has been doing. He would like to see more formal strategies addressed at a future meeting. Bill Cox stated that he supports outreach and education and proposed that EPA spend 20k on that program. He is bringing it before the committee because he wants to make sure people are comfortable with that expenditure. The committee responded positively that this money should be spent on Waterways. Billy Causey suggested that Waterways apply for education/outreach funding from the Protect Our Reefs License Plate.

Jon noted that FDEP has not received their budget, but 100k is going to be available.

#### **VII. 15 Canal Biofilters – Barry Wray, Florida Keys Environmental Coalition**

Mr. Wray provided a presentation on canal biofilters, which can be viewed at [http://ocean.floridamarine.org/fknms\\_wqpp/pages/wqpp\\_minutes.html](http://ocean.floridamarine.org/fknms_wqpp/pages/wqpp_minutes.html).

Mr. Wray explained that the Florida Keys Environmental Coalition began as a result of the Deepwater Horizon oil to create a volunteer training system in support of emergency operations if needed and to speak with a unifying voice for the environment. They have helped train many Keys volunteers in Hazwopper.

Canal biofilters are engineered habitats that support filter-feeding organisms and therefore can help filter or “clean up” the water. A structure can be created that provides a place for filter-feeders to attach and a place for juvenile development to occur, similar to the functions provided by mangrove roots. These systems can help provide remediation for canals over the long-term. The structures constructed of PVC pipe, rope and other materials become covered with native filter-feeders over time; their waste is captured on the structure and are consumed by other filter-feeders. Stone crab, lobster and small fish consume some of the filter-feeders and are supported by these structures, which also serve a fishery function in addition to a water quality cleaning function. The structure designs are being test how well they work under different conditions; sunlight is required for growth to occur.

Another technology, called biorock, involves running an electric current in the vicinity of the habitat itself and this creates the desirable alkaline habitat for filter-feeder growth to occur. The biorock technique is being used to “grow” coral reefs in other parts of the world. Biorock helps enhance habitat production and survivability of the artificial structures that are growing marine life. Biorocks can be produced locally and moved to canals. Mr. Wray and the coalition want to learn best practices from their experiments to improve the scalability of the systems. They are not convinced that removing sediments from canals is the best method in all cases. They have also looked at pumping hypoxic water from the bottom up to the surface and using biofilters. There is also a stormwater issue and retention is not that practical, but the canals can be considered as “retention ponds” if they can treat the runoff water. The coalition wants to conduct experiments in both sewer and unsewered areas and can collect important baseline information. A 24 month program is being conducted in Indian Waterways that involves the Florida Keys Community College, technical advisors, homeowners and data collection on the biofilter units. Water quality monitoring is also being conducted. To put this kind of system in all canals in the Keys would take about an estimated 30 million, but it would be sustainable.

After a brief question and answer period, Bill Cox suggested that the as the canal restoration subcommittee conducts its business that members consider this technique, along with any other opportunities for restoration and report back to the committee if they have any recommendations.

## **Lunch**

### **VIII. Endocrine Disruptor Presentation – Martin Moe**

Mr. Martin Moe provided a presentation on endocrine disruptors in Florida Keys waters. To view this presentation, visit [http://ocean.floridamarine.org/fknms\\_wqpp/pages/wqpp\\_minutes.html](http://ocean.floridamarine.org/fknms_wqpp/pages/wqpp_minutes.html).

Mr. Moe explained that endocrine disruptors are very important to consider as water quality is addressed. He is not an expert in this field; he is a retired fisheries biologist/aquaculturist and is currently working with Mote Marine Laboratory on long-spined urchin culture. Martin reviewed the history of coral reefs before and after the widespread loss of *Diadema antillarum*, important urchin herbivores at the reef. He pointed out that sometimes pollution is not necessarily obvious. Endocrine disruptors are a form of “stealth” pollution because they are not readily visible. There are very few studies on the effects of endocrine disruptors on marine life, especially invertebrates. Endocrine disruptors are not labeled as such, but can be found in herbicides, pharmaceuticals, antibiotics, heavy metals and a host of other substances. They can find their way into the nearshore waters through runoff, septic systems, boat discharge, etc. Endocrine disruptors are active at very low concentrations and have been difficult to detect until recent times. He is certain that these substances are present in Keys nearshore waters, but the exact chemicals and their concentrations are not known. He is certain because the Keys and Florida Bay receive waters (and their contaminants) from the many rivers entering into the Gulf of Mexico. It is important to consider endocrine disruptors because they may be impacting marine life and should be studied. Martin also reviewed the effects of anti-fouling paints, plastics, methyl mercury, organochlorines, etc. on marine life and birds.

### **Discussion**

The difficulty in addressing this issue and how people have so many more drugs in their systems today compared to the past was discussed. Henry Briceño explained that his colleague at FIU, Peiro Gardinali has conducted several studies on this topic and has even studied the breakdown products, which can be problematic in some cases. Martin stated that he had considered the idea of injecting ozone into canal water to help oxidize the organic component of the sediments quickly and possibly other chemicals. The feasibility of this approach is not known, but it is a potential approach.

### **MOTION (Passed)**

Chris Bergh suggested that the committee to consider bringing staff expertise to this topic to develop a white paper on the endocrine disruptor issue. The white paper (nontechnical) could be written that compiles known information and highlight areas in which research needs to be done.

Billy Causey proposed a motion that that the management committee should bring together the technical advisory committee to address the topic of endocrine disruptors. The idea of expanding the topic to include other water quality related issues that are not currently being addressed was suggested by Jon and these other topics should also be described in the white paper document and be presented to the steering committee.

Chris added that the outcome of the TAC meeting would be a “non-technical” white paper that can be the basis of what is known and can help identify research gaps, direct future actions and serve as an educational tool. The motion was seconded by George Garrett and passed unanimously.

#### **IX. Pesticide Effects Special Study update – Tom Mathews, FFWCC**

Mr. Mathews gave a presentation on a new study underway about pesticide effects of mosquito chemicals on spiny lobster and coral larvae. Rich Pierce, Mote Marine Laboratory is the PI on the project and is working with co-PIs Kimberly Ritchie and Thomas Matthews. To view this presentation, visit [http://ocean.floridamarine.org/fknms\\_wqpp/pages/wqpp\\_minutes.html](http://ocean.floridamarine.org/fknms_wqpp/pages/wqpp_minutes.html).

The primary goal of the project is to determine if applications of mosquito control pesticides in the FKNMS affects the early life stages and metamorphosis of coral (*Porites asteroides*) and spiny lobster. The study looks at the distribution, concentration, transport and persistence of three pesticides used in the Keys: permethrin, malathion, naled (and its breakdown product DDVP). An earlier study was done on the transport of naled and permethrin into the nearshore waters of the Keys. In the laboratory experiments, scientists are determining acute toxicity and developmental toxicity of the puerulus stage and first stage juvenile lobsters through the critical stage of metamorphosis. The LD50, or the concentration at that was lethal for 50% of the lobster in the sample, was determined for larval lobster. For permethrin, mortality occurred at concentrations of >2 to 10 µg/L. The experiment (preliminary) showed that up to 2 µg/L lobsters were not being killed, but once that concentration was surpassed, lobsters mortality occurred. Concentrations of permethrin at 5-10 µg/m<sup>2</sup> were observed in field in 2005, but the team will be testing the water next week to determine the concentrations of the pesticides after the trucks have sprayed.

Experiments have also been conducted using naled. Levels of naled that were in the environment in 2005 are not the levels that kill lobsters in the lab experiments. Similar experiments were done on coral larvae. Half-life of permethrin is thought to be about three days and experiments showed the breakdown in the lab followed this trend. Naled breaks down nicely after 18 hours, too. Coral larvae experiments showed no toxicity up to 10µg/L. Scientists are still examining the sub-lethal effects on these chemicals. Field work will be conducted at Snake Creek-Venetian Shores canals and Key Largo Canals (ocean side). The sampling method will provide information on transport, breakdown, concentrations and distribution. In the future, scientists will identify residential pesticide misting systems and complete the toxicity tests for acute and sub-lethal toxic impacts.

#### **Break**

#### **X. FKNMS Zoning committee updates –Water Quality Sean Morton**

Superintendent Morton provided an update on water quality concerns brought up in the public comment period of the sanctuary’s marine zone and regulatory review. To view this presentation, visit [http://ocean.floridamarine.org/fknms\\_wqpp/pages/wqpp\\_minutes.html](http://ocean.floridamarine.org/fknms_wqpp/pages/wqpp_minutes.html).

Superintendent Sean Morton explained that at the last steering committee meeting, the management committee was tasked with address the comments related to water quality. The management committee met and divided the comments into 15 topic categories. A response to each topic has been drafted and includes what agencies have already done in terms of that topic and where more information can be found. This document is still being addressed by the management committee. The steering committee could opt to defer to the management committee on getting this paper completed. Sean plans to present the paper to the advisory council in August. Development of this document has been for information purposes; there are no regulatory changes associated with addressing this topic.

Other working groups are looking at shallow water issues, coral restoration and ecosystem protection/marine zones. All working group recommendations will come before the advisory council in the fall. Bill Cox asked if people thought this should be motion or if it can come as a charge. Sean wants to present a summary of the document at the August 20<sup>th</sup> advisory council meeting. There should be enough time for the steering committee to see the document and provide feedback before the August advisory council meeting. Everyone agrees that the management committee can continue to proceed this way.

### **Discussion**

Billy Causey is pleased that the water quality steering committee is keeping in touch with the advisory council because initially the council and water quality committee worked very closely together. Water quality is really important to people in the Keys. John Hunt added that this water quality document is an opportunity to educate people on what has been done with regards to water quality because the perception is that this issue is not being addressed. Billy Causey explained that Florida Bay and Everglades restoration are still important for the Keys and the sanctuary is tracking and participating in this process. This is an important message for fishermen to know. Everyone should pay attention to the Central Everglades Planning Project (CEPP) and other projects that are part of the mainland restoration. Everglades restoration and Gulf of Mexico Alliance are good examples of how federal and state agencies cooperate on common goals. The WQPP 2012 biennial report to Congress has been drafted should be formally published as soon as possible. At this time, the report is available in its almost final format on the EPA website.

### **XI. Public Comments, closing remarks, next meeting date**

Bill Cox called for public comment.

Mimi Stafford explained that she attended this meeting because she was concerned about water quality. She thinks it is important to get the message out to the broader public about these meetings so people can participate and become informed if they want to.

The date for the next meeting is July 10<sup>th</sup>. Steve will send an email to everyone to make sure they have it on their calendars. This meeting will be one day after the Sanctuary Advisory Council meeting.

Jon Iglehart would like to see an effort be made to get all of the members of the committee here for the next meeting. He would like Steve to look into membership because it will be important because the committee might be looking at future direction.

An announcement about the Sanctuary Advisory Council ecosystem protection working group will be meeting twice this month and will be looking at existing and possible new zones in the sanctuary. The public is welcome to attend and comment during public comment periods.

### **Adjourn Meeting**