

**Southeast Florida Coral Reef Initiative (SEFCRI)
 Land Based Sources of Pollution (LBSP)
 Technical Advisory Committee (TAC)
 Meeting #4
 Report of Proceedings
 May 22-23, 2006**

**National Coral Reef Institute
 Nova Southeastern University Oceanographic Center
 8000 North Ocean Drive
 Dania Beach, Florida**

DAY ONE, Monday, May 22, 2006

TAC Members	Day 1	Day 2
Joseph Boyer-Southeast Environmental Research Center, FIU	X	X
Richard Dodge-National Coral Reef Institute, Nova Southeastern University	X	X
Phil Dustan-College of Charleston, SC	X	X
Dale Griffin-USGS		
Vladimir Kosmynin-FDEP	X	X
Judith Lang-Independent Scientist	X	X
Brian Lapointe-HBOI	X	X
Erin Lipp-UGA		
Valerie Paul-Smithsonian Marine Station	X	X
Margaret Miller-NOAA	X	X
Esther Peters-Tetra Tech	X	X
Jim Porter-UGA		
John Proni-NOAA	X	
Mike Risk-McMaster University	X	X
Gene Shinn-USF	X	X
Alex Soloviev-Nova Southeastern University		X
Peter Swart-RSMAS		

Organizing Committee Members present:

Ken Banks, Broward County EPD
 Chantal Collier, FDEP Coral Reef Program Manager
 Nancy Craig, Broward County EPD
 Carol Fretwell, NCRI
 Laura Geselbracht, The Nature Conservancy
 Linda Horne, FDEP
 Fred McManus, EPA
 Cheryl Miller, HBOI
 Marissa Stekete, FDEP Land-Based Sources of Pollution Coordinator

Guests

Karen Bareford, FDEP
Don Behringer, Broward EPD
Jim Boone, RECOVER, U.S. Army Corps of Engineers
Adrienne Carter, NCRI/NSU
Kevin Carter, Broward EPD
Dan Clark, Cry of the Water
Stephanie Clark, Cry of the Water
Christopher G. Creed, P.E., Oslen Associates, Inc.
John Fauth, UCF
Lou Fisher, Broward EPD
Greg Foster, NCRI/NSU
Tom Goreau, Global Coral Reef Alliance
Chuanmin Hu, University of South Florida
Pam Krauss, PAM Inc.
Jennifer Kozlowski, NOAA Office of Ocean and Coastal Resource Management
Kelly Logan, Nova Southeastern University
Jamie Monty, FDEP CAMA SEFLAP
Alison Moulding, NCRI-NSU OC
Maureen Trnka, Nova Southeastern University
Tina Udouj, Florida Fish and Wildlife Conservation Commission
Steve Wolfe, DEP CAMA

MEETING SUMMARY

Meeting Guidelines

Chantal Collier of Florida Department of Environmental Protection (FDEP) Coral Reef Conservation Program opened the meeting by welcoming everyone. She introduced herself and the new Land Based Sources of Pollution (LBSP) project coordinator, Marissa Steketee. Marissa talked briefly of her background and expressed her enthusiasm to serve as LBSP coordinator.

Chantal Collier then reviewed the facilitation guidelines for the meeting. Guests were invited to fill out comment cards, especially those who wished to participate in the public comment section of the meeting. Facilitator roles were explained including rules for consensus and guidelines for discussion. A quorum was presented as a majority of greater than 50% of the members. It was decided that this would include both TAC members and members of the LBSP TAC organizational committee. Chantal presented the members with a means of achieving consensus through a show of fingers, 5 being fully supportive of the motion and 1 being unsupportive or having a need for more information in order to make a decision to support a particular motion. Any decision in which there is at least one participant indicating two fingers or less will be discussed further and then presented for consensus. If a consensus could not be reached on a topic then a vote will take place. Voting will require a 2/3 majority vote in order to pass a motion. Other guidelines for discussion included reminders to turn off cell phones and beepers, speak freely with an open mind, agree on the meaning of important words, avoid sideline conversations and personalizing, and keep the tone positive.

Chantal Collier addressed the observers of the meeting and explained that there would be time for public comment at 4:40 pm and that all comments must be submitted in writing on comment cards if they are to be included in the minutes.

Finally Chantal Collier encouraged all members to fill out a meeting evaluation form to provide information regarding the flow and content of the meeting.

Presentation: SEFCRI Update

Chantal Collier, FDEP, delivered a presentation on how SEFCRI originated and a brief overview of its purpose. She presented a map showing the areas of SEFCRI work along the reef tract running from Miami-Dade northward through Martin County. She gave an overview of the 140 Local Action Strategy (LAS) projects. There were 22 projects implemented in year 1, 21 in year 2, 61 ongoing for years 3-5, 24 whose objectives have been met through other means, and 31 in need of support. Chantal discussed the FDEP Coral Reef Conservation program and acknowledged the team and staff. She presented the highlights of the Fishing, Diving and Other Uses projects, Maritime Industry and Coastal Construction Impacts project, and Awareness and Appreciation projects. Chantal gave an overview of the SEFCRI projects currently in need of funding and acknowledged the list of SEFCRI partners.

Presentation: Final Report - LBSP Projects 1 & 2: Final Report: Literature review of existing sources of pollution and reef health and review of water quality standards applicable to coral reefs

Ken Banks, Broward County Environmental Protection Department presented an overview of the final report generated from LBSP projects 1-2. This consisted of assembling existing data as readily available in the literature to quantify and characterize the sources of pollution and identify relative contributions of point and non-point sources. In addition, a review of federal, state, and local water quality standards applicable to coral reef communities was conducted. Ken Banks also summarized the findings of these two projects and pointed out that there is a distinct lack of information directly relating pollution and coral reefs, particularly in the Southeast Florida region. Recommendations from the projects included designating Southeast Florida coral reefs as Outstanding Florida Waters.

At this point the members of the TAC and organizational committee were invited to provide comment or discussion regarding the presentation. Comments by the members included questions about upwelling and why it is considered a source of pollution for these two projects. There was also some need for clarification regarding defining Outstanding Florida Waters and the process by which they are designated. Ken Banks provided supplementary slides to address these concerns.

Presentation: Update - LBSP Project 3: Compilation of agencies/activities related to LBSP projects

Chantal Collier, FDEP and Fred McManus, USEPA, gave a brief overview of LBSP project 3. There was no PowerPoint presentation. Chantal pointed out that there is a lack of funding for this particular project. Fred McManus explained his efforts to survey the scientific community and the general lack of response. Fred suggested that a local representative take on this project in order to establish a more personal relationship with the local scientific community in an effort to gain better survey participation.

Presentation: Update - LBSP Project 5: Coral Biomarker Study

John Fauth, UCF, gave an update on project 5 the Coral Biomarker Study. He explained that it has been conducted thus far with a conceptual approach as a pilot study which began in July 2005. Samples of *Porites astreoides* provided some xenobiotic response data. All the Florida sampling sites were elevated in comparison to the Bahamas sites and in all cases a higher response correlated with a lower regeneration rate. John presented a proposal for phase 2 of this project. This included looking at the effects of shipping channels and treated wastewater discharge pipes, as well as seasonal variations, species diversity, and other factors. John also noted that there is a need to look more closely at the Bahamas sites because the coral there are being affected but not by the same things as the coral closer to Florida. Suggestions for the next phase of the study included looking at the metals present in the sediments using an IRF unit, taking histopathology samples, evaluating re-suspension of sediments when drought breaks, using sediment traps in Broward county, and using semi-permeable membrane devices.

Presentation: Update - LBSP Project 11: Integrated Data Management System

Tina Udouj, FWRI, gave an update on project 11, Integrated Data Management System. This system consists of a centralized internet location which is user friendly and provides information on coral reefs through the use of a map program and links to other relevant data. Tina showed an example of how the site would work and the kinds of information that may be found there. Challenges include data consistency, imagery management and working with metadata files. Some TAC members provided additional sources of information including Palm Beach LADS and Broward County beach renourishment that could be included on the site. Chantal Collier asked that anyone with additional suggestions/information please send them to Marissa to be forwarded on to Tina. Tina will be developing a user guide, entry page, links to other agencies and descriptions of data layers.

Presentation: Update - LBSP Project 7: Palm Beach County Mapping

Greg Foster, NCRI, gave an update on benthic habitat mapping for Broward and Palm Beach Counties. The program has recently obtained some new equipment including a boat dedicated specifically to this project. Acoustic surveys will be conducted in Palm Beach County in transects and then a final classification scheme, ground-truthing, and accuracy assessment will be combined into a final map. The project is currently 25% completed. The estimated completion date is June/July 2006.

Presentation: Update - LBSP Project 12: SECREMP

Richard Dodge gave an update on the SECREMP project. This project is going into its 4th year and now consists of 13 sites across four counties (Dade=3, Broward=4, PB=3, Martin=3). The purpose of the project has been to provide information on the status and trends of reefs. Dodge pointed out that coral species have not varied between 2003-2005, and that the frequency of coral disease has not increased. Stony coral coverage seems to have increased slightly and *Lyngbya* has caused octocoral disease. It was suggested that more stations be added along the coast of Southeast Florida comparable to what is being done along the Florida Keys. Phil Dustan then commented that the environments in Broward County and the Keys are so different that few comparisons could really be made.

Presentation: Planning Assistance for LBSP Management Applicable to Projects 19-21 (BMPs and research targeting priority land based sources of pollution)

Jennifer Kozlowski, NOAA, provided an update on projects 19-21 which were designed to research and identify best management practices (BMPs) that address high priority sources of pollution. The overall goal of these projects is to provide customized assistance to coastal managers to enhance the effectiveness of local planning and management capabilities to address land-based sources of pollution using a watershed approach. A watershed consultant was hired to work in Guam and the Marianas to provide watershed management planning and technical assistance training. The Center for Watershed Protection was contracted to provide customized training and technical assistance to deal with storm water management and erosion control. Workshops took place in Hawaii, Puerto Rico and the U.S. Virgin Islands. Suggestions for applications in Florida included working with existing entities, evaluating options for the highly developed Southeast Florida area and naturescaping. Other participants suggested tabling this until Phase II of the Biomarker study is complete.

Joe Boyer commented that there seems to be an overlap between this project and NOAA's Blue Water effort. Phil Dustan asked about referring local people to work on these projects instead of soliciting consultants to perform duties. Mike Risk asked whether baseline data exists in any of the areas where workshops took place so that water quality standards can be produced. Jennifer responded that there are some concerted efforts in places to do so. Phil Dustan also mentioned that 10-12 years ago watershed plans were produced through NOAA and the EPA stating that each county should have watershed management plans in place by 1995 or 1997.

Presentation: CERP Footprint and Restoration

Jim Boone, USACE, gave a presentation on the history of the Everglades system followed by an outline and update of CERP. The purpose of CERP was described as an effort to minimize any further damage of the Everglades waters by restoring historical flow patterns. Jim Boone invited participant to attend "RECOVER" meetings which are intended to acquire input from stakeholders in order to redefine success for CERP projects.

Brian Lapointe raised concerns over water quality and its effects on the ecosystem. Phil Dustan asked for some clarification on the term water storage.

Presentation: Monitoring Water Temperature and Clarity at SEFCRI Sites from Space
Chuanmin Hu, USF Remote Sensing Lab, presented the services available at USF's Institute for Marine Remote Sensing (IMRS) that may be applicable to SEFCRI site. IMRS could monitor water temperature and clarity at SEFCRI sites from space. The main effort of this project is to obtain information regarding carbon cycles, coral and benthic habitats, red tides, coastal pollution, and coastal mapping. Data collected daily includes sea surface temperature, ocean color, chlorophyll a, water clarity, turbidity, and fluorescence. Sea surface temperatures (SSTs) had been unusually cold in January 2005 and unusually hot in August in the Florida Keys. Chuanmin pointed out that the remote sensing maps can be imported into the Google Earth program from <http://imars.usf.edu>

Judy Lang noted that the rate at which SSTs had increased in 2005 might have been more important physiologically than the absolute magnitude of the increase. Brian Lapointe asked for a time range of how long data has been being collected and whether this system could be used to detect submarine groundwater discharge. Phil Dustan asked if these data could be correlated to TRIM rainfall data. Joe Boyer provided clarification of the definition of black water as a terrestrial carbon source that fuels *Karenia breva* algae.

Presentation: Florida COOS

Richard Dodge, NCRI, gave a presentation of the Florida Coastal Ocean Observing System (COOS). COOS consists of 14 academic and research institutions which are attempting to coordinate and unite observational systems within the state of Florida. Everyone was invited to join in the COOS meetings and to spread the word to any outside party who may be interested or have some contribution. He also mentioned \$25 million had been allocated by the State Legislature to complete the first 11 priorities of the Florida Oceans and Coastal Resource Council.

Presentation: 2D MIKE-21 Flow Model

Chris Creed, Olsen Associates, presented the 2D MIKE-21 Flow Model and its potential applications for a Port Everglades inlet pollution dispersal study. The model has not yet been verified beyond the general area of Port Everglades and there is not large-scale offshore circulation of storm surge model. Possible applications of this model include general circulation and water quality and pollutant transport in Port Everglades. Additional bathymetric data and tide data would be needed to expand the model.

Joe Boyer commented that a hydrodynamic model was needed for Florida Bay and this is a good model for an inland area, but that if modeling is done for the coast it should be 3-D. Ken Banks commented that this model combined with water quality data from Broward County could be very useful. Broward County has a license for the MIKE-21 Flow Model within the study boundary.

Presentation: Preliminary Analyses from the Southeast Florida Nutrient Group

Brian Lapointe, HBOI, and Mike Risk, McMaster University, presented the preliminary analyses from the Southeast Florida Nutrient Group. Throughout 2004-2005 invasive harmful algal blooms (HABs) and water quality data were tracked in Palm Beach County. TDN and TSP trends were used to relate sewage pollution to HABs. Mike Risk identified *Cliona* sponge increases and extremely high delta N15 values as a major concern in Southeast Florida. A link between wastewater nitrogen output and the emergence of HABs was also suggested.

Margaret Miller asked whether these high delta N15 values were a result of a local source or an accumulation brought from transport of waters from other locations. Vladimir Kosmynin asked for clarification of historic nutrient accumulation data.

Public Comment

One observer from Cry of the Water provided verbal comments. (See Appendix A)

One additional topic was presented by Chantal Collier. She asked that the members begin thinking about what to do with \$20,000 that was available year 2 funding. This funding would need to be allocated towards some project before the end of June in order to prevent its loss.

The meeting was adjourned.

DAY TWO, Tuesday, May 23, 2006

Update and Discussion: EPA SEFCRI Request for Proposal

Fred McManus, USEPA, presented an opportunity for federal funding and gave an update on proposals received thus far. Thirteen complete proposals were received. By July 12, 2006 proposals will be selected. Funds will be awarded by October 1, 2006. Three of the submitted proposals are SEFCRI special topics. EPA has entered with USGS to provide \$80,000 to fund task 1 of project 27 regarding seismic surveys of SGD in Broward CO, expected completion date of Jan 2007. The EPA budget will be cut soon and could be zeroed out in fiscal year 2008 (FY08) for geographic initiative.

Chantal Collier provided comments on Fred's presentation and thanks for the funding opportunity. She also encouraged the TAC to begin searching for outside sources of funding. Discussion followed with suggestions and concerns. Carol Fretwell suggested coming up with an agenda to target USDA and Coral Reef Task Force meeting in Washington in order to get funding.

Discussion: TAC Being an Advisory Body for Projects within Southeast Florida

Esther Peters raised concerns that this should be on case by case basis because she cannot support certain causes due to her employer restrictions. Mike Risk suggested having a representative to be sure that the advice is requested and forwarded to the people with the proper expertise. Phil Dustan established a need for someone to refer the press to when contacted for comments. Chantal Collier responded by suggesting referring all press questions to the SEFCRI press office. The TAC agreed that it would be best to respond to inquiries individually for now. As a result the TAC agreed that the best way of making themselves known was to post a short bio for each TAC member on the website and have an email address linked to this section. Marissa Steketeer was designated as the filterer and coordinator of all e-mails. A trial period of 6 months was established to see how this process works and to be sure it does not become overwhelming to Marissa.

It was brought up that a conflict of interest statement be drafted to address concerns from outside parties that funding is being provided in a fair manner. There was some discussion and clarification of the Sunshine Law to be sure that the TAC is following proper procedure. A consensus was reached allowing a statement by Fred McManus (statement to follow verbatim) to be posted in the minutes of this meeting. It was also agreed that this statement would not be posted on the SEFCRI website. "It is the policy of the SEFCRI LBSP TAC that all funds available for special studies and research be available to all potential respondents using a fair and open competitive process." (Fred McManus).

Discussion: Designation of a TAC Chairperson

Chantal Collier initiated a discussion on whether a chair person was necessary for the LBSP TAC and what would that person do. Mike Risk said that there really is no need, and Fred McManus agreed. A consensus was reached a chair person was not necessary.

Discussion: Update - LBSP Project 25: Water Quality Monitoring Program

Joe Boyer, FIU, gave an update on the Water Quality Monitoring Program Subcommittee Report. This included discussion about setting up monitoring program for the whole state of Florida. Discussion continued of 3 price ranged programs so that a proposal would be ready if money comes available in near future. Phil Dustan raised concerns about the Keys water quality monitoring, and the need for a better approach possibly using transects to gain better knowledge because water moves. Concerns were also raised regarding time and space. Satellite imagery, GIS, and oceanographic processes monitoring were suggested as possible ways to address these concerns. The first approach, or first tier, would be to use SECREMP sites and others that are already being monitored for other purposes to begin water quality monitoring. A gradient approach, inshore to offshore over long term project with shorter term subset included within was suggested. Possible use of Alex Sloviev's research sites and expanding on his 7 year data set for real time monitoring was also suggested. Kevin Carter brought up a new project that will work in coordination with the Navy for real time data.

At this time Chantal Collier redirected attention to the water quality handouts that had been provided and to sites that have been marked on the GIS maps for potential use. These sites consisted of biomarker sites, SECREMP sites, Broward County sites, and the newly established water quality monitoring stations. Inland sites were also brought up. Kevin Carter said that there are 47 sites being quarterly monitored in Broward. Alex Soloviev then showed a temperature anomaly slide from Hurricane Wilma and explained that adding sensors would allow predictions of flux based on temperature and velocity correlations to predict some upwelling events.

Flip Chart Notes

Key Questions to Answer

1. Is there recovery or decline in water quality?
 - a. What is the water quality at depth?
2. Can water quality be linked to LBSP?
 - a. How does water quality correlate with status and trends of coral populations in Southeast Florida?
 - b. What is the spatial extent of the sources of LBSP?
 - c. What is the temporal extent of the sources of LBSP?

Karen Bareford, FDEP, suggested that the TAC members agree upon a definition of a water quality program vs. water quality monitoring. Chantal Collier responded, stating that the original intent of this phase was to get water quality monitoring program. Steve Wolfe spoke about FDEP water quality monitoring based on following freshwater design and oceans council meeting. Steve presented plans to incorporate the ocean observing system with FDEP intracoastal system into a framework so everyone can plug in and utilize to answer their specific questions. He suggested that this particular SEFCRI plan will eventually need to fit into that overall structure as well, particularly in order to get funding more easily because funding will be directed toward research to fill highest priority management needs. Steve also suggested coming up with proposals that fall within these predefined categories in order to increase SEFCRI's chances to receive funding. Project funding will be distributed around October, 2006 but projects must be wrapped up by Jun 30, 2007.

At this point the discussion paused while copies were made of the funding priority list to be passed out to the TAC. During this time Chantal Collier brought up the topic of what to do with the extra \$20,000 that would need to be used up quickly on an existing project before the end of the fiscal year. Radio time, key chains and public relations items were suggested as possible uses. Concerns were raised because many of the TAC members want to use the money for research. The problem with that is the timing and that the money has been allocated as management funding not research funding. Ken Banks suggested using county water quality monitoring money as a match for those funds. Kevin Carter agreed. Some other ideas are to buy YSI meters if they are affordable enough. Ideas for what to do with funds from MICCI re-allocation included obtaining thermographs for SECREMP's stations which is a direct purchase of \$5-6000. Esther Peters raised concerns of who is going to analyze the data from these thermographs. A graduate student was suggested. A consensus was reached to buy the thermographs.

The discussion was then turned back to water quality. It was decided that the questions from the flip chart be left in place as is for now and the discussion should switch to building upon existing Florida Keys and Broward County programs so that the SEFCRI water quality monitoring program becomes complimentary to the existing programs.

Flip Chart Notes

Other existing monitoring programs for coordination:

1. UM RSMAS and NOAA's monitoring of Biscayne Bay and Florida Bay
2. Sea Keepers research on ships
3. AOML gulfstream data
4. RSMAS Oceans and human health (Laura Flemming)
5. HBOI/FWRI biannual water quality transects
--need to follow up with Brian Lapointe for additional sources/existing monitoring programs.

Discussion

Possible monitoring parameters were discussed. These included temperature, salinity, and chlorophyll a. Beginning sampling sites would include all the SECREMP sites as well as one inshore and one Gulfstream site to create a context. Need to identify minimum number of sites to be adequate. It was suggested that there be a minimum of 4 inshore and 4 offshore sites. How far inshore do they need to be? Offshore sites need to be one surface sample and one deep sample. Inshore sites need to be as close to beach as possible. Offshore needs to be out in Gulfstream (approximately 10 miles out). Discussion about how exactly to do and is this monitoring or research, etc.

Need to do multiple samples from each site, two bottles at surface and two bottles at depth, and then perform replicate samples out of each bottle. The South Florida Water Management District may be sampling already at the inshore sites. It was suggested that Chantal look into that and find out if they are in fact sampling and what they are sampling for. The hope is that SEFCRI may be able to use some of that data and eliminate some sampling sites. It was suggested that the inshore site needs to be as far inshore as you can get safely on a boat or

roughly 3 m depth. Chuanmin Hu may be able to provide temperature data to show where Gulfstream is in order to aid in the decision of location of the offshore sampling sites.

At this point Chantal Collier redirected the discussion to water quality and the three-tier event-based sampling. Create a basis to start with and have something ready to present in case funding comes available. May be able to use some Broward County data and Keys Sanctuary study as a pilot to better define some parameters as necessary or not. Mike Risk suggested doing pesticides beginning with ones which effects are defined in the literature as a tier 3 parameter.

Flip Chart Notes

Parameters

Tier 1

1. Temperature
2. Chlorophyll a
3. Salinity
4. Light attenuation

Tier 2

1. Turbidity
2. Nitrogen (nitrate, nitrite, ammonium, total nitrogen, total dissolved nitrogen)
 - a. Possibly put ammonium and phosphorus under tier 1
3. Phosphorus (total phosphate, total dissolved phosphate)
4. Dissolved organic carbon/Total organic carbon
5. Dissolved oxygen
6. Relative fluorescence
7. Enterococcus

Tier 3

1. Herbicides (via biomarker study)

Public Comment

The public was invited to provide comments. Three observers provided comments: Stephanie Clark, Cry of the Water; Tom Goureau, Global Coral Reef Alliance; and Dan Clark, Cry of the Water). See Appendix A for transcript of written comments.

ACTION ITEMS

No.	Action Item	Responsible Party	Due Date
1	Write two line bio on TAC Members to post on SEFCRI website	All TAC Members	07/01/2006
2	Coordinate posting TAC member bios and email related to bio page on SEFCRI website	Marissa Steketee	07/15/2006
3	Contact Steven Wolf (DEP) regarding success using survey instrument with the Ocean council	Marissa Steketee	07/15/2006
4	Provide Marissa Steketee with suggestions/information to include in the Integrated Data Management System	All TAC Members	Before next meeting.
5	Come up with an agenda to target USDA and Coral Reef Task Force meeting in Washington in order to get more funding.	All TAC Members	During next TAC meeting
6	Send Lapointe and Littler nutrient criteria publications to TAC and invite new speakers related to this topic(e.g., Alina Szmant) to next meeting.	Marissa Steketee	07/01/2006
7	Provide information on Outstanding Florida Waters and Aquatic Preserves to TAC	Marissa Steketee	Before next meeting

APPENDIX A

Public Comment – Day 1

One observer provided comments. No written comments were provided for recording.

Public Comment – Day 2

The public was invited to provide comments. Three observers provided comments (Stephanie Clark, Cry of the Water; Tom Goureau, Global Coral Reef Alliance; and Dan Clark, Cry of the Water).

Below are the comments submitted by Stephanie Clark, Cry of the Water.

Stephanie Clark

Comments to the Land Based Sources of Pollution Technical Advisory Committee

May 23, 2006

Outstanding Florida Waters

For the past 3 years Cry of the Water has had an application to designate Ft. Lauderdale Reefs as Outstanding Florida Water.

We have continued to inquire why our application has not been processed or denied by Florida DEP and have not received an answer.

Our reefs support multi-billion dollar industry and deserve some protection. The designation of Outstanding Florida Waters would help us deal with water quality issues in the area. FDEP has not set a date for a Public Workshop on our application.

We ask the TAC to consider making recommendation to the application for Outstanding Florida Waters.

Critical Habitat for Threatened Species

At this time we ask NOAA to designate the Nearshore reefs north of Port Everglades as Critical Habitat for Threatened Staghorn and Elkhorn Coral.

The Staghorn Coral north of Port Everglades live in some of the farthest-north reefs essential for the conservation of the species.

The loss of 8 miles of nearshore Staghorn habitat from the Broward County Dredge and Fill Project last summer it makes our reefs north of the Port that much more important.

We reported that the reefs in Hollywood were being buried and smothered beyond the Estimated Tow of Fill. At the same time we were experiencing a bleaching event. We asked that the project be halted until the bleaching event ended, but the project continued destroying or burying miles of reef.

Bio-Indicators for Stressors

At the first Public Stakeholder meeting for SEFAST, stakeholders identified the need for Bio-Indicators for Stressors be added to the monitoring plans for the area. The list included increases Cleona, Palythoa, and excessive algae blooms.

The need for Bio-Indicators was again discussed at the first Land Based Sources of Pollution meeting at NOVA. At that meeting it was decided it would be sent to the first TAC meeting for the TAC to compile a list.

Again Bio-Indicators was discussed at the first TAC meeting.

I am asking that the TAC make a recommendation for Bio-Indicators for Stressors, what they are and that they be added to any monitoring program conducted in the SEFCRI.

Following are comments provided by Tom Goreau, Global Coral Reef Alliance.

Thomas J. Goreau

President

Global Coral Reef Alliance

The Draft Plan for this meeting starts by asking:

“Is there a recovery or decline in water quality?

Can water quality be linked to land-based sources of pollution?”

It proposes funding a program to find out.

With all due respect, the decline in coastal water quality and the role of land based sources of pollution in triggering massive algae blooms that kill reefs, are long known to all experienced reef researchers who measured nutrients and the physiological and ecological response of algae to them. Because coral reefs are the most nutrient-sensitive of all aquatic ecosystems they require the highest possible water quality standards for

their protection, and standards derived from any other ecosystem are inadequate. These standards are long known, having been established by Lapointe, Littler, and Bell.

Instead of calling for their enforcement the LBSP TAC has instead spent a year and \$40,000 to do a study that we were told yesterday found that no standards exist for coral reefs! This study and bibliography is seriously flawed and deficient. Three of my own peer reviewed publications on precisely this issue are not cited, 1) a paper from 1991 from a symposium on long term change in reefs published in *American Zoologist*, describing the history of reef eutrophication in Jamaica and its relation to land based sources of nutrients, 2) a paper on Coral Reefs, Water Quality Standards, and Sewage Treatment published in 1994 in the *Journal of the Caribbean Water and Wastewater Association* calling for enforcement of the Lapointe-Littler-Bell standards in all coral reef areas, and 3) a review of the impacts of land based sources of nutrients on coral reefs and fisheries and how to prevent them, published in 2002 by the United Nations Expert Meeting on Waste Management in Small Island Developing States, which also calls for enforcement of these standards and recycling of land-based anthropogenic nutrients on land. If all of my own publications on this issue could not be found by this study, how many more are missing?

Instead of trying to rediscover what is long known, the LBSP TAC meeting needs to call for the immediate enforcement of already established biologically-sound water quality standards adequate to protect reefs. The Turks and Caicos Islands have already adopted these standards. Why can't the US follow? Doing a study now to find if sound standards exist is effectively a time wasting ritual that is slowing down their implementation.

The monitoring plans being proposed at this meeting do not propose to use modern rapid nutrient mapping technology to provide data adequate in space and time for designing meaningful control of nutrient sources to the coastal zone. They are inadequate even to find out how much loading is coming from the 6 major sewage outfalls, much less the canals and additional sources such as deep well injection leakage. People even objected to making direct nutrient measurements! Calling for inadequate monitoring is in effect a way of ensuring that the information needed to take action can always be claimed not to exist.

Land based sources of pollution are not only in surface flows and sewage pipes. In addition we wish to call for three major sources of land based pollution that are not now included to be monitored and controlled. These are:

1. The high level of mud, nutrients, and possible organic contaminants in the inadequate "sand" being dumped on the beaches to be counted as a land based source of pollution that is an imminent threat to the officially designated threatened *Acropora* that lie a hundred yards from the beach.
2. Deep well injection is also an indirect land based source of nutrients with a time delay. Already these effluents are impacting Southeast Florida reefs and will do

so much more as the built up underground nutrients trickle out and as the CERP greatly increases rates of pumping.

3. The Everglades is a major source of high levels of greenhouse gases, climatically active gases, sources of haze and condensation nuclei, and sources of coastal nitrogen. We have published several scientific studies measuring these emissions and showing that they are extremely sensitive to very small changes in water flooding or drainage, and to dissolved nitrogen. Yet the Comprehensive Everglades Restoration Plan includes no monitoring of any land based sources of atmospheric pollution, which affects the coastal zone, and instead claims incorrectly that there are NO atmospheric pollution or climate impacts!

A serious effort to understand the role of all of these sources on the reef, in time to prevent the next bacteria and algae bloom from killing most of what coral is left, requires a much more serious and targeted program of standards, protection, and of state of the art continuous mapping of all relevant nutrients. The discussion at TAC indicated that no such program or commitment was emerging from their deliberations, only the appearance of action for public relations purposes.

The Global Coral Reef Alliance and Cry of the Water have called for years for the best remaining parts of the Southeast Florida reef tract, which are now completely unprotected and un-managed, to be declared Outstanding Florida Waters, and for coral reef-adequate water quality standards to be enforced in it. We have called for detailed in-situ mapping of all land based sources of nutrients to the coastal zone using continuous real-time measurements to identify every source and track them to their origins. We have repeatedly called for the Coral Reef Task force to stop permitting projects that damage corals, whether inadequately treated sewage discharges or dredge-filling areas next to reefs. We have called over and over for an immediate ending of all sewage nutrient dumping in the coastal zone, as well as deep well injection, whose nutrients are now beginning to soak into the sea through cracks in the formations above the boulder zone, causing visible sources of nutrient rich fresh water that are triggering cyanobacteria and algal blooms in the deeper reefs just as the sewage outfalls do in shallower areas.

The Task Force has not responded to these repeated formally submitted requests, and claimed only that they lack the authority to request their own members to stop permitting projects that damage corals (verbally, not in writing, of course!)

I have just received the following comment on the failure to end nutrient discharges from the Delray Beach sewer outfall from Ed Tichenor, who could not make this meeting, and who asked me to add it for the record on his behalf:

The Boynton/Delray Beach sewer plant's NPDES permit expired 12/05. Their permit application has been deemed incomplete five times since their 6/05 application for permit renewal. The sewer plant has declined the FDEP request to do nutrient monitoring in the receiving environment four times since 6/05.

Attached is the most recent FDEP letter, where for the first they discuss a "short term" permit.

My questions:

Does the Clean Water Act allow for such a permit?

Is this a way for the FDEP to avoid having to deal with potential fines for noncompliance?

Is this a way for the FDEP to avoid having to enter into an ACO with the responsible party?

Would such a "short term" permit allow for the same public comment period as a real NPDES permit?

If anyone can help answer these questions or direct me to a resource, please email or call me.

Thank you,

Ed Tichenor
Palm Beach County Reef Rescue
561 699-8559

Pasted below is the most recent rejection letter from the FDEP to the Delray sewer plant's June 2005, NPDES permit renewal application. It is the fifth rejection letter to the plant within the last year for their continued refusal to do the requested monitoring in the receiving environment; a most basic premise of the federal "Clean Water Act." The plant's permit to discharge partially treated sewage into the near-shore coral reef environment expired December 2005. The FDEP seems to exhibit extraordinary patience with the plant. How much longer will this be allowed to continue before fines are levied? (as a reference, added below the letter is the March 2005 FDEP request for monitoring.)

(Florida Department of Environmental Protection(Southeast District(400 N. Congress Ave., Suite 200(West Palm Beach, Florida 33401(

May 22, 2006 ELECTRONIC CORRESPONDENCE((Mr. Robert J. Hagel, Executive Director(South Central Regional Wastewater Treatment & Disposal Board(1801 N. Congress Avenue(Delray Beach, Florida 33445(Email: rhagel@scrwwtp.org((Dear Mr. Hagel:((RE: Application for Wastewater Permit(South Central Regional WWTF(DEP File No. FL0035980-020-DW1P-NR((This is to acknowledge receipt of the additional information, dated April 21, 2006 for the referenced application for a wastewater permit. The application is **incomplete**. In order to complete review of your application pursuant to Section 403.087(4), Florida Statutes (F.S.) and Chapters 62-4 and 62-620, Florida Administrative Code (F.A.C.), please provide the information listed below. The items are numbered to coincide with our original request for information. Evaluation of the proposed project will be delayed until all requested information has been received.((1. Complete((2. Incomplete - In recent meetings with John Proni (NOAA), he indicated that the first tracer test may be further delayed beyond this August. If this is the case, a short-term permit with a compliance schedule may be issued rather than waiting till the tracer test is completed. Regardless, the new permit will contain a requirement for a monitoring program in the receiving waters in the vicinity of Gulfstream Reef as described in our last

letter. A proposal for the monitoring program should be submitted as soon as possible. (3. Incomplete - Please provide an estimate of the average monthly costs (sewer bill) if one deep well with High Level Disinfection system were to be built, with the deep well sized to handle the average daily flows and the ocean outfall maintained for backup/peak flow disposal. (4. Complete (Please provide the requested information as soon as possible, but no later than 45 days from the receipt of this letter. When referring to this project please use the DEP File No. given above. If you have any questions, please call me at telephone number (561)681-6684. (Sincerely,

Timothy W. Powell, P.E., Supervisor (Wastewater Permitting Section) (cc: John Korohech, P.E. jkorohech@hazenandsawyer.com (Linda Horne, DEP/WPB linda.horne@dep.state.fl.us(

Dr. John Proni, NOAA john.proni@noaa.gov(Dodie Stephens, DEP/WPB dodie.stephens@dep.state.fl.us(

Chantal Collier, DEP/MIA chantal.collier@dep.state.fl.us(

Janet Phipps, PBC ERM jhipps@co.palm-beach.fl.us(

Ed Tichenor, PBCRR

etichscuba@aol.com((*****

FDEP March 2006 to South Central Regional Wastewater Treatment & Disposal Board: (Due to the delay in the tracer studies, you need to re-evaluate the need for implementing a monitoring program in the receiving waters in the vicinity of Gulfstream Reef. The sampling program should include at least one location upstream (south) of the outfall and three near the reef - one at the south end, one at north end, and one near the middle. Sample depths should be at the ocean surface, at mid-depth and at the bottom. We also recommend at least one sample to be taken at the Boynton inlet (mid-depth) during outgoing tide, but this is your option. Parameters should include pH, Specific Conductance, Nitrite/Nitrate, TKN, Ammonia, Total Nitrogen, Ortho-phosphorous and Total Phosphorous. The monitoring program needs to begin as soon as possible (before the first tracer test) on a monthly basis for at least one year, after which time the sampling frequency could be reduced (or possibly discontinued, depending on the results of the sampling program and/or the dye/tracer studies).

Here are links to newspaper articles published this week written in response to the latest FDEP rejection of the permit renewal application for the Delray/Boynton sewer plant. The sewer plant's permit to discharge millions of gallons a day of partially treated sewage from its Atlantic Avenue ocean outfall pipe expired December 2005. This is the **5th** time the FDEP has rejected the permit as incomplete in the last year. The reason it is incomplete is the plant's failure to address the most basic premise of the federal "Clean Water Act" - they must show they are not degrading the receiving environment, which in this case is an endangered coral reef.

Sun-Sentinel (Thurs., May 25, 2006)

Delray, Boynton told to increase monitoring of wastewater dumped into ocean

<http://www.sun-sentinel.com/news/local/palmbeach/sfl-pwastewater25may25,0,7385264.story?coll=sfla-news-palm>

**Palm Beach Post (Fri. May 26, 2006)
Divers fret as algae threaten coral reef**

http://www.palmbeachpost.com/pbcsouth/content/local_news/epaper/2006/05/26/s1c_reef_0526.html

Palm Beach County Reef Rescue
PO Box 207
Boynton Beach, FL 33425
(561) 699-8559
www.reef-rescue.org

The following are comments provided by Dan Clark, Cry of the Water.

Comments to Land Based Sources of Pollution TAC May 22-23

Florida DEP is permitting the destruction of the Southeast Florida Reefs
PowerPoint presentation attached

The Delray/Boynton sewer plant permit to discharge partially treated sewage into the ocean off the Atlantic Ave bathing beach expired December 15, 2005. Since that time they have been operating without a valid permit. Even though the plant applied for permit renewal in June 2005 a new permit has not been issued since the plant has not met all the requirements of the Clean Water Act.

There are 6 Sewer outfall Pipes that pump over 300 Million of Gallons a Day of partially treated sewage onto the Reefs of Southeast Florida.

We must remove these sewer outfalls from the reefs and adopt Advanced Water Treatment for Sewage in Southeast Florida.

Harmful algae blooms are smothering and killing our reefs (photo).

We need a water use impact fee for every new unit built in South Florida.

This will give us money for upgrades such as advanced water treatment. We also must do away with the 6 sewer ocean outfalls in Broward County.

Impact from the Comprehensive Everglade Restoration Plan

Billions of gallons of polluted water from Lake Okeechobee and the Everglades Agricultural area is being diverted from the Everglades and flushed to tide contributing to Harmful Algae Blooms and Red Tide.

S-38 Spillway from Conservation area 2 dumping into Broward County (photos).

Until ASR Wells are complete approximately 1.6 Billion Gallons a day are being put to Tide. Currently there is a lack of Storm water Treatment Areas (STA) to filter water being put to Tide.

Resiliency

With all the Water Quality Issues affecting our reefs it is no wonder FDEP is supporting this resiliency program. For the past 2 years we have seen bleaching and harmful algae blooms impact the nearshore reefs during summer. Fortunately we have been impacted by multiple hurricanes the past 2 years that have cooled the waters, reduced the bleaching and scour the reef removing much of the algae. We believe the mortality rates of corals would have been much higher if we were not impacted by the storms.

Ironically though we have 3 boats to look after, a temporary roof on our building and no air conditioning from last year's storms we are not banking on Resiliency we are hoping for the end of season hurricanes to cool the water and scour the reefs clear of algae.

CONCLUDING NOTE

Is the TAC even willing to ask that sewage plants obey the law to stop disposing of it in the ocean?

Following these public comments, the SEFCRI TAC refused once again to:

1. Call for the threatened Acropora area to be recommended for even the minimal level of legal protection
2. Call for the application of any water quality standards adequate to protect coral reefs

This refusal comes despite repeated public petitions for these actions and specific motions proposed by members of TAC. Yet again, it seems that every time that the USCRTF or any of its agencies is asked to actually make any sort of decision to do anything meaningful protect corals, they claim to lack the authority, the information, and create any sort of excuse to avoid protecting corals, while spending vast sums on generating propaganda about their "successes" in the guise of "public awareness and appreciation".

Response to Public Comment

Nancy Craig responded to Tom Goureau's comments by stating that the LBSP projects 1&2 group had presented several drafts of the report and had asked for comments several times in order to address these types of concerns (i.e. missing references) Mike Risk then made a motion that the TAC support increased and rapid adoption of bioindicators in research, use outstanding Florida water bodies, and accept water quality standards. The TAC members decided that they need more details regarding the process and definitions of these in order to make a decision in the next meeting for designation of outstanding Florida waters. Likewise they decided to consider the support of development of bioindicators in all benthic monitoring for an agenda topic for future TAC meeting. Fred

McManus suggested inviting Bill Fisher to speak at the next meeting. Mike Risk moved that the TAC adopt the previously published Lapointe and Littler nutrient criteria as a benchmark for the water quality program. Consensus was that there is not enough information to do so at this time. Need to better familiarize with the paper and re-discuss at the next TAC meeting. The TAC members also expressed the need for Brian Lapointe and Joe Boyer to be present for this issue, these two members had left the meeting shortly before this discussion. The TAC also expressed a need for clarification of terms like “benchmark”. Dick Dodge suggested getting some other experts involved, specifically Alina Szmant. Follow up with action item with gathering information by the end of June and set as agenda item for next meeting. Possibly invite new speakers for this topic.

Kevin Carter then spoke of freshwater nutrient TAC and the difficulty encountered in putting numbers to this issue. He suggests keeping these values in mind when working on monitoring in order to be ahead of the game when saltwater TAC comes up.

Vladimir Kosmynin responded to Stephanie Clark’s comments by asking that a letter be drafted describing the buried reef that she had referred to. He also stated that there is no documentation of algal bloom linkage to any beach re-nourishment project.