Collier County Government

Communication &
Customer Relations Department
3301 East Tamiami Trail
Naples, FL 34112

(239) 252-8848
www.colliergov.net

Jan. 15, 2009

FOR IMMEDIATE RELEASE

NOTICE OF PUBLIC MEETING
CLAM BAY ADVISORY COMMITTEE
COLLIER COUNTY, FLORIDA

TUESDAY, JANUARY 20, 2009
2:30 p.m. till 5:00 p.m.

The ***Clam Bay Advisory Committee*** will meet ***Tuesday, January 20*** at ***2:30 p.m.*** in the Coastal Zone Management conference room, located at 3300 Santa Barbara Boulevard, Naples.

This meeting is open to the public.

If you are a person with a disability who needs any accommodation in order to participate in this proceeding, you are entitled, at no cost to you, to the provision of certain assistance. Please contact the Collier County Facilities Management Department located at 3301 E. Tamiami Trail, Naples, FL 34112, (239) 252-8380 at least two days prior to the meeting. Assisted listening devices for the hearing impaired are available in the Board of County Commissioners Office.

For more information, call Gail Hambright in the Coastal Zone Management office at 252-2966.

-End-

MEETING AGENDA

CLAM BAY ADVISORY COMMITTEE
TUESDAY 20, 2009 - 2:30 P.M.
COASTAL ZONE MANAGEMENT CONFERENCE ROOM (3300 Santa Barbara Boulevard, Naples)

I. Call to Order

II. Pledge of Allegiance

III. Roll Call

IV. Changes and Approval of Agenda

V. Public Comments

VI. Approval of Minutes

VII. Introduction of Clam Bay Advisory Committee and Housekeeping

VIII. Background

IX. Immediate Staff Recommended Priorities for the Clam Bay Advisory Committee

X. Public Comments

XI. Announcements

XII. Committee Member Discussion

XIII. Next Meeting Date/Location
Tentative – February 19, 2009 – Sugden Theater at the Regional Library, 2385 Orange Blossom Drive, Naples

XIV. Adjournment

All interested partied are invited to attend, and to register to speak and to submit their objections, if any, in writing, to the board prior to the meeting if applicable.

For more information, please contact Gail D. Hambright at (239) 252-2966.

If you are a person with a disability who needs any accommodation in order to participate in this proceeding, you are entitled, at no cost to you, to the provision of certain assistance. Please contact the Collier County Facilities Management Department located at 3301 East Tamiami Trail, Naples, FL 34112, (239) 252-8380.

Public comments will be limited to 3 minutes unless the Chairman grants permission for additional time.

Collier County Ordinance No. 99-22 requires that all lobbyists shall, before engaging in any lobbying activities (including, but not limited to, addressing the Board of County Commissioners) before the Board of County Commissioners and its advisory boards, register with the Clerk to the Board at the Board Minutes and Records Department.

CLAM BAY ADVISORY COMMITTEE

The Clam Bay Advisory Committee is a 9 member committee created on September 9, 2008 by Ordinance 2008-48 to advise and make recommendation to the Coastal Advisory Committee and the Board of County Commissioners on matters pertaining to the management and operation of the Clam Bay estuary. The committee shall make recommendations as to its duties, functions and responsibilities along with developing a comprehensive work plan that focuses on the needs of the estuary. The committee will provide a written report to the Board of County Commissioners no later than October 20, 2009. The committee will sunset on December 31, 2009 unless re-established by the BCC. Members will represent the following categories: 2 members from Pelican Bay, 2 members from the Sea Gate/Naples Cay area, 2 technical positions, and 1 member from each of the Commission Districts 1, 3 and 5.

David Roellig
6000 Pelican Bay Blvd., #504
Naples, FL 34108
(239) 594-2210 (H)
dsroelig@naples.net

Kathy B. Worley
4304 Montalvo Court
Naples, FL 34109
(239) 597-8646 (H)
(239) 403-4223 (W)
(239) 262-5872 (F)
kathyw@conservancy.org

Tahlman Krumm, Jr.
8960 Bay Colony Drive, #204
Naples, FL 34108
(239) 596-1228 (H)
tallykrumm@mac.com

James A. Carroll
7425 Pelican Bay Blvd., #1802
Naples, FL 34108
(239) 597-9767 (H)
(239) 597-4947 (F)
jimjonpat@comcast.net

Robert Rogers
5164 Seahorse Avenue
Naples, FL 34103
(239) 353-1973 (W)
(239) 262-0759 (H)
robertrogers@vineyardsnaples.com

John Arceri
1228 Lamplighter Court
Marco Island, FL 34145
(239) 394-9202 (H)
(239) 207-0016 (W)
(239) 394-9202 (F)
arcmi@comcast.net

Ronald A. Glah
81 Seagate Drive #1003
Naples, FL 34103
(239) 213-1534 (H)
(239) 213-1532 (F)
rglah@comcast.net

Noah Standridge
1670 Oakes Blvd.
Naples, FL 34119
(239) 597-7147 (H)
Noah@centrusplanning.com

VACANT SEAT

CZM Staff Representatives

Gary McAlpin, CZM Director	(239) 252-5342	garymcalpin@colliergov.net
Colleen Greene, County Attorney	(239) 252-8400	colleengreene@colliergov.net
Gail Hambright, CZM Accountant	(239) 252-2966	gailhambright@colliergov.net

Updated 1/16/2009

Clam Bay Advisory Committee
1/20/2009 Meeting

I. Introduction of Clam Bay Advisory Committee and Housekeeping

- Introduction of Committee Members
  - Clam Bay Advisory Committee Members and Contact list attached
  - Appointment of Chairperson and Vice-Chairperson
- Ordinance Establishing Clam Bay Advisory Committee attached
  - 9 members Advisory Committee appointed by the BCC reporting to the CAC with focus on management of the Clam Bay Estuary.
  - Committee sunsets on 12/31/09 unless re-established by the BCC.
  - Tasked with identifying duties, responsibilities and resources required along with a Charter/Mission Statement.
- Housekeeping
  - Development of time and location to meet on a monthly basis.
    - Proposed at Sudgen Theater in North Collier Regional Library (Orange Blossom and Airport-Pulling)
    - 2PM on the third Thursday of the month.
  - Adopt all rules and policies of the CAC dealing with agenda, public comments and speaker time limits.
  - Sunshine Law discussion – Colleen Greene

ORDINANCE NO. 2008-48

AN ORDINANCE CREATING THE CLAM BAY ADVISORY COMMITTEE; PROVIDING FOR CREATION AND PURPOSE; PROVIDING FUNCTIONS, POWERS AND DUTIES; PROVIDING FOR APPOINTMENT AND COMPOSITION, TERMS OF OFFICE, ATTENDANCE AND FILLING OF VACANCIES; PROVIDING FOR REMOVAL FROM OFFICE FOR FAILURE TO ATTEND MEETINGS; PROVIDING FOR OFFICERS, QUORUM AND RULES OF PROCEDURE; PROVIDING FOR REVIEW AND SUNSET PROVISION; PROVIDING FOR INCLUSION IN CODE OF LAWS AND ORDINANCES; PROVIDING FOR CONFLICT AND SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Board of County Commissioners of Collier County approved creating the Clam Bay Advisory Committee on July 22, 2008; and

WHEREAS, the purpose of this Committee is to review issues affecting the entire Clam Bay estuary system including the direction, management, health and long term viability of the entire estuary system and to make recommendations directly to the Coastal Advisory Committee which will then forward any recommendations to the Board of County Commissioners; and

WHEREAS, the Clam Bay estuary system is a designated Natural Resource Protection Area (NRPA).

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF COLLIER COUNTY, FLORIDA that:

SECTION ONE: Creation and Purpose of the Clam Bay Advisory Committee.

There is hereby created the Clam Bay Advisory Committee (hereinafter the "Committee"). The Committee is created to assist the Coastal Advisory Committee and the Board of County Commissioners with all issues affecting the entire Clam Bay estuary system, including the management, direction, health, and long term viability of the estuary system.

SECTION TWO: Functions, Powers and Duties of the Advisory Committee.

Once members have been appointed to the Committee, the membership shall develop a mission statement, outline its specific functions, powers, and duties, and develop a work plan which will be presented to the Board of County Commissioners for review and approval.

The Committee will also recommend the boundaries of the Clam Bay estuary system to the Board of County Commissioners.

SECTION THREE: Appointment and Composition; Terms of Office; Attendance and Filling Vacancies.

The Committee shall be composed of nine members whose membership shall include two representatives from Pelican Bay,; two representatives from Seagate and/or Naples Cay; one resident from District 1; one resident from District 3; one representative from District 5; and two members from the community at large with specific technical scientific expertise related to estuary management and protection.

Committee members shall be sought in accordance with the provision of Collier County Ordinance 01-55, as amended, or by its successor ordinance. The initial term of office of the Committee shall be one year. The Committee will be reviewed by the Board of County Commissioners in one year in compliance with Section Six of this Ordinance.

Members of the Committee shall be appointed and serve at the pleasure of the Board of County Commissioners. Members shall meet the qualifications for membership and requirements as outlined in Ordinance No. 01-55, as amended, or by its successor ordinance. Appointment of members to the Committee shall be by resolution of the Board of County

Commissioners, which resolution shall set forth the date of appointment. Appointments to fill any vacancies on the Committee shall be for the remainder of the unexpired term.

Section Four. Removal from Office; Failure to Attend Meetings.

Removal from office and attendance requirements shall be governed by Ordinance No. 01-55, as amended, or by its successor ordinance.

Section Five. Officers; Quorum; Rules of Procedure.

At its earliest opportunity, the membership of the Committee shall elect a chairman and vice chairman from among the members. Officers shall serve for a one year term with eligibility for reelection.

The presence of five or more members shall constitute a quorum of the Committee necessary to take action and transact business.

The Committee shall, by majority vote of the entire membership, adopt by-laws for the scope and transaction of business to be approved by the Board of County Commissioners. The Committee shall keep a written record of meetings, resolutions, findings and determinations. Copies of all Committee minutes, resolutions, reports and exhibits shall be submitted to the Board of County Commissioners.

Section Six. Review Process and Sunset Provision.

This Ordinance shall automatically sunset on December 31, 2009, unless otherwise extended by Resolution of the Board of County Commissioners. The Committee shall provide a written report to the Board of County Commissioners no later than October 20, 2009 with recommendations on whether the Board should continue this Committee.

Section Seven: Inclusion in the Code of Laws and Ordinances.

The provisions of this Ordinance shall be made a part of the Code of Laws and Ordinances of Collier County, Florida. The sections of the Ordinance may be renumbered or re-lettered to accomplish such, and the word "ordinance" may be changed to "section," "article," or any other appropriate word.

Section Eight: Conflict and Severability.

In the event this Ordinance conflicts with any other Ordinance of Collier County or other applicable law, the more restrictive shall apply. If any phrase or portion of the Ordinance is held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and such holding shall not affect the validity of the remaining portion.

Section Nine: Effective Date.

This Ordinance shall become effective upon filing with the Florida Department of State.

PASSED AND DULY ADOPTED by the Board of County Commissioners of Collier County, Florida, this 9th day of September, 2008.

ATTEST:
DWIGHT E. BROCK, CLERK

BY: _____
Deputy Clerk

Attest as to Chairman's signature only.

BOARD OF COUNTY COMMISSIONERS
COLLIER COUNTY, FLORIDA

BY: _____
TOM HENNING, CHAIRMAN

Approved as to form and legal sufficiency:

_____
Colleen M. Greene
Assistant County Attorney

This ordinance filed with the Secretary of State's Office the 19th day of Sept, 2008 and acknowledgement of that filing received this 29th day of Sept, 2008
By _____
Deputy Clerk

STATE OF FLORIDA)

COUNTY OF COLLIER)

I, DWIGHT E. BROCK, Clerk of Courts in and for the Twentieth Judicial Circuit, Collier County, Florida, do hereby certify that the foregoing is a true and correct copy of:

ORDINANCE 2008-48

Which was adopted by the Board of County Commissioners on the 9th day of September, 2008, during Regular Session.

WITNESS my hand and the official seal of the Board of County Commissioners of Collier County, Florida, this 16th day of September, 2008.

DWIGHT E. BROCK
Clerk of Courts and Clerk
Ex-officio to Board of
County Commissioners

By: Teresa Polaski, DC
Deputy Clerk

Clam Bay Advisory Committee
1/20/2009

II. Background

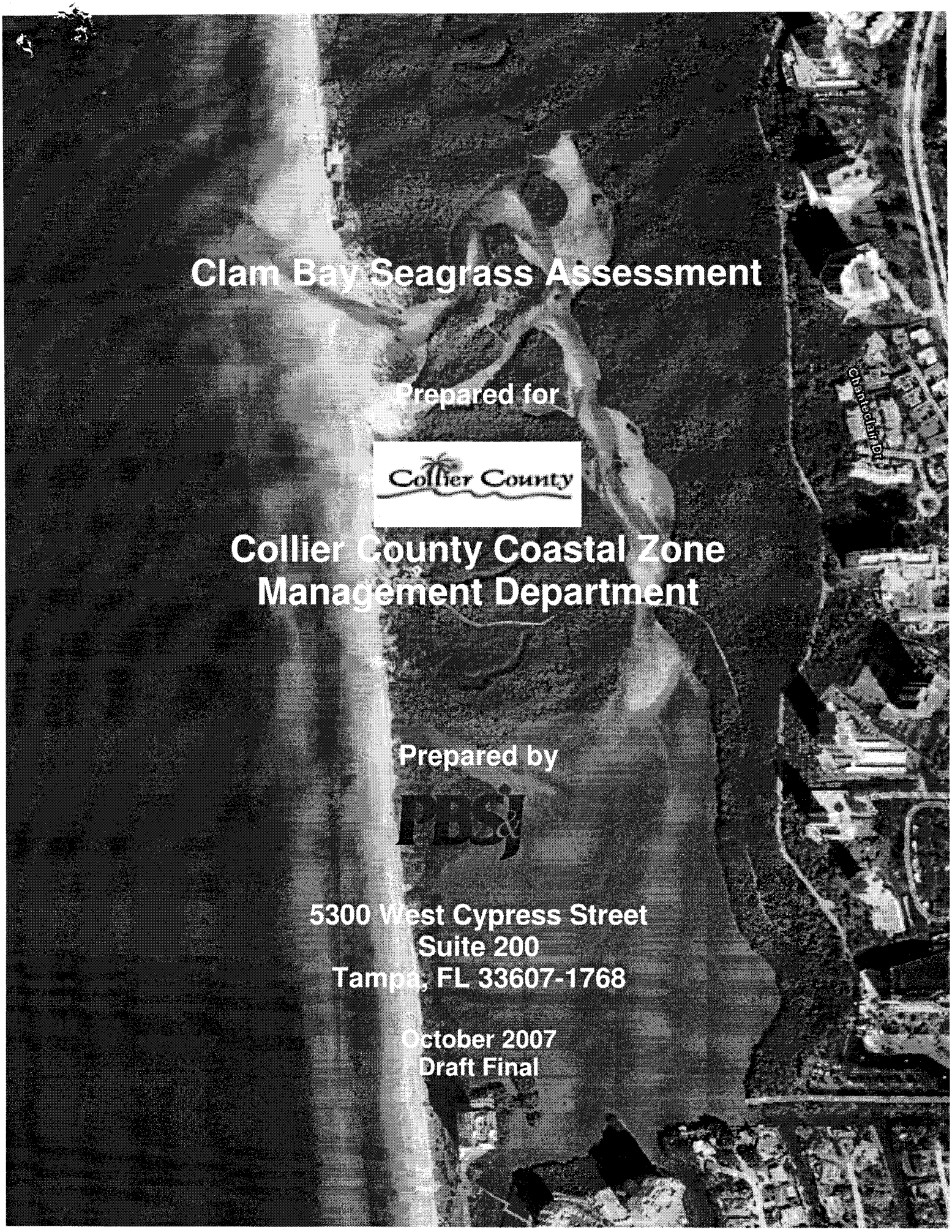
- 10 year FDEP and USACE permit that expired in 2008 for the management of the Clam Bay Estuary that was managed by PBSD with yearly monitoring conducted by Tim Hall of Terrell/Hall Associates.
- PBSD was a good steward for the mangroves and storm water resources. PBSD restored a significant mangrove die-off back to health.
- PBSD focused on the immediate operational area and not the entire estuary. The entire estuary is upper, middle, lower Clam Bays with the interconnecting canals from Vanderbilt Beach Road to Seagate Drive.
- Seagate community voiced concerns about permit violations and actively solicited the Regulatory Agencies (FDEP/USACE/USCG) and Collier County to investigate the following issues:
    - Navigation/Channel marking
    - Sea grass die-off and water quality
    - Drawbridge issues
- County initiated a sea grass survey through Dr. David Tomasko of PBS&J. Study attached and concluded :
    1. The seagrasses were probably overstated and probably not an issue.
    2. Estuary needed to be managed as a whole and not as small separate pieces.
    3. The estuary is not pristine and not impaired but median
    4. Water quality should be one of our major concerns estuary wide. Estuary wide water quality trends were/are troublesome.
    5. Existing water quality data is suspect; little QA/QC or reporting to the state
    6. No BMP from Naples and Naples Contributing to significant water quality issues from the south.

- Additionally the County wanted to address the following items in the management of this estuary:
    1. Ebb tide shoal and re-nourishment of Clam Pass Beach Park
    2. Estuary managed to the benefit of the mangroves and possibly to the detriment of the rest of the ecosystem i.e. seagrasses and marine life.

3. County wanted to close out the original permit because restoration goals have been achieved.
4. County desired to have a community asset managed by the entire community.
5. Work groups were established to address what it considered pressing issues. The work groups were not usually attended by Pelican Bay except for Jim Burke.

- Work Groups were established and addressed the following issue:
  1. Water quality and sampling
  2. BMP's for Seagate and Venetian Bay
  3. Mixing Analysis for outer Clam Bay
  4. Sand bypassing at Clam Pass ebb tide shoal
  5. Navigation
  6. Marine life including Sea grass monitoring
  7. Education and Outreach
  8. Funding
  9. Development of a new permit

- Through tremendous anxiety and two meetings with the BCC, the BCC authorized the Clam Bay Advisory committee.


Clam Bay Seagrass Assessment
Prepared for
Collier County
Collier County Coastal Zone Management Department
Prepared by
PBS&J
5300 West Cypress Street
Suite 200
Tampa, FL 33607-1768
October 2007
Draft Final

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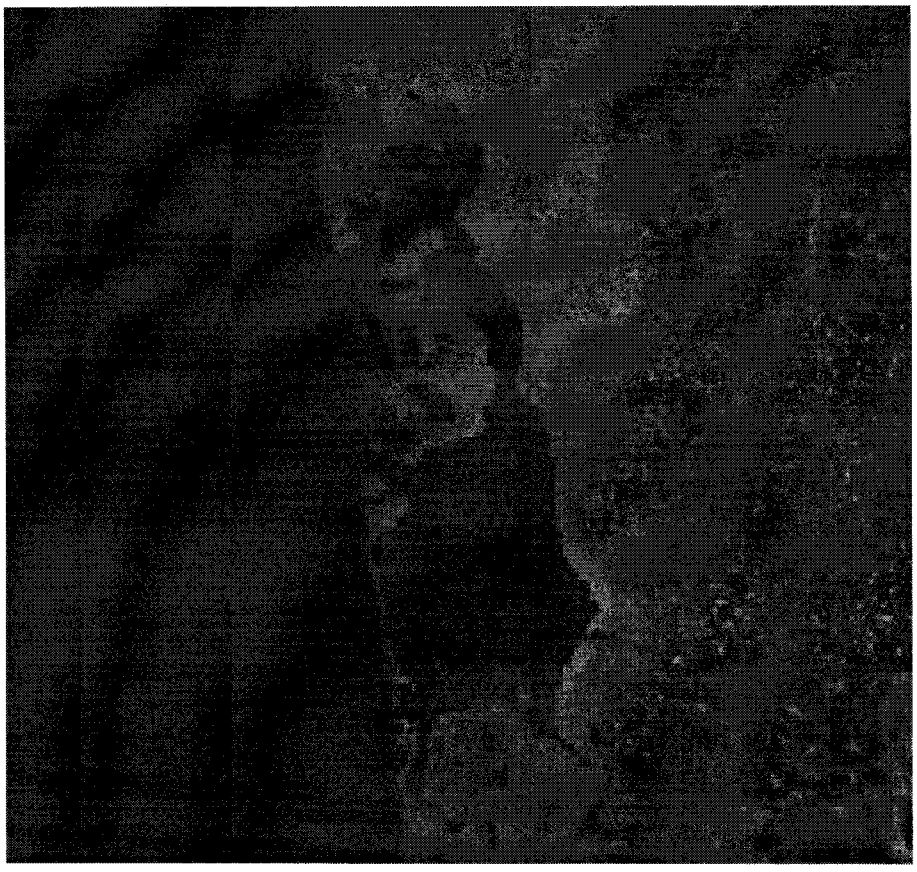
1.0 Introduction

1.1 Development of Clam Bay

Clam Bay is an important natural feature in Collier County. Recent reports have indicated that Clam Bay is experiencing losses in seagrass coverage, which has led to concern among the public that one of the more picturesque natural features of western Collier County is in danger of being seriously degraded.

The Clam Bay watershed, like much of Collier County, has experienced dramatic changes over the past 60 years. In the 1940's, there was little evidence of human modifications to Clam Bay and its immediate watershed (Figure 1.1).

Figure 1.1– Aerial Photo (circa 1940s) of Clam Bay and immediate watershed



In contrast, more recent aerial photography clearly shows modifications to both the Clam Bay shoreline and the dramatic changes in the watershed (Figure 1.2).

Figure 1.2 – Aerial photograph (2006) of Clam Bay and immediate watershed

Modifications to the Clam Bay system include the construction, in 1958, of Seagate Drive, which severed the previous tidal connection between Clam Pass (to the north) and Doctors Pass (to the south). A series of culverts were put in place in 1976 to alleviate this condition, but it appears that their effectiveness was perhaps minimal, and upgraded features were necessary for them to increase flushing properly (Antonini et al. 2002). **Recent decades have also been characterized by the rapid urbanization of the Clam Bay watershed.** Prior studies in similar lagoonal systems in Southwest Florida suggest that increased urbanization brings about increased freshwater inflows and substantial increases in nonpoint sources of both nitrogen and phosphorus (i.e., Lemon Bay - Tomasko et al., 2001).

In the early 1990s, an area of mangrove die-off of approximately seven acres was discovered in Upper Clam Bay, north of Clam Pass. By the mid-1990s, the area of die off (affecting mostly black mangroves) had expanded to approximately 50 acres. In response to the die-off, Pelican Bay residents acquired the services of a series of consultants to develop a plan of action to remediate the mangrove loss. In the meantime, various intermediate measures were performed, including the dredging of Clam Pass in April of 1996 and the clearing of several channels by hand evacuation in August and November of 1996 (Conservancy of Southwest Florida 1997).

Based on assessments of water quality data collected by Collier County Environmental Services and the Pelican Bay Services District, there did not appear to be evidence that mangrove mortality was caused by elevated levels of any toxic chemicals, nor did the data suggest changes in nutrient concentrations would have been a likely factor in die-off. Instead, the conclusion was reached that die-off was likely due to excessive freshwater input to the system from the adjacent developed uplands and an inadequate dispersion of the increased freshwater input due to severely constricted tidal channels in the mangrove forest. As a result, the mangrove forest became inundated with water levels higher than the tops of the black mangrove pneumatophores. The duration of increased water levels was sufficient to kill the tress by blocking oxygen exchange to the below ground tissues. In 1998, the Collier County-Pelican Bay Services Division was issued a permit to restore and manage the Clam Bay Natural Resource Protection Area based on the Clam Bay Restoration and Management Plan (Brown and Hillestad 1998).

The management component of the Clam Bay Restoration and Management Plan consists of four major activities:

1. Retrofitting of the culverts under Seagate Drive with flap gates, such that flow only goes north.

2. Redredging of Clam Pass.

3. Excavation of tidal connections in interior portions of Upper Clam Bay.

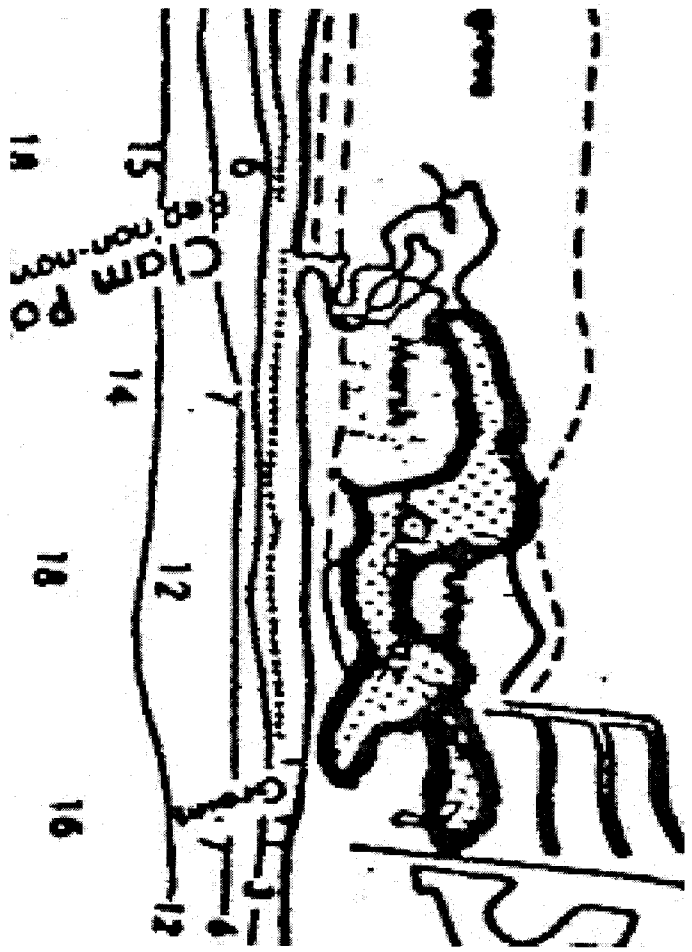
4. Development of stormwater best management plans for on-site retention of water from surrounding development.

1.2 Seagrass Mapping

Existing results from ongoing seagrass mapping efforts in Clam Bay (T. Hall, personal communication) suggest that coverage of this important habitat had declined between 1994 and 2006. It has also been suggested that a more precipitous decline in coverage occurred between 1991 and 1994. The reported seagrass decline in the early 1990s is mostly attributed to results listed in two mapping projects, both conducted by Collier County.

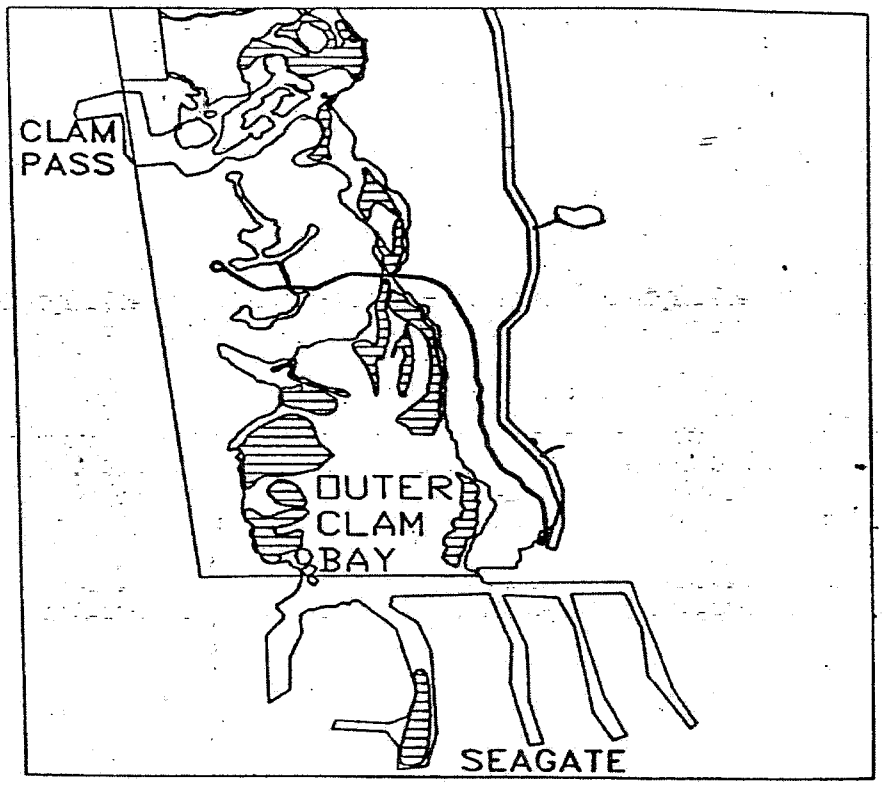
In the first report, the Collier County Seagrass Protection Plan (1992) concluded that seagrass coverage in Clam Bay was equivalent to approximately 60 acres, and that "Outer Clam Bay contains one of the densest and most extensive seagrass beds in the County." The spatial coverage of seagrass meadows, as reported in the 1992 Seagrass Protection Plan is shown in Figure 1.3.

Figure 1.3 – Spatial extent of seagrass meadows (dotted areas) as reported in the Collier County Seagrass Protection Plan (1992).



In a later report, Collier County Seagrass Inventory (1994) mapped seagrass coverage in Clam Bay, and estimated that approximately 10 acres of seagrass were present in the same area (Figure 1.4).

Figure 1.4 – Spatial extent of seagrass meadows (striped areas) as reported by Collier County Seagrass Inventory (1994).



If the mapped seagrass coverage estimates from these two reports were accurately reporting the true acreage of seagrass meadows, a decrease in coverage of more than 80 percent occurred in the early 1990s. This would be a more precipitous decline than was documented for Tampa Bay during the time period of the 1950s to the early 1980s (Tomasko 2002).

In response to these concerns, the Clam Bay Working Group contacted PBS&J to conduct a study to determine the following:

- What is the extent of seagrass resources in Clam Bay?
- How has seagrass coverage changed over the recent past?
- What are the most likely factors associated with recent declines?
- How have freshwater inflow and nutrient loads to Clam Bay changed over time?
- What actions might reasonably be expected to allow for recovery of these seagrass resources?

- What would be a reasonable timeline and budget for implementing such a recovery plan?

To answer these questions, PBS&J completed the following tasks: 1) conduct a kickoff meeting for the project, and interview interested stakeholders, 2) collect water quality and seagrass data from within Clam Bay, 3) develop a pollutant loading model for Clam Bay, and 4) develop an "Action Plan" to address any identified environmental stressors to Clam Bay.

2.0 Methods

2.1 Task 1 – Kickoff Meeting and Stakeholder Interviews

The PBS&J project team met with staff from Collier County to conduct detailed interviews with the following stakeholders and/or sources of information:

- Dave Busier – Seagate
- Tim Hall – Turrell and Associates
- John Domenie – PBSD
- Kyle Lukasz - PBSD
- Jim Burke – PBSD
- Kathy Worley – the Conservancy of Southwest Florida
- Others as identified by Collier County

In addition, PBS&J reviewed the following information and data sets:

- All detailed monitoring reports and testing results performed by Pelican Bay Services Division and /or their consultants.
- Collier County aerial photographs
- Any and all seagrass data from Clam Bay
- Annual reports and raw data collected from Turrell and Associates
- Conversancy of SW Florida water quality data on Clam Bay

2.2 Task 2 – Data Collection on Depth Distribution of Seagrasses and Potential Water Clarity Goals for Clam Bay

2.2.1 Seagrass Sampling

The techniques used in this report involved the following steps: 1) identification of seagrass extent in Clam Bay, 2) identification of seagrass in two reference bays, 3) collection of water quality data in Clam Bay, 4) determining those factor(s) responsible for variation in water clarity in Clam Bay, and 5) determining the nutrient most likely to be limiting phytoplankton growth in Clam Bay.

Using an ArcGIS Random Number Generator tool within a GIS-generated polygon for Clam Bay, a sampling "universe" of 100 potential sampling sites was generated. Of those 100 potential sites, 30 were chosen at random for groundtruthing for seagrass coverage. Each of the thirty sampling points was located using a WAAS (Wide Area Augmentation System) enabled Garmin GPSmap 60CSx. A modified Braun-Blanquet method was used to determine seagrass coverage (Table 2.1). Three assessments of seagrass coverage and species diversity were recorded for each of the 30 visited sites, using a $1m^2$ quadrant in May 2007. The water depth, substrate (muddy, sandy, etc.) and presence/absence of macroalgae were also recorded.

Table 2.1- Braun-Blanquet seagrass coverage method.

Assessed Value	Percent Seagrass Coverage
0	No coverage
0.1	Solitary short shoot
0.5	Sparse of <1% coverage
1	1-5% coverage
2	6-25% coverage
3	26-50% coverage
4	51-75% coverage
5	76-100% coverage
6	Coverage outside of m^2 placement

Two reference bays in close proximity to Clam Bay were located to evaluate seagrass coverage within a "natural" bay system (i.e., one without a developed fringing shoreline). Dollar Bay and a small embayment south of Gordon Pass were chosen, as they have undergone minimal to no shoreline development, and they may represent locally-relevant "pristine" bay environments for comparison to Clam Bay. On August 3, 2007, both bays were evaluated for seagrass presence via snorkeling, with the observers location tracked with the above-mentioned WAAS-corrected GPS unit.

2.2.2 Water Quality Sampling

Four water quality sampling points from the seagrass monitoring sampling points and an additional sampling location in the canal within Clam Bay were identified (CB-5, CB-14, CB-26, CB-27 and CB-CNL). These five sampling locations were visited biweekly by staff from PBS&J and Collier County. Samples were collected on May 16, 2007, May 31, 2007, June 14, 2007, June 28, 2007, July 12, 2007, and July 26, 2007. A suite of physical, chemical and biological parameters were measured (Table 2.2).

Table 2.2 - Sampled water quality parameters for Clam Bay sites.

Parameter	Unit	Method
Physical		
pH	Standard units	YSI
Temperature	℃	YSI
Dissolved Oxygen (DO)	mg/l	YSI
Specific Conductivity	µmhos/l	YSI
Secchi Depth	cm	Secchi Disk/ measuring tape
Turbidity	NTU	SM 18 2130 B
Color	Pt-Co	110.2
Total Suspended Solids (TSS)	mg/l	160.2
Volatile Suspended Solids (VSS)	mg/l	160.2
Chemical		
Total Kjeldahl (TKN)	mg/l	SM20 4500-Norg D
Total Phosphorus (TP)	mg/l	SM18 4500-P E (P
Nitrate+Nitrite (NOx)	mg/l	EPA 353.2
Ortho-Phosphate (SRP)	mg/l	SM18 4500- P E
Total Phosphorus (TP)	mg/l	
Biological		
Chlorophyll *a* (Chl a)	µg/l	SM18 10200H

Finally, the water quality data sets collected within Clam Bay by the Conservancy of Southwest Florida and the Pelican Bay Services Division were reviewed and analyzed, if found appropriate, to examine trends in nutrients, salinity, etc. within Clam Bay.

2.3 Task 3 – Development of Estimated Freshwater and Pollutant Loading Estimates for the Clam Bay Watershed

2.3.1 Model Development

An approach used by regulatory agencies in Florida estimates the average annual pollutant load to quantify the amount of nonpoint source pollutants from surface waters discharged into a waterbody. Calculations were conducted using the PBS&J Pollutant Loading Model. This model is a GIS-based Pollutant Loading and Removal Model that uses data on hydrologic characteristics, drainage characteristics, average annual rainfall, hydrologic parameters and pollutant event mean concentrations (EMC).

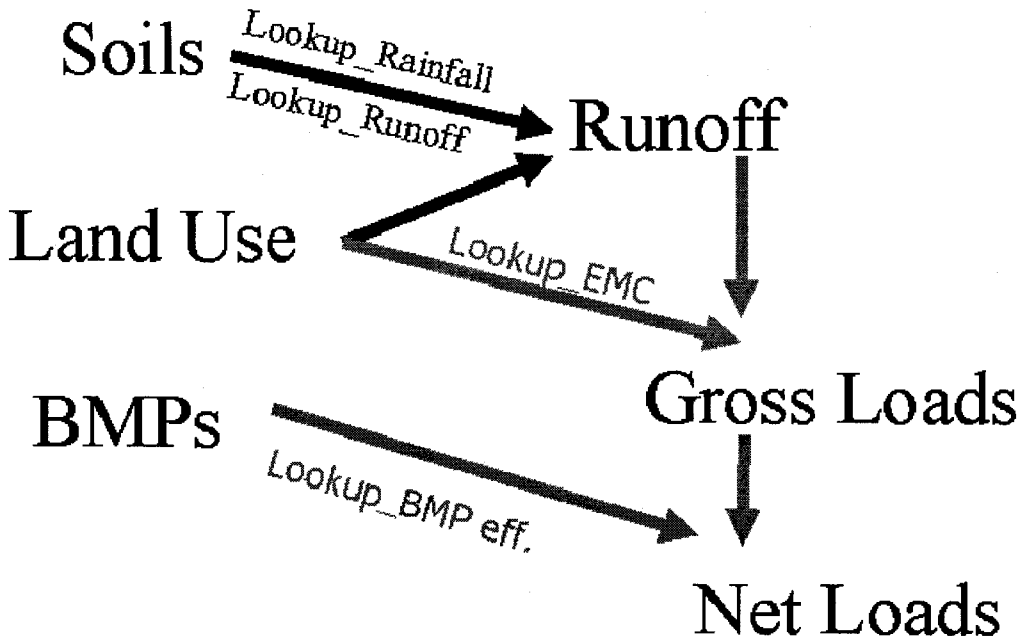
Developing estimates of pollutant loads requires estimating both the stormwater runoff volume and the corresponding concentration of the pollutants under consideration. Following the flow chart seen in Figure 2.1 and described below, the Pollutant Loading Model incorporates, Soils, Land Use, and Best Management Practices (BMP) GIS layers with Rainfall, Runoff, EMC, and BMP efficiency lookup tables to calculate runoff volumes, gross loads, and net loads.

- **Calculation of stormwater runoff volume**. The runoff volume from a subbasin is calculated as the product of the average, annual or seasonal, rainfall amount and the subbasin's weighted land use and soils rainfall / runoff coefficient. GIS coverages of land use and hydrologic soil characteristics were intersected with subbasin delineations to determine the area's hydrologic characteristics.

- **Calculation of gross pollutant loads**. Gross pollutant loads are defined as the amount of pollutant that is generated within a subbasin. This load is calculated as the sum of the non-point source loads. The non-point source load is defined as the product of the estimated annual runoff volume times the stormwater EMC for each selected pollutant and land use category.

- **Calculation of net pollutant loads**. Net pollutant loads are defined as the amount of a pollutant from a subbasin that is discharged into a receiving waterbody. This load is calculated as the product of the gross pollutant load times a factor that represents the estimated pollutant removal due to the occurrence of stormwater treatment within each subbasin.

Figure 2.1 - Pollutant Loading Flow Chart



2.3.2 Major Watersheds

When the pollutant loading model is run, it generates contributions of runoff and loads for each intersected polygon of soils, land use, and BMP. The sub-basin boundaries used for this analysis are shown below in Figure 2.2.

Figure 2.2 – Overview of Clam Bay, with sub-basin boundaries used for the pollutant loading model.

Land Uses

The Clam Bay watershed, as shown above, drains approximately 5,824 acres of highly urbanized area. The present day land uses are compared to historical (1940's) land use characteristics in Table 2.3.

Table 2.3 – Current and historic land use / land cover by category for the Clam Bay watershed.

Land Use / Land Cover	Current Area (acres)	Historic Area (acres)
Golf Course	310	
High Density Residential	1,125	
High Intensity Commercial	433	
Industrial	12	
Low Intensity Commercial	248	
Multi-Family Residential	918	
Open Space	194	184
Road / Highway	146	
Single Family Residential	1,351	
Utility	13	
Water	645	323
Wetlands	429	101
Mangrove		1,206
Mesic Flatwood		2,554
Xeric Hammock		1,457
Total	**5,824**	**5,824**

Historically, the dominant features of the Clam Bay watershed were the mixed vegetative communities of mesic flatwoods and xeric hammocks. Mesic flatwoods dominated the lower lying, wetter areas along the shoreline, as well as interior portions. Xeric hammocks dominated the higher areas along the coastal ridge, where much of the US Highway 41 road bed was laid out.

Currently, the major land use type is that of single-family residential land use, along with high-density residential land use. These two categories, along with multi-family residential land uses, comprise a total of 3,394 acres or 58 percent of the combined watershed and open water area. Golf courses comprise 310 acres, less than the amount of open water itself (645 acres). The current land use / land cover layers list mangrove coverage in the category of "wetlands" while our assessment of historical land cover had them separately categorized. Therefore, the current

category of "wetlands" includes mangrove fringes as well. Wetland loss in the Clam Bay watershed is thus from 1,307 acres historically to a present day level of 429 acres, a decline of 67 percent.

Soils

The hydrologic characteristics of soil can significantly influence the capability of a given watershed to hold rainfall or produce surface runoff. Soils of the Clam Bay watershed are classified as Types A, B, C, or D, according to the following criteria (Viessman et al., 1989):

- **Type A soil (low runoff potential)**: Soils having high infiltration rates even if thoroughly wetted and consisting chiefly of deep, well-drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

- **Type B soil**: Soils having moderate infiltration rates if thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well-drained to well-drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.

- **Type C soil:** Soils having slow infiltration rates if thoroughly wetted and consisting chiefly of soils with a layer that impedes the downward movement of water, or soils with moderately fine to fine texture. These soils have a slow rate of water transmission.

- **Type D soil (high runoff potential)**: Soils having very slow infiltration rates if thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious materials. These soils have a very slow rate of water transmission.

By knowing land uses and soil types, runoff volumes are then generated for each parcel of land. These runoff volumes vary depending upon both the land use and the characteristics of the underlying soils. The runoff volumes are then matched with literature-derived event mean concentrations (EMCs) for various stormwater constituents, which are functionally equivalent to a flow-weighted concentration. Simply put, the EMC value for any given constituent (e.g., total nitrogen (TN), total phosphorus(TP), and total suspended solids (TSS)) is the concentration that would be required to account for expected loads, based on storm-event sampling.

The EMC values used for the Clam Bay loading model are shown in Table 2.4.

Table 2.4 – EMC values for total nitrogen, total phosphorus, and total suspended solids (values in mg / liter).

LAND_USE	TN	TP	TSS
Single Family Residential	2.29	0.3	27
High Density Residential	2.3	0.4	50
Multi-Family Residential	2.42	0.49	71.7
Low Intensity Commercial	1.18	0.15	81
High Intensity Commercial	2.83	0.43	94.3
Industrial	1.79	0.31	93.9
Utility	1.79	0.31	77
Road / Highway	2.08	0.34	50.3
Golf Course	2.32	0.34	55.3
Mesic Flatwood	1.25	0.053	11.1
Open Space	1.25	0.053	11.1
Xeric Hammock	1.25	0.053	11.1
Mangrove	1.6	0.09	10.2
Wetlands	1.6	0.09	10.2
Water	1.25	0.11	3.1

The loads calculated by knowing land use, soil type, runoff coefficients and EMC values are then further modified via the use of selected "best management practices" or BMPs. The expected removal efficiencies of these BMPs are shown in Table 2.5.

Table 2.5 - BMP Removal Efficiencies (TSS, TN, TP).

BMP Category	TSS	TN	TP
Wet Detention Pond	70%	35%	60%
Wet Pond Treatment Train	85%	50%	65%

Rainfall

In the estimation of annual pollutant loads, daily rainfall amounts represent the basic building block or the foundation for the entire process. Rainfall data is used to generate runoff coefficients for different land uses in the watershed and applied as an average annual rainfall amount to determine the annual runoff volumes entering a waterbody. For the purposes of this project, daily precipitation data were obtained from weather stations located in the City of Naples from both the South Florida Water Management District (SFWMD) DBHydro database (my.sfwmd.gov) and Weather Underground (www.wunderground.com). Data spanned a 52 year period of from 1955 to 2007. Using this data as a continuous series, runoff coefficients were generated, as previously discussed, in addition to the identification of the historic average annual rainfall amount of 53.0 inches per year.

3.0 Results

3.1 Seagrass distribution

Figure 3.1 illustrates the "universe" of 100 potential sample site locations for the seagrass assessment. Of those 100 potential sites, 30 were chosen at random for seagrass assessment. The results of those surveys are illustrated in Figure 3.2.

Figure 3.1 – Potential sample sites in Clam Bay

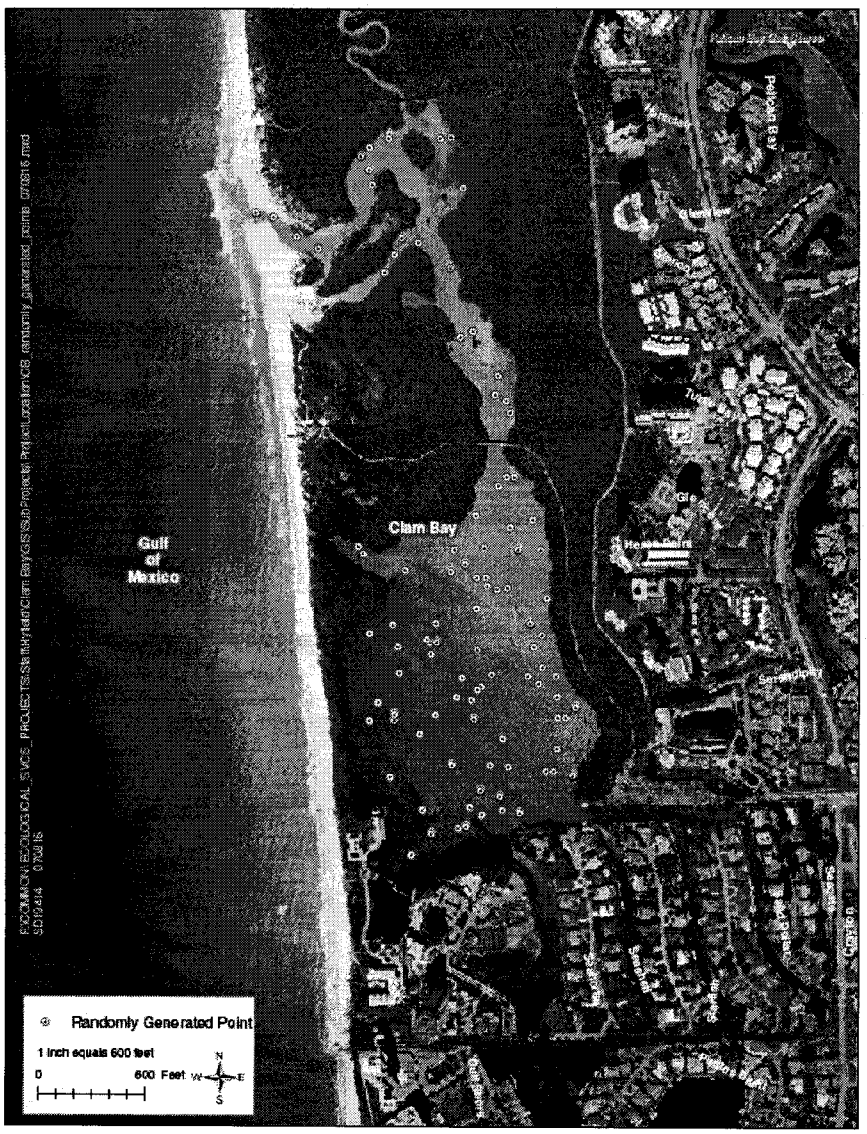


Figure 3.2 – Presence (green) and absence (red) of seagrass from visited sample sites in Clam Bay.

Of the 30 seagrass sampling sites visited, seagrass was found in 13 of them, for a rate of occurrence of 43 percent. While it would be tempting to convert this to an acreage estimate, by assuming that if 43 percent of randomly chosen stations were occupied by seagrass, then 43 percent of the 60 + acres of Clam Bay is covered with seagrass (i.e., 26 acres of seagrass) this would be an incorrect approach to the issue of seagrass coverage estimates. Techniques such as random point visitations and transect-based assessments are not appropriate for translation into acreage estimates.

At the station close to the Gulf of Mexico (Station 2), within the westernmost portion of Clam Pass, a sprig of turtle grass, *Thalassia testudinum*, was encountered. This lone plant may have

been transported to the site by currents or some other mechanism, as there was no evidence of a meadow at this location.

At all other locations, the only species encountered was paddle grass, *Halophila decipiens*. This species, *H. decipiens*, is typically found in either deeper waters in the Gulf of Mexico (i.e. waters in excess of 50 feet in depth) or in low clarity waters in shallower locations (Dawes et al. 1989).

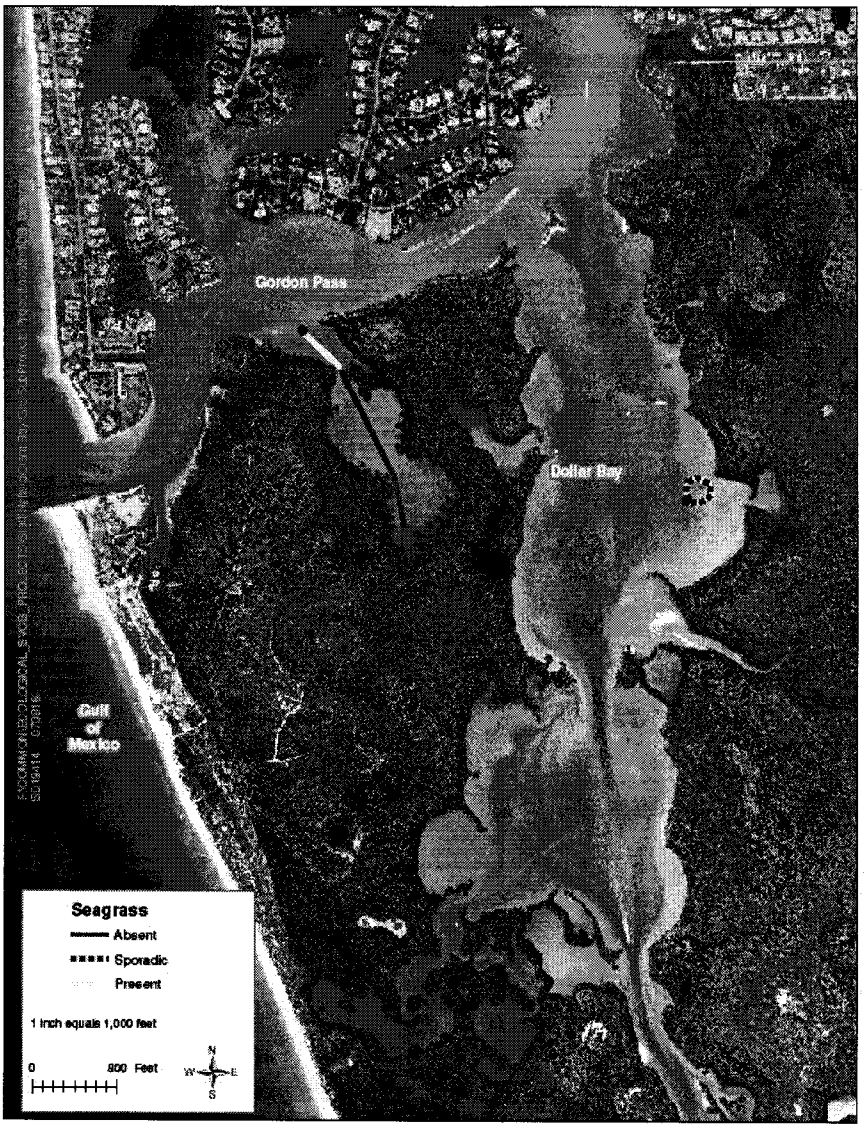
Of the 25 stations located south of the boardwalk that crosses from the mainland to the barrier island, paddle grass was found at 12 stations, or nearly half of the sites visited. At those locations, the average Braun-Blanquet score for seagrass coverage was 1.6, equivalent to bottom coverage of between 5 and 25 percent.

In addition to surveys of seagrass coverage within Clam Bay, an assessment was made of the relative coverage of seagrasses within other locations that were close by, but did not have direct and adjacent human alterations of their shoreline and watersheds. The locations of these "reference sites" are shown in Figure 3.3.

Figure 3.3 – Location of "reference sites" within the Dollar Bay / Gordon Pass areas.

The location referred to as "Dollar Bay" actually represents only a portion of Dollar Bay, along the eastern shoreline just south of Gordon Pass. The location referred to as "Gordon Pass" refers to a small unnamed embayment located along the southern shoreline of Gordon Pass. Results from the seagrass surveys at these locations are shown in Figure 3.4.

Figure 3.4 – Seagrass presence in two "reference sites".

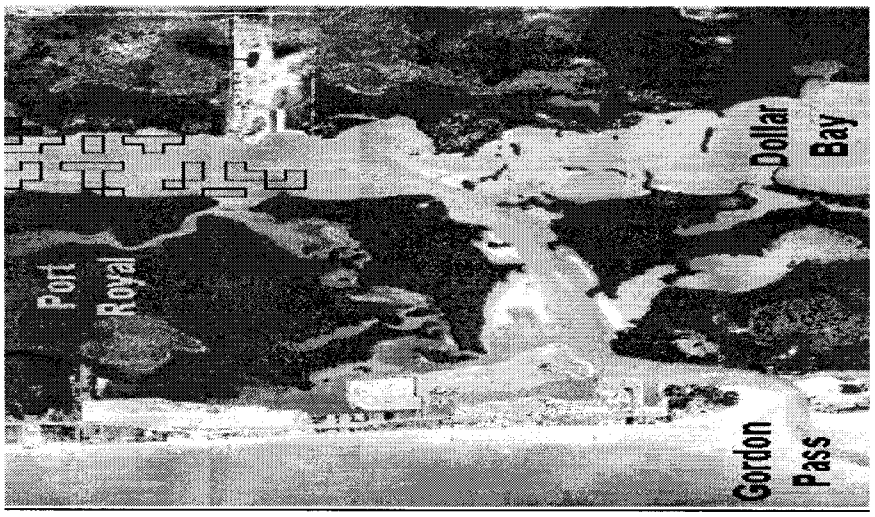


At both sites, a WAAS-enabled GPS unit was used to track the location of a diver surveying the bottom of these bays and when seagrass was encountered, those locations were "tagged" for their locations. Along the eastern shoreline of upper Dollar Bay, oysters were commonly found, as well as the seagrass species called **shoal grass** (*Halodule wrightii*). Abundance was patchy and

coverage was never more than approximately 25 percent of the bottom. Within the small embayment located along the southern shoreline of Gordon Pass, seagrass was only found in the northern lobe of that feature. Within that outermost portion, the species turtle grass (*T. testudinum*) and shoal grass (*H. wrightii*) were encountered. In those areas farther south, no seagrass was encountered, even though the deepest depths seemed to be approximately 3 to 5 feet – depths where seagrass was found within Clam Bay.

The seagrass results from Clam Bay suggest that seagrass is not an uncommon feature, but that the species found, *Halophila decipiens*, is not one that is likely to be seen with aerial photography. This species is a rather diminutive organism that is unlikely to be a discernable feature with aerial photography and subsequent photointerpretation which can lead to "false negatives" for abundance. Additionally, macroalgae, which can be abundant in Clam Bay, can give "false positive" for photointerpertation, suggesting seagrass coverage where there is none to be found. Thus, the seagrass species found in Clam Bay is not a species that is conducive to mapping via traditional techniques, such as those used for seagrass mapping purposes in Tampa Bay, Sarasota Bay, Lemon Bay, and Charlotte Harbor (e.g., Tomasko et al. 2005). Surveys of nearby locations without any obvious human impacts, particularly the small embayment south of Gordon Pass, suggest that lush seagrass meadows are not a presumed feature to be found in Collier County's estuaries. When examining 1950s seagrass maps from southern Naples Bay Figure 3.5, (from the City of Naples), seagrass coverage (in green) has been lost from areas north of Gordon Pass, but seagrass coverage wasn't distinguishable in the 1950s in either Dollar Bay or the small embayment south of Gordon Pass.

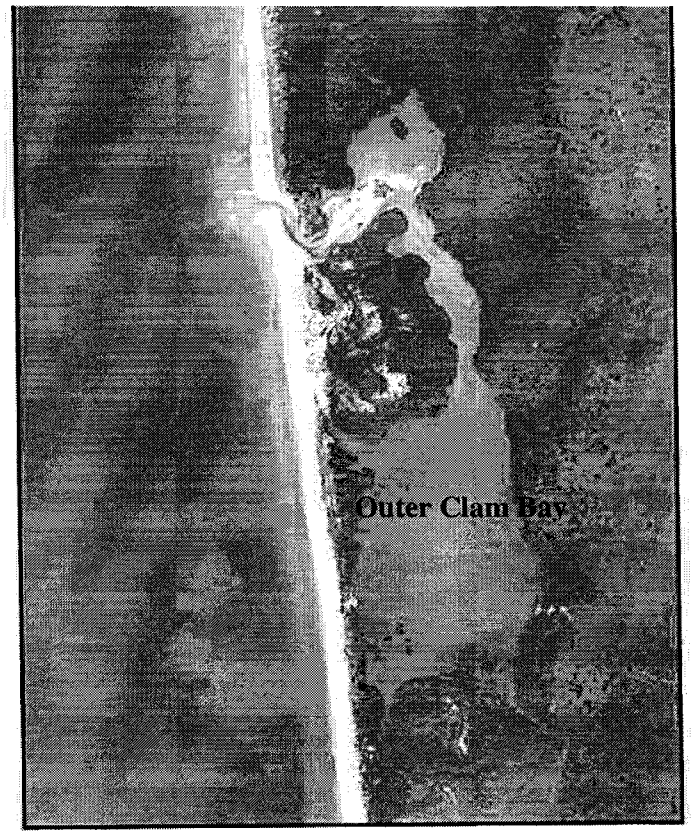
Figure 3.5 – Seagrass (green) and oyster (pink) coverage in southern Naples Bay in 1953 (image from City of Naples).



Combined, these data suggest that the extent of seagrass coverage presently found in Clam Bay is not necessarily indicative of a distressed system. Also, these data call in to question the validity of Clam Bay once having had 60 + acres of lush seagrass meadows, as was suggested to be the case in the 1992 Collier County Seagrass Protection Plan. When examining 1952,

photography from Clam Bay (Figure 3.6) there is no distinctive seagrass signature in the open waters of the bay in this earlier, less-impacted condition. However, there does appear to be a darker signature indicative of seagrass coverage in the shallower areas along the shoreline.

Figure 3.6 – 1952 aerial photograph of Clam Bay (from Antonini et al. 2002).



3.2 Water Quality

The locations of the water quality sites visited for this study are shown in Figure 3.7.

Figure 3.7 – Locations of visited water quality stations.

Station 5 was chosen to represent a "boundary condition" of sorts for the Clam Bay system. It was located in an area that experiences much greater water exchange, where the cross sectional area is reduced considerably and water movement has a much greater velocity than areas farther south. Stations 27 and 26 were located on the western and eastern boundaries of the bay, respectively, while station 14 was located in the middle of the bay. An additional station,

"Canal" was located at the eastern end of an east-west oriented residential canal connected to Clam Bay.

The water quality data were then analyzed for a number of different determinations. Among these were the following:

1. Based on the data collected, what were the general water quality conditions in Clam Bay during our study?

2. What water quality parameters (i.e., turbidity, phytoplankton, and "color") best explain differences in water clarity?

3. Which nutrient, nitrogen or phosphorus, best explains differences in phytoplankton abundance?

4. Are our conclusions in-line with prior assessments of water quality in Clam Bay?

Water quality at the five sampled locations, during this study, is summarized in Table 3.1.

Table 3.1 – Water quality results for selected parameters for 5 stations in Clam Bay. Data are means of n = 6. "Fla. Median" = median value for Florida Estuaries. "Fla. 10% Best" is value below which are the best 10% of estuary values. "Fla. 10% Worst" is value above which are worst 10% of estuary values. "NA" = not available.

Location	Salinity (ppt)	Chl-A (µg / liter)	Total Nitrogen (mg / liter)	Total Phosphorus (mg / liter	Turbidity (NTU)	Color (PCU)
CB-5	37.3	3.3	0.44	0.03	2.18	4.2
CB-14	36.3	4.4	0.40	0.04	2.53	4.6
CB-26	36.4	5.8	0.46	0.04	3.82	15.0
CB-27	35.9	9.2	0.50	0.05	4.83	10.4
CB-CNL	35.5	10.5	0.52	0.06	3.73	18.3
Fla. Median	NA	9	0.8	0.07	NA	NA
Fla. Best 10%	NA	1	0.3	0.01	NA	NA
Fla Worst 10%	NA	36	1.6	0.20	NA	NA

3.2.1 Based on the data collected, what were the general water quality conditions in Clam Bay during our study?

Salinities at all locations were high, indicating minimal freshwater influence during the time period of May 16 to July 26 of 2007. Levels of chlorophyll-a, an indicator of algal biomass, were lowest at the station closest to Clam Pass (CB-5) and highest at the canal site (CB-CNL). At no locations did average values exceed the Florida Department of Environmental Protection's (FDEP) Impaired Waters Rule guidance criteria of 11 µg / liter, although the canal site came close to being "impaired". During this time, chlorophyll-a levels were mostly below or close to the median value of chlorophyll for Florida estuaries.

Levels of total nitrogen (TN) were below the median value for Florida estuaries (0.8 mg TN / liter), as derived by FDEP (1996). The TN level at CB-14 was only 50% of the median TN value, while even the highest TN value, at CB-CNL, was still only 65% of the median value for Florida estuaries.

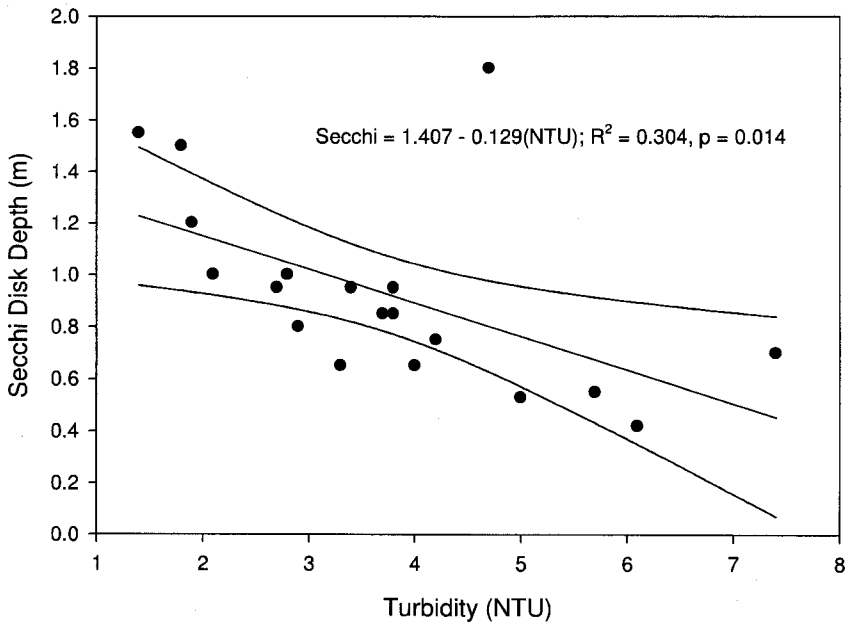
Levels of total phosphorus (TP) were much lower than the median value of TP for Florida estuaries (0.07 mg TP / liter; FDEP [1996]) at stations CB-5, CB-14 and CB-26. However, values at station CB-CNL, in particular, were 86% of that median value.

3.2.2 What water quality parameters (i.e., turbidity, phytoplankton, and "color") best explain differences in water clarity?

To determine what water quality parameter best explained variation in water clarity, Secchi disk depths were compared to those water quality parameters that had optical properties (i.e., chlorophyll-a, turbidity, color). Simple regressions were run with Secchi disk depth as the dependent variable, and chlorophyll-a, turbidity and color as potentially significant independent variables. Statistical significance was set *a priori* at $p < 0.05$.

The only water quality parameter that correlated with water clarity, as measured by Secchi disk depths, was turbidity (Figure 3.8).

Figure 3.8 – Water clarity (Secchi disk depth) vs. turbidity (NTU) for all stations combined for Clam Bay.



These results suggest that the amount of suspended particles, more than phytoplankton levels and/or the amount of tannins in the water column, controls water clarity, at least during the duration of this study. Increases in turbidity are associated with reduced Secchi disk depths, which represent decreased water clarity.

These findings are somewhat limited by the number of occasions when Secchi disk depths were greater than the bottom depth (i.e., those times when water clarity extended to the bottom). However, assessments of water clarity are most relevant for times of reduced water clarity, when Secchi disk depths are shallower than the bottom depth.

Chlorophyll-a was *nearly* statistically significantly correlated with water clarity, but the probability level that such a relationship was not due to chance alone did not meet the *a priori* value of $p < 0.05$. Further data collection could determine that chlorophyll-a is a significant factor in water clarity, but these results stop short of such a conclusion.

3.2.3 Which nutrient, nitrogen or phosphorus, best explains differences in phytoplankton abundance?

Although the optical modeling exercise described above did not conclude that chlorophyll-a was a significant contributor to variation in water clarity, chlorophyll-a was *nearly* a significant component of variation in water clarity. In addition, levels of phytoplankton (quantified as chlorophyll-a in the water column) might be useful indicators of the nutrient(s) most likely to limit other types of algal growth, such as macroalgae and epiphytic algae. For these reasons,

regression analysis was used to determine which nutrient, nitrogen or phosphorus, was the more likely nutrient limiting phytoplankton growth in Clam Bay. Results of these analyses are shown in Figures 3.9 and 3.10.

Figure 3.9 – Chlorophyll-a vs. total nitrogen for all stations combined for Clam Bay.

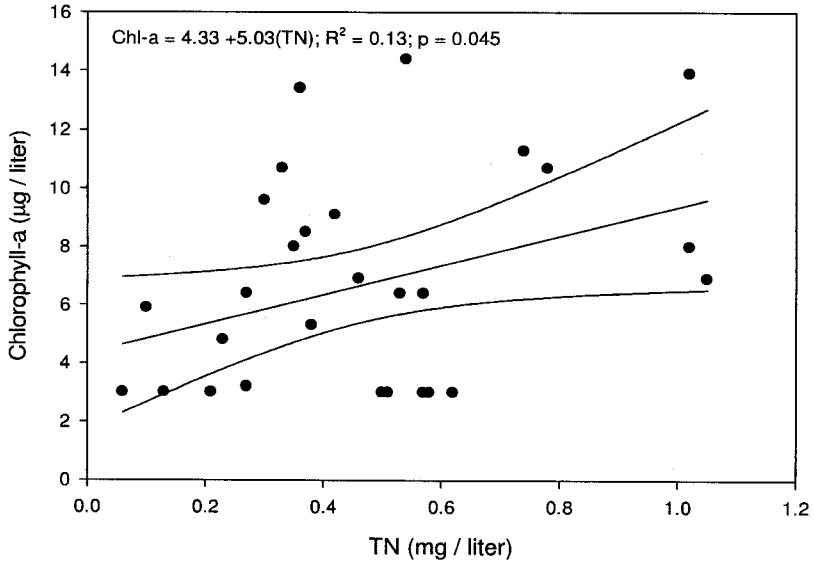
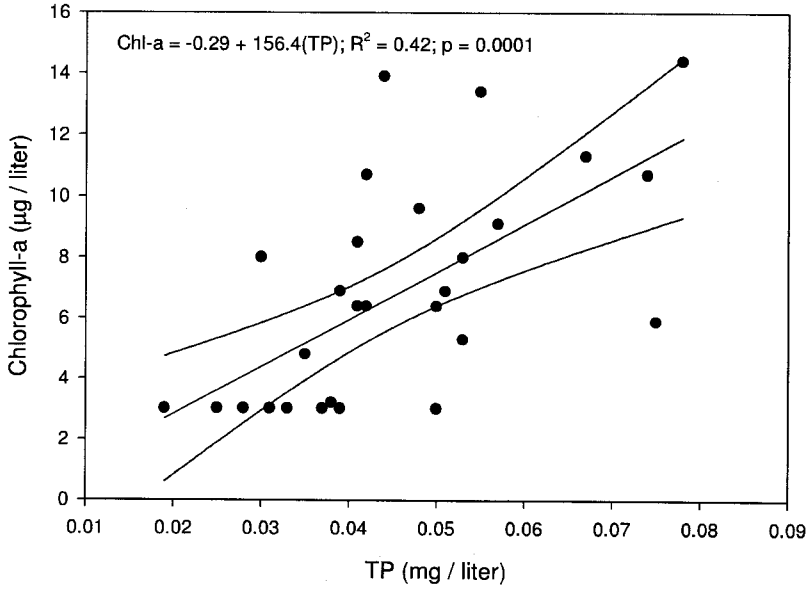


Figure 3.10 – Chlorophyll-a vs. total phosphorus for all stations combined for Clam Bay.



While both TN and TP were correlated with levels of phytoplankton (quantified as chlorophyll-a) the statistical fit for TN was barely statistically significant, while the relationship between chlorophyll-a and TP was highly significant. Variation in levels of TN in the water column explain 13 percent of the variation in levels of chlorophyll-a. In contrast, variation in levels of TP explains 42 percent of the variation in levels of chlorophyll-a. In general, availability of phosphorus is a better indicator of phytoplankton biomass than availability of nitrogen. Therefore, understanding the sources of input of phosphorus into Clam Bay might be more important than understanding the sources of nitrogen. Management actions to control phosphorus loading into Clam Bay may have more benefits to controlling phytoplankton levels (and perhaps macroalgae as well) than controlling nitrogen loads.

3.2.4 Are our conclusions in-line with prior assessments of water quality in Clam Bay?

To better understand whether or not the water quality data analyzed in this effort was within the range of "normal" conditions, a long-term data set collected by the Pelican Bay Services Division was examined.

There are a number of stations visited by the Pelican Bay Services Division, but only one station occurred in the same general region of Clam Bay as the water quality stations visited in this study. That station, W-1, is located just offshore of the canoe and kayak ramp at the Clam Bay Park, close to this study's station CB-26. At this location, the dataset examined included data from the period of 1981 to 1998. Results are summarized in tabular form below (Table 3.2).

Table 3.2 – Total dissolved solids (TDS), TN and TP from station W-1.

	TDS (mg / liter)	TN (mg / liter)	TP (mg / liter)
Mean Value	31,605	0.59	0.07
Number of Samples	231	159	239

Results from the long-term station W-1 reflect a greater "capture" of rain events than what was seen in this study. For example, the long-term mean value for TDS is equivalent to a mean salinity value of 31.6 ppt, compared to mean values of 35.5 to 37.3 ppt for this study (Table 3.1).

The long-term values for both TN and TP at station W-1 are also higher than those found in this study, but not by much (Figures 3.11 and 3.12). The mean TN value at station W-1 is higher than the TN value at station CB-26, which is the current study's sampling site closest to station W-1. The mean TP value at station W-1 is 75 % higher than the mean TP value at station CB-26. The mean salinity for the period of record for station W-1 is 13 % lower than the mean salinity at CB-26, suggesting that some portion of differences in levels of TN and TP could be due to the reduced freshwater influence during our May to late July of 2007 sampling period.

Figure 3.11 Comparison of average TN concentrations for this study (blue bars) to previous data (green bars).

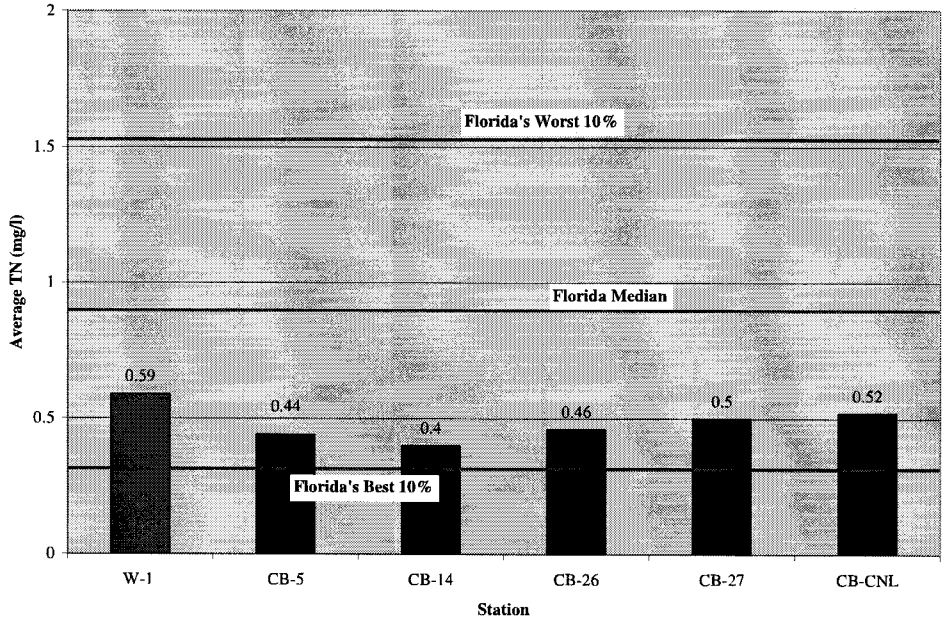
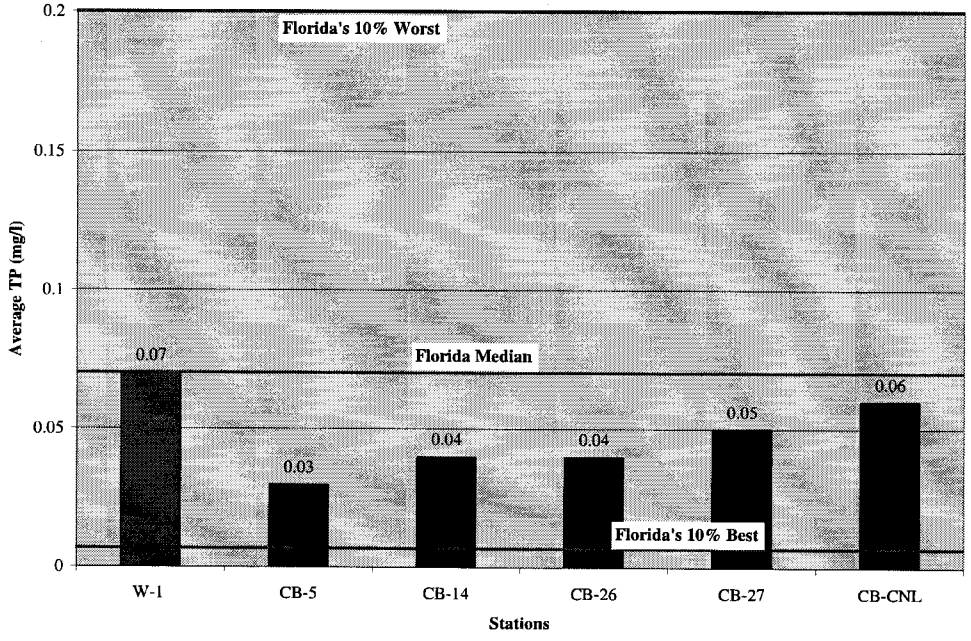


Figure 3.12 Comparison of average TP concentrations for this study (blue bars) to previous data (green bars).



To test for evidence of trends over time in salinity, nitrogen and phosphorus, data from the period of record for Clam Bay at station W-1 were plotted, as shown in Figures 3.13, 3.14, and 3.15, respectively.

Figure 3.13 – Total dissolved solids over the period of record at station W-1. Solid line is moving 10-point average.

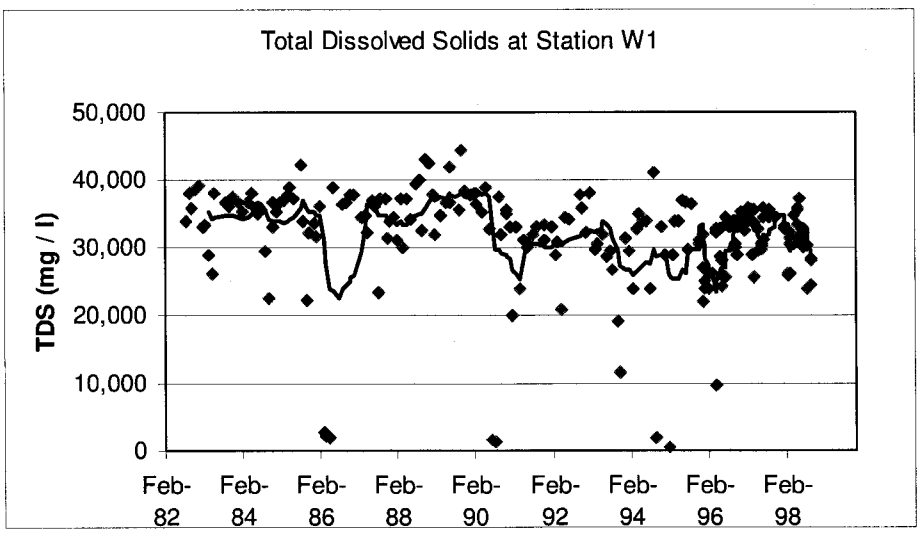


Figure 3.14 – Total nitrogen over the period of record at station W-1. Solid line is moving 10-point average.

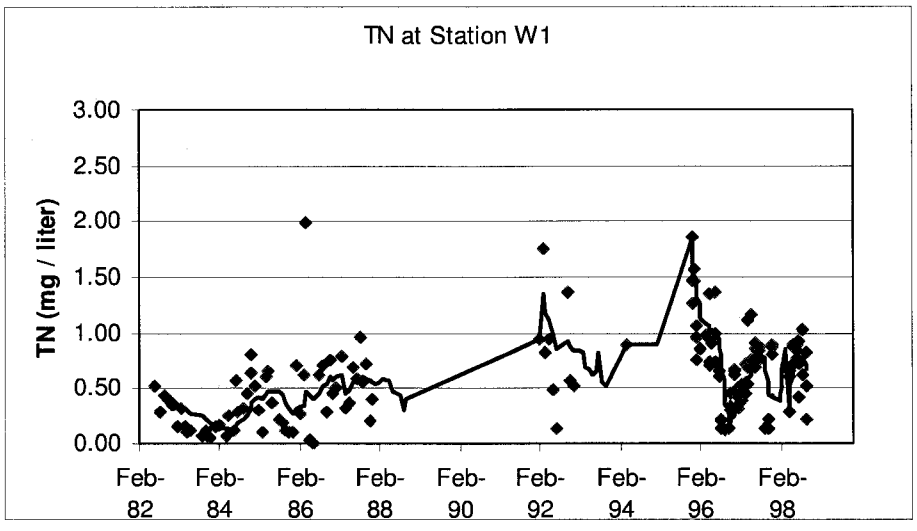
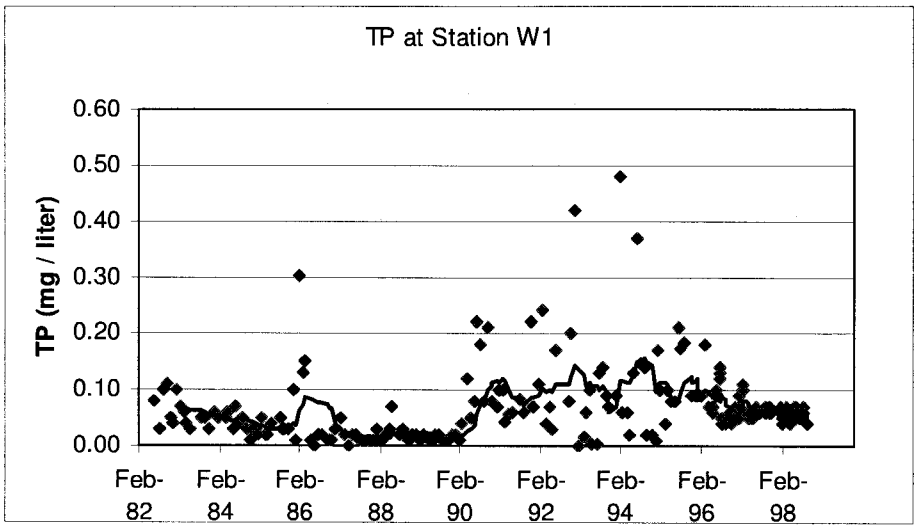


Figure 3.15 – Total phosphorus over the period of record at station W-1. Solid line is moving 10-point average.



When the data on TDS are examined in greater detail, there is a statistically significant decrease in TDS values over the period of 1981 to 1998, based on linear regression analysis. This relationship was significant at a probability level of $p < 0.005$. The equation that best explains this trend is -

$$TDS = 43102.2 - 0.740581*Date$$

These results suggest that if such a trend has continued beyond 1998, there is a likelihood of a "freshening" of Clam Bay that could be problematic.

Concurrent with the apparent trend of decreasing salt content, over the period of 1981 to 1998, there were concurrent and statistically significant trends of increasing levels of TN and TP, at this same location. If such trends have continued, post 1998, they would suggest that either rainfall has increased over the period of record, or that the amount of freshwater runoff, independent of rainfall, has increased over the period of record. Further, the pattern of increased freshwater inflow is accompanied by a concurrent trend of increased levels of TN and TP, indicating increased land-based loads of nitrogen and phosphorus into Clam Bay.

3.3 Pollutant Loading Model

The PBS&J pollutant loading model was used to generate basin runoff, gross loadings, and net loadings based upon the methodology outlined in Section 2 for a typical year given watershed specific inputs including:

- Annual precipitation (53.0" / year),
- Watershed area parsed into land use–soil combinations, with appropriate runoff coefficient for each land use–soil combination, and EMCs data for each land use category
- Areas covered by BMPs with associated pollutant removal efficiency

The results of the runoff generation from average annual rainfall conditions are presented in Table 3.3.

Table 3.3 – Historic and current conditions runoff (acre-feet / yr) by subbasin.

Subbasin	Area (acres)	Historic Runoff Volume (acre-feet /yr)	Current Runoff Volume (acre-feet / yr)	Increase (acre-feet/ yr)	Increase (percent)
Clam Bay Mid	1,964	1,916	2,789	873	46%
Clam Bay South	1,100	502	1,645	1,143	228%
Outer Clam Bay Mangrove	579	991	1,004	13	1%
Pelican Bay	1,975	1,229	2,431	1,202	98%
Sea Side Condo	52	65	61	-3	-5%
Seagate Dr	154	128	206	78	61%
		SUM	SUM		
		4,830	8,136	3,306	68%

Watershed-wide, the volume of freshwater runoff entering into Clam Bay on an annual basis has increased by approximately 68 percent, over historical conditions. The major subbasin for generating runoff is the Clam Bay Mid subbasin, which is that portion of the contributing watershed located south of Seagate Drive but north of the Naples Airport (Figure 2.2). These results suggest that circulation of water through the culverts under Seagate Drive brings with it the potential for a substantial amount of stormwater volumes. The second largest subbasin contribution comes from the Pelican Bay subbasin, which is the largest overall subbasin, acreage-wise.

Contributions from the Clam Bay Mid and Clam Bay South subbasins might be less important than more direct impacts from the subbasins of Outer Clam Bay Mangrove Pelican Bay, Seaside Condo and Seagate Drive subbasins. They are included here due to the fact that circulation patterns allow for introduction of both stormwater runoff, and the pollutant loads associated with the runoff, into Clam Bay itself.

Overall, these results suggest that stormwater runoff into Clam Bay has increased, on average, by 68 percent, watershed-wide. Not including the more distant contributions from subbasins south of Seagate Drive, annual freshwater inflows into Clam Bay are estimated to have increased by approximately 53 percent.

3.3.1 Net Pollutant Loads

Through the removal of pollutants from areas treated by BMPs, the gross pollutant loads are converted into net pollutant loads into Clam Bay. Tables 3.4, 3.5 and 3.6 present the net nitrogen, phosphorus, and total suspended solids loads, respectively by subbasin.

Overall, loads of nitrogen into Clam Bay are predicted to have approximately doubled (108 % increase) from historic to current conditions (Table 3.4). Much of that increase, including the subbasin with the greatest percent increase (Clam Bay South) has occurred in areas south of Seagate Drive. In the more immediate watershed, the Pelican Bay subbasin appears to be the largest single contributor of nitrogen loads, due to it being the largest subbasin in size. When normalized for subbasin size, the nitrogen "yield" for the Pelican Bay subbasin calculates out to approximately 4.1 pounds of TN / acre / yr, vs. a calculated yield of 6.5 pounds of TN / acre / yr for the Seagate Drive subbasin. These differences are to be expected based on the extensive mangrove fringe that acts as an effective stormwater treatment BMP for the Pelican Bay subbasin. This stormwater treatment BMP was modeled for TN, TP and TSS removal using expected removal efficiencies of a wet pond treatment train.

Table 3.4 – Gross Historic, Gross Current, and Net Current TN loads (pounds / per year) for Clam Bay subbasins.

Sub-basin Name	Area_acres	Gross_TN_Historic	Gross_TN	Net_TN	Increase	% Increase
Clam Bay Mid	1,964	7,580	15,243	15,159	7,580	100%
Clam Bay South	1,100	1,778	10,404	10,150	8,373	471%
Outer Clam Bay Mangrove	579	4,057	4,144	4,046	-12	0%
Pelican Bay	1,975	4,477	14,399	8,149	3,673	82%
Sea Side Condo	52	264	338	338	74	28%
Seagate Dr	154	508	1,021	1,007	499	98%
SUM	5,824	18,663	45,548	38,849	20,186	108%

For phosphorus, TP loads into Clam Bay are predicted to have increased by a factor of five (416 % increase) from historic to current conditions (Table 3.5). As with nitrogen loads, much of that increase is due to increases that have occurred in areas south of Seagate Drive. In particular, the high degree of urbanization, large area of the subbasin, and the lack of significant BMPs in the Clam Bay South subbasin are of concern. In the more immediate watershed, the Pelican Bay subbasin is the largest single contributor of phosphorus loads, due to it being the largest subbasin

in size. When normalized for subbasin size, the phosphorus "yield" for the Pelican Bay subbasin calculates out to approximately 0.43 pounds of TP / acre / yr, vs. a calculated yield of 0.93 pounds of TP / acre / yr for the Seagate Drive subbasin. As with nitrogen loads, these differences in area-normalized TP loads are to be expected based on the stormwater treatment BMPs in place for the Pelican Bay subbasin.

Table 3.5 – Gross Historic, Gross Current, and Net Current TP loads (pounds / per year) for Clam Bay subbasins.

Sub-basin Name	Area_acres	Gross_TP_Historic	Gross_TP	Net_TP	Increase	% Increase
Clam Bay Mid	1,964	438	2,357	2,329	1,891	431%
Clam Bay South	1,100	85	1,702	1,641	1,556	1,833%
Outer Clam Bay Mangrove	579	251	283	263	12	5%
Pelican Bay	1,975	209	2,215	857	649	311%
Sea Side Condo	52	14	55	55	41	291%
Seagate Dr	154	28	148	144	116	421%
SUM	5,824	1,025	6,760	5,289	4,264	416%

TSS loads into Clam Bay are predicted to have increased by 525 % from historic to current conditions (Table 3.6). As with nitrogen and phosphorus loads, much of that increase is due to increases that have occurred in areas south of Seagate Drive. In particular, the high degree of urbanization, the large area of the subbasin, and the lack of significant BMPs in the Clam Bay South subbasin are associated with large increases in TSS loads. In the more immediate watershed, the Pelican Bay subbasin is the largest single contributor of TSS loads, due to it being the largest subbasin in size. When normalized for subbasin size, the TSS "yield" for the Pelican Bay subbasin calculates out to approximately 59 pounds of TSS / acre / yr, vs. a calculated yield of 179 pounds of TSS / acre / yr for the Seagate Drive subbasin. The large disparity in area-normalized TSS loads for these two subbasins are due to the extensive stormwater treatment BMPs in place for the Pelican Bay subbasin, versus other portions of the watershed, and the higher removal rates for TSS (as opposed to TN and TP) with a wet pond treatment train BMP efficiency utilized.

Table 3.6 – Gross Historic, Gross Current, and Net Current TSS loads (pounds / per year) for Clam Bay subbasins.

Sub-basin Name	Area_acres	Gross_TSS_Historic	Gross_TSS	Net_TSS	Increase	% Increase
Clam Bay Mid	1,964	48,129	355,027	351,018	302,889	629%
Clam Bay South	1,100	14,265	276,552	267,059	252,794	1,772%
Outer Clam Bay Mangrove	579	23,185	26,979	24,314	1,129	5%
Pelican Bay	1,975	36,317	299,423	116,712	80,395	221%
Sea Side Condo	52	1,837	7,910	7,910	6,073	331%
Seagate Dr	154	3,468	28,177	27,638	24,170	697%
SUM	5,824	127,201	994,067	794,650	667,449	525%

4.0 Conclusions and Action Plan

Based on information on seagrass coverage, water quality, and pollutant loading models for Clam Bay, the following conclusions can be reached:

- There have been dramatic changes in the characteristics of the watershed of Clam Bay.
- These changes have resulted in substantial increases (68 %) in the quantity of freshwater delivered to Clam Bay, due to increases in the impervious nature of the landscape.
- Accompanying the increased freshwater delivery to Clam Bay, system-wide loads of nitrogen, phosphorus and suspended solids have increase by approximately 108, 416, and 525 percent, respectively.
- Despite the modeled increases in freshwater inflow, current and historical water quality data indicate that **Clam Bay is a high salinity environment, with mean salinities > 30 psu.**
- These high salinities suggest that Clam Bay is highly influenced by the Gulf of Mexico, and that pass dredging activities might play a role in maintaining high salinities.
- Of 30 sites visited for detailed examinations in Clam Bay, seagrass was encountered at 13 of those sites, for rate of occurrence of 43 percent.
- The vast majority of seagrass encountered (12 of 13 sites) was *Halophila decipiens.*
- *Halophila decipiens* is a species of seagrass that does best under low light conditions, and it actually can be physiologically damaged by high light levels.
- In nearby "reference" sites, seagrass coverage was not found to be a major bottom feature.
- A closer examination of Clam Bay photography from 1952, and seagrass maps from Naples Bay based on 1953 photography support the conclusion that seagrasses are not likely to have dominated shallow embayments in Collier County 50 years ago.
- It is more likely than not that the 1992 Collier County Seagrass Protection Plan's conclusion **that seagrass covered 60+ acres of Clam Bay was erroneous.**
- **Also, transect-based estimates of seagrass coverage are likely erroneous.**
- A more appropriate technique for monitoring seagrass coverage in Clam Bay would be to use a randomized sampling technique, with percent coverage by species used to monitor health of seagrass resources in Clam Bay.
- Based on water quality collected for this effort, **levels of nutrients and chlorophyll-a (an** indicator of algal biomass) **are typically below the median value for Florida estuaries.**

- Water clarity in Clam Bay is mostly controlled by levels of turbidity in the bay, rather than phytoplankton levels or the amount of dissolved organic matter.
- A significant amount of this turbidity appears to be associated with inorganic (non-volatile) suspended solids, indicating the natural marl sediments and beach sediments can have significant impacts on water clarity in the bay.
- Although nitrogen availability appears to influence levels of phytoplankton in the bay, phosphorus appears to be more important in controlling algal biomass.
- Analysis of long-term data sets (1981 to 1998) suggest that salinities decreased over that time period, with concurrent increases in levels of nitrogen and phosphorus.

Combined, these results lead to the conclusion that Clam Bay does not appear to be a seriously distressed system. However, comprehensive approaches are needed to appropriately characterize and protect Clam Bay by maximizing both its potential and actualized roles as an important natural resource. That is, Clam Bay could be an important havitat for feeding and shelter for juvenile stages of recreationally and commercially important species of finfish and shellfish, and these functions are not necessarily linked simply to seagrass coverage.

Seagrass coverage does not appear to be significantly different than would be expected based on surveys of nearby embayments with less human influence. This would suggest that the 1992 Collier County Seagrass Protection Report was probably in error when it concluded that seagrasses covered 60+ acres of Clam Bay, which may be due to inadequate groundtruthing and delineation efforts for this original assessment. The seagrass *Halophila decipiens* was found at 12 of 25 randomly chosen sampling points in that part of Clam Bay south of the boardwalk. Such a pattern of abundance is not consistent with either of the two opposite conclusions that 1) seagrasses are almost absent from the bay, or 2) seagrasses are a dominant feature of the bay.

Aerial photography is not an appropriate technique for developing coverage estimates for seagrass abundance in Clam Bay, for two main reasons. First, the most common species, *H. decipiens*, is a rather diminutive organism that is unlikely to be a discernable feature with aerial photography and subsequent photointerpretation – resulting in "false negatives" for abundance. Second, macroalgae, which can be abundant in Clam Bay, can give a "false positive" for photointerpretation, suggesting seagrass coverage when there is none to be found. Also, transect-based monitoring is an inadequate technique for determining seagrass abundance, as transects are typically not placed in a random fashion (a requirement for coverage estimates) and the spatial distribution of seagrass coverage thus cannot be derived from this technique.

Water clarity in Clam Bay appears to be most strongly influenced by the amount of turbidity in the water, rather than levels of phytoplankton and dissolved organic matter. This conclusion could have perhaps been modified if more significant rain events had occurred during our sampling time period. However, an analysis of a 17 year period of record for a water quality station located in southeastern Clam Bay indicates that Clam Bay is a high salinity environment, with long-term average salinity values in excess of 30 ppt. This analysis also suggested that

salinities were trending toward lower values, at least at this site during the period of 1981 to 1998.

Levels of nutrients in Clam Bay are typically below the median value for Florida estuaries, but trend analysis over the 1981 to 1998 time period suggests that values may be increasing. Increased loads of nitrogen, phosphorus and total suspended solids, if they are continuing to occur, could be associated with increased levels of phytoplankton and/or macroalgae, which would likely result in both decreased aesthetic and ecological conditions. Phosphorus appears to be more likely to contribute to algal growth, as opposed to nitrogen.

A significant quantity of nitrogen, phosphorus and suspended solids appear to be coming from areas south of Seagate Drive, as some of these subbasins have highly urbanized landscapes with little evidence of stormwater BMPs. Actions that would increase the influence of these areas on water quality in Clam Bay should be appropriately considered for their potential unintended consequences. Within the more immediate watershed of Clam Bay, the stormwater treatment BMPs in place for the Pelican Bay subbasin appear to result in significant reductions in loads of nitrogen, phosphorus and suspended solids. While the Pelican Bay subbasin does indeed load the majority of nutrients and solids into Clam Bay, compared to other adjacent subbasins, its pollutant load per unit area (i.e., pounds per acre) is lower than other urbanized subbasins, due mostly to the extensive stormwater BMP system in place.

In areas both with and without extensive stormwater treatment BMPs, a key strategy to reduce pollutant loads is "pollution control through volume control". Years of research on stormwater treatment technology has led to the conclusion that there aren't any "silver bullets" for a technological fix for stormwater pollution in highly urbanized watersheds. Instead, a watershed-wide approach to allow stormwater runoff to soak into the landscape, rather having it be routed off the nearest creek or bay, is a much more effective strategy to minimize the impacts of urban development.

Within this context, the following activities should be considered, as an appropriate approach to protect the existing water quality and natural resources of Clam Bay.

1. Development of a County-sponsored random station location water quality monitoring program for Clam Bay with 3 to 5 stations visited monthly. Water quality parameters would include basic physical parameters (i.e., temperature, salinity, pH, dissolved oxygen, Secchi disk depth) as well as basic biological parameters (nitrogen species, phosphorus species, chlorophyll-a, turbidity, color). Such data collection efforts need to have an appropriate QA/QC procedure in place, as well as the required data uploads into STORET. Additionally, opportunities for getting the information out to the public via the internet should be explored.

2. Development of a random station location seagrass and macroalgal abundance monitoring program for Clam Bay with 30 stations visited twice per year, Spring and Fall, for tracking patterns in abundance and species diversity of seagrasses and macroalgae.

3. Initiation of a comprehensive assessment of benthic communities and faunal utilization of Clam Bay, to allow for appropriate management of Clam Bay's existing and potential future habitat functions. This could include grab samples and characterization of benthic communities, as well as a seasonally-varied assessment of fish communities, with a focus on juvenile stages.

4. Consideration of controlled access of power boats to shallow portions of Clam Bay, to reduce the potential for prop scars and resuspension of bottom sediments.

5. Continued maintenance and monitoring of the stormwater BMP system for Pelican Bay, to ensure its continuing performance.

6. Development of a public education program to increase awareness of those activities that can be done to minimize individual impacts on stormwater loading. Such activities could include:

   - Directing rain gutters to discharge to grassed area, not pavement.
   - Proper maintenance of grassed swales as stormwater conveyance systems.
   - Potential use of "ditch blocks" within swales systems to moderate stormwater conveyance for low intensity rain events.
   - Educating the public on issues of proper disposal of grass clippings and proper fertilization of lawns and landscaping.
   - Educating the public on the value of adopting xeriscaping and/or "Florida Friendly Landscapes" into their home and commercial landscaping plans.

7. Careful consideration of all aspects of increasing flows into Clam Bay from urbanized areas south of Seagate Drive.

While Clam Bay is perhaps not as impacted as some might think, it should not be considered to be "pristine". The tremendous population growth that has occurred in Collier County over the past few decades has made it more susceptible to degradation. Only through careful and adaptive monitoring and management, along with common sense activities to minimize pollutant loading impacts, can Clam Bay be protected from future environmental degradation.

5.0 References

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Florida Department of Environmental Protection

South District Office
P.O. Box 2549
Ft. Myers, Florida 33902-2549

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

August 26, 2008

Mr. Jim Mudd, County Manager
c/o Gary McAlpin
Collier County
3300 Santa Barbara Blvd.
Naples, Florida 34116

Re: Collier County
Pelican Bay

Dear Mr. Mudd,

Gary McAlpin, Director of the County's Coastal Zone Management requested a letter to clarify the types of activities that may be exempt as it pertains to authorized works in mangroves, specifically those mangroves in Pelican Bay. The mangroves and mangrove systems can be maintained under the following exemption:

403.9326 Exemptions
(1) The following activities are exempt from the permitting requirements of ss. 403.9321-403.9333 and any other provision of law if no herbicide or other chemical is used to remove mangrove foliage:
(d) The maintenance trimming of mangroves that have been previously trimmed in accordance with an exemption or government authorization, including those mangroves that naturally recruited into the area and any mangrove growth that has expanded from the area subsequent to the authorization, if the maintenance trimming does not exceed the height and configuration previously established. Historically established maintenance trimming is grandfathered in all respects, notwithstanding any other provisions of law. Documentation of established mangrove configuration may be verified by affidavit of a person with personal knowledge of the configuration or by photographs of the mangrove configuration.

There was also a concern about maintenance of upland swales or ditches where mangroves had colonized. Those ditches can be maintained under paragraph (2)(b), below. Paragraph (2)(a), below, would apply to the maintenance of the old mosquito ditches that had been maintained according to the existing permit to improve flushing to the mangrove system.

40E-4.051 Exemptions From Permitting. *Exemptions from permitting under Chapters 40E-4, 40E-40 and 40E-400, F.A.C. are set forth below. The performance of activities pursuant to the provisions of the exemptions set forth in this section does not relieve the person or persons who are using the exemption or who are constructing or otherwise implementing the activity from meeting the permitting or performance requirements of other District rules. Nothing in this section shall prohibit the Department from taking appropriate enforcement action pursuant to Chapter 403, F.S., to abate or prohibit any activity otherwise exempt from permitting pursuant to this section if the Department can demonstrate that the exempted activity has caused water pollution in violation of Chapter 403, F.S.*

(2) Maintenance of Systems.

(a) The performance of maintenance dredging of existing manmade canals, channels, basins, berths, and intake and discharge structures, where the spoil material is to be removed and deposited on a self-contained, upland spoil site which will prevent the escape of the spoil material and return water from the spoil site into wetlands or other surface waters, provided no more dredging is performed than is necessary to restore the canal, channels, basins, berths, and intake and discharge structures to original design specifications, and provided that control devices are used at the dredge site to prevent turbidity and toxic or deleterious substances from discharging into adjacent waters during maintenance dredging. This exemption shall apply to all canals constructed before April 3, 1970, and to those canals constructed on or after April 3, 1970, pursuant to all necessary state permits. This exemption shall not apply to the removal of a natural or manmade barrier separating a canal or canal system from adjacent wetlands or other surface waters. Where no previous permit has been issued by the Board of Trustees of the Internal Improvement Trust Fund, the Department, the District or the United States Army Corps of Engineers for construction or maintenance dredging of the existing manmade canal, channel, basin, berth or intake or discharge structure, such maintenance dredging shall be limited to a depth of no more than 5 feet below mean low water.

(b) The maintenance of functioning insect control structures, and the maintenance of functioning dikes and functioning irrigation and drainage ditches, including roadway drainage ditches, provided:

1. The spoil material is deposited on a self-contained upland spoil site which will prevent the escape of the spoil material and return water into wetlands or other surface waters.

2. In the case of insect control structures, if the cost of using a self-contained upland spoil site is so excessive as determined by the Department of Agriculture and Consumer Services, pursuant to Subsection 403.088(1), F.S., that it will inhibit the proposed insect control, existing spoil sites or dikes may be used, upon notification to the District. In the case of insect control where upland spoil sites are not used pursuant to this exemption, turbidity control devices shall be used to confine the spoil material discharge to that area previously disturbed when the receiving body of water is used as a potable water supply, is designated as approved, conditionally approved, restricted or conditionally restricted waters for shellfish harvesting by the Department, or functions as a habitat for commercially or recreationally important shellfish or finfish.

3. *In all cases, no more dredging is to be performed than is necessary to restore the dike or irrigation or drainage ditch to its original design specifications.*

4. *This exemption shall apply to manmade trenches dug for the purpose of draining water from the land or for transporting water for use on the land and which are not built for navigational purposes.*

Mangrove trimming or alteration that is beyond that minimum necessary to conduct these exemptions would require authorization under the Mangrove Protection Act.

Please be advised that as of July 1, 2008, a $100.00 fee is required for Department verification that a project meets the criteria as an exempt activity.

If you have any questions please contact Lucianne Blair at the letterhead address, by phone at 239-332-6975 Ext 157, or by email at lucy.blair@dep.state.fl.us.

Sincerely,

Jon M. Iglehart
Director of
District Management

KeyesPamela

From: McAlpinGary
Sent: Thursday, June 12, 2008 8:38 AM
To: KeyesPamela
Subject: FW: Clam Bay

Pamela,

Pull together a turnover package with PBSD with;
Permit applications
Latest wording on the informational marker
Maps with proposed location of nav and informational markers
Quotes to do the work

J. Gary McAlpin, Director
Coastal Zone Management
3300 Santa Barbara Blvd.
Naples, Florida 34116
GaryMcAlpin@colliergov.net
(239) 252-5342
Fax: (239) 353-4061

-----Original Message-----
From: mudd_j
Sent: Wednesday, June 11, 2008 6:48 PM
To: ochs_l
Cc: McAlpinGary; ramsey_m; GreeneColleen
Subject: RE: Clam Bay

Leo,

Send info to PBSD director and lets setup a meeting with him to get this resolved through the PBSD and us.

Jim

-----Original Message-----
From: ochs_l
Sent: Wednesday, June 11, 2008 5:15 PM
To: mudd_j
Cc: McAlpinGary; ramsey_m; GreeneColleen
Subject: FW: Clam Bay

Jim,

We now have the decisions of the 2 permit authorities; DEP says their permit allows, but doesn't require, channel markings for aids to navigation and the ACOE says the placement of channel markers are required for compliance with their permit.

My recommendation is we turn this information over to the PBSD with a request for their action plan to obtain full compliance or to work jointly with our staff to achieve same. Do you have a preference?

P.s. the response below from the Corps asks for a letter of compliance.

-----Original Message-----
From: McAlpinGary
Sent: Wednesday, June 11, 2008 5:00 PM
To: Ovdenk, Cynthia D SAJ; ochs_l; ramsey_m
Subject: RE: Clam Bay

Thanks, Cynthia, I have it now and I appreciate your help and patience in resolving this issue.

J. Gary McAlpin, Director
Coastal Zone Management
3300 Santa Barbara Blvd.
Naples, Florida 34116
GaryMcAlpin@colliergov.net
(239) 252-5342
Fax: (239) 353-4061

-----Original Message-----
From: Ovdenk, Cynthia D SAJ [mailto:Cynthia.D.Ovdenk@usace.army.mil]
Sent: Wednesday, June 11, 2008 2:58 PM
To: McAlpinGary
Subject: RE: Clam Bay

Sorry Gary. It appears I had an error in spelling. It is funny that this did not come back as undeliverable. Please let me know when you receive this.

Thanks,
Cynthia Ovdenk
Project Manager, Enforcement Section
Regulatory Division
Jacksonville District
Office: 239-334-1975
Cell: 904-614-6381
Fax: 239-334-0797
Please assist us in better serving you! Please complete the customer survey by clicking on the following link: http://regulatory.usacesurvey.com/

-----Original Message-----
From: Ovdenk, Cynthia D SAJ
Sent: Monday, June 09, 2008 3:56 PM
To: 'garymcalpin@coliiergov.net'
Cc: Summa, Eric P SAJ
Subject: SAJ-1996-2789 Clam Bay Restoration and Management Plan

Dear Mr. McAlpin,

This email is in response to the question of compliance as related to channel markers for the subject line permit. According to Special Condition (2) of this permit: The Permittee agrees to comply with the components and timeframes as specified within the Clam Bay Restoration Management Plan (CBRMP), which is attached to this permit as Attachment "A". All attachments to a Corps permit are included as part of the permit and therfore enforceable. A section of the management plan located on Page 38 and 39

states: the main channel will be marked in accordance with the requirements of the United States Coast Guard (USCG) to ensure that those who use the system clearly know where the channel is and the prohibitions of operating their water craft outside the same. Therefore, in order for this permit to be in compliance the channel must be marked per the USCG's requirements. Please submit a letter to the Corps indicating the channel markers are in place, along with the dates and pictures.

Thank you,
Cynthia Ovdenk
Project Manager, Enforcement Section
Regulatory Division
Jacksonville District
Office: 239-334-1975
Cell: 904-614-6381
Fax: 239-334-0797
Please assist us in better serving you! Please complete the customer survey by clicking on the following link: http://regulatory.usacesurvey.com/

-----Original Message-----
From: McAlpinGary [mailto:GaryMcAlpin@colliergov.net]
Sent: Wednesday, June 11, 2008 12:26 PM
To: Ovdenk, Cynthia D SAJ; Djfinlay@aol.com
Subject: RE: Clam Bay

Cynthia,

Any progress on your letter of compliance on the navigational markers?

J. Gary McAlpin, Director
Coastal Zone Management
3300 Santa Barbara Blvd.
Naples, Florida 34116
GaryMcAlpin@colliergov.net
(239) 252-5342
Fax: (239) 353-4061

III. Immediate Staff Recommended Priorities for the Clam Bay Advisory Committee

- Come into compliance with old permit condition by immediately addressing navigation issues in Clam Pass/Clam Bay.
    - FDEP 8/26/2008 relative to mangrove maintenance
    - USACE email string on permit compliance relative to channel marking/navigational markers
    - FDEP Memorandum dated June 9, 2008 addressing Informational markers
    - 4/21/2008 requesting Private Aids to Navigation
    - Marsha Cravens proposal for Private Aids to Navigation
- Develop duties, responsibilities and charter of the Clam Bay Advisory Committee moving towards developing a master plan for the Estuary that should be presented to the BCC within a year.
    - Draft attached for review
- Complete application for a new dredging permit for Clam Pass on the same conditions as the previous permit that allows dredging for tidal flushing and the ability to open the pass in the event of a significant event (that closes the pass).
    - PBS&J under WO from CAC to develop permit application on same basis moving forward
- Address a source of funding consistent with the duties and responsibilities developed in the management plan.
- Establish a water quality monitoring program that is consistent and address all FDEP monitoring and reporting requirements along with complementing the Wiggins Pass Estuary and the City of Naples programs.
- Investigate mixing analysis studies to determine the optimum flushing/water quality balance.

Florida Department of
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South District Office
P.O. Box 2549
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August 26, 2008

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c/o Gary McAlpin
Collier County
3300 Santa Barbara Blvd.
Naples, Florida 34116

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Pelican Bay

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Mangrove trimming or alteration that is beyond that minimum necessary to conduct these exemptions would require authorization under the Mangrove Protection Act.

Please be advised that as of July 1, 2008, a $100.00 fee is required for Department verification that a project meets the criteria as an exempt activity.

If you have any questions please contact Lucianne Blair at the letterhead address, by phone at 239-332-6975 Ext 157, or by email at lucy.blair@dep.state.fl.us.

Sincerely,

Jon M. Iglehart
Director of
District Management

McAlpinGary

From: KeyesPamela
Sent: Thursday, January 15, 2009 1:09 PM
To: McAlpinGary
Subject: FW: Clam Bay

Pamela Keyes
Environmental Specialist
Coastal Zone Management Department
3300 Santa Barbara Blvd
Naples, FL 34116
Office (239) 252-2980
Cell (239) 601-1130
Fax (239) 353-4061
pamelakeyes@colliergov.net

-----Original Message-----
From: McAlpinGary
Sent: Thursday, June 12, 2008 8:38 AM
To: KeyesPamela
Subject: FW: Clam Bay

Pamela,

Pull together a turnover package with PBSD with;
Permit applications
Latest wording on the informational marker
Maps with proposed location of nav and informational markers
Quotes to do the work

J. Gary McAlpin, Director
Coastal Zone Management
3300 Santa Barbara Blvd.
Naples, Florida 34116
GaryMcAlpin@colliergov.net
(239) 252-5342
Fax: (239) 353-4061

-----Original Message-----
From: mudd_j
Sent: Wednesday, June 11, 2008 6:48 PM
To: ochs_l
Cc: McAlpinGary; ramsey_m; GreeneColleen
Subject: RE: Clam Bay

Leo,

Send info to PBSD director and lets setup a meeting with him to get this resolved through the PBSD and us.

Jim

-----Original Message-----
From: ochs_l
Sent: Wednesday, June 11, 2008 5:15 PM
To: mudd_j
Cc: McAlpinGary; ramsey_m; GreeneColleen
Subject: FW: Clam Bay

Jim,

We now have the decisions of the 2 permit authorities; DEP says their permit allows, but doesn't require, channel markings for aids to navigation and the ACOE says the placement of channel markers are required for compliance with their permit.

My recommendation is we turn this information over to the PBSD with a request for their action plan to obtain full compliance or to work jointly with our staff to achieve same. Do you have a preference?

P.s. the response below from the Corps asks for a letter of compliance.

-----Original Message-----
From: McAlpinGary
Sent: Wednesday, June 11, 2008 5:00 PM
To: Ovdenk, Cynthia D SAJ; ochs_l; ramsey_m
Subject: RE: Clam Bay

Thanks, Cynthia, I have it now and I appreciate your help and patience in resolving this issue.

J. Gary McAlpin, Director
Coastal Zone Management
3300 Santa Barbara Blvd.
Naples, Florida 34116
GaryMcAlpin@colliergov.net
(239) 252-5342
Fax: (239) 353-4061

-----Original Message-----
From: Ovdenk, Cynthia D SAJ [mailto:Cynthia.D.Ovdenk@usace.army.mil]
Sent: Wednesday, June 11, 2008 2:58 PM
To: McAlpinGary
Subject: RE: Clam Bay

Sorry Gary. It appears I had an error in spelling. It is funny that this did not come back as undeliverable. Please let me know when you receive this.

Thanks,
Cynthia Ovdenk
Project Manager, Enforcement Section
Regulatory Division
Jacksonville District
Office: 239-334-1975
Cell: 904-614-6381
Fax: 239-334-0797

Please assist us in better serving you! Please complete the customer survey by clicking on the following link: http://regulatory.usacesurvey.com/

-----Original Message-----
From: Ovdenk, Cynthia D SAJ
Sent: Monday, June 09, 2008 3:56 PM
To: 'garymcalpin@coliiergov.net'
Cc: Summa, Eric P SAJ
Subject: SAJ-1996-2789 Clam Bay Restoration and Management Plan

Dear Mr. McAlpin,

This email is in response to the question of compliance as related to channel markers for the subject line permit. According to Special Condition (2) of this permit: The Permittee agrees to comply with the components and timeframes as specified within the Clam Bay Restoration Management Plan (CBRMP), which is attached to this permit as Attachment "A". All attachments to a Corps permit are included as part of the permit and therfore enforceable. A section of the management plan located on Page 38 and 39
states: the main channel will be marked in accordance with the requirements of the United States Coast Guard (USCG) to ensure that those who use the system clearly know where the channel is and the prohibitions of operating their water craft outside the same. Therefore, in order for this permit to be in compliance the channel must be marked per the USCG's requirements. Please submit a letter to the Corps indicating the channel markers are in place, along with the dates and pictures.

Thank you,
Cynthia Ovdenk
Project Manager, Enforcement Section
Regulatory Division
Jacksonville District
Office: 239-334-1975
Cell: 904-614-6381
Fax: 239-334-0797
Please assist us in better serving you! Please complete the customer survey by clicking on the following link: http://regulatory.usacesurvey.com/

-----Original Message-----
From: McAlpinGary [mailto:GaryMcAlpin@colliergov.net]
Sent: Wednesday, June 11, 2008 12:26 PM
To: Ovdenk, Cynthia D SAJ; Djfinlay@aol.com
Subject: RE: Clam Bay

Cynthia,

Any progress on your letter of compliance on the navigational markers?

J. Gary McAlpin, Director
Coastal Zone Management
3300 Santa Barbara Blvd.
Naples, Florida 34116
GaryMcAlpin@colliergov.net
(239) 252-5342
Fax: (239) 353-4061

Memorandum

Florida Department of Environmental Protection

DATE: June 09, 2008

TO: Gary McAlpin

FROM: Lainie Edwards
Environmental Permitting Section
Bureau of Beaches & Coastal Systems

SUBJECT: Interpretation of Joint Coastal Permit: Clam Bay Restoration and Long Term Management Project (0128463-001-JC)

The Clam Bay Restoration and Long Term Management Project Joint Coastal Permit was written with the intent of environmental enhancement. The permit includes descriptions of authorized activities related to the dredging of Clam Pass and the maintenance of the mangrove community. It should be noted that this type of interior waterway management is not a typically regulated under the JCP program. In the future dredging or filling of the interior waterways will be regulated under the ERP program through the DEP South District Office. However, the JCP program will continue to regulate the maintenance of a flushing outlet through Clam Pass, but only when it involves the dredging and placement of beach compatible sand on the adjacent beaches.

The Joint Coastal Permit (on page two) authorizes the activities included in the Clam Bay Restoration and Management Plan. This plan references the marking of the main channel with requirements imposed by the United States Coast Guard (USGS). While the JCP permit does authorize this activity through adoption of the Plan, it does not *require* it, and the Department will not seek compliance action over this issue. As stated in the permit, "*the Permittee is authorized to implement the CBRMP as set forth therein.*" Note this does not state that the permittee is required to conduct all activities stated therein. Furthermore, the Joint Coastal Permit does specifically address signage / environmental protection markers that the Bureau of Beaches and Coastal Systems requires in the Pass area through Specific Condition 5, which discusses 10 signs required to be installed in specific locations, in order to protect the natural communities as well as the boating public. The Bureau of Beaches and Coastal Systems requires that these signs be installed as protective environmental measures (although the wording on the signs will have to be amended to meet legal requirements of FWC).

The required signage intended by the permit is specified within the permit, and it is clear that the intent of the permit was environmental enhancement rather than navigational enhancements. From the Department's standpoint, the installation of the USCG navigation markers are not a specific requirement of this permit, and the signage required in Special Condition 5 of the permit would address the Department's environmental enhancement concerns. Thus, it does not appear that the additional signage would be necessary.

COLLIER COUNTY

COLLIER COUNTY DIVISION OF PUBLIC SERVICES

COASTAL ZONE MANAGEMENT

3300 Santa Barbara Blvd. * Naples, Florida 34116-6601
(239)-213-2966 * FAX (239) 353-4061 * http://www.colliergov.net

April 21, 2008

Mr. Joe Embres
United States Coast Guard
909 South East First Avenue
Miami, FL 33131

REF: Private Aids to Navigation, Clam Bay, Collier County

Dear Mr. Embers:

Collier County is applying to permit a waterways channel, red and green dayboards, from the Gulf, through Clam Pass into Clam Bay. This channel is a requirement of FDEP Permit No. 0128463-001-JC.

Please find enclosed, an aerial photograph showing the location of each dayboard marker, Idle Speed sign, Informational Marker, Coast Guard Private Aids to Navigation Application and a copy of the DEP permit.

If you have any questions, please call me at 239-252-2980.

Sincerely,

Pamela Keyes
Environmental Specialist

cc: Tara Alford, FFWCC

COLLIER COUNTY

COLLIER COUNTY DIVISION OF PUBLIC SERVICES

COASTAL ZONE MANAGEMENT

3300 Santa Barbara Boulevard • Naples, Florida 34116-6601
(239) 213-2966 • Fax: (239) 353-4061 • http://www.colliergov.net

April 11, 2008

Lainie Edwards, Environmental Manager
FL Department of Environmental Protection
3900 Commonwealth Boulevard
Mail Station 300
Tallahassee, FL 32399

RE: FDEP Permit No.: 0128463-001-JC

Dear Ms. Edwards:

This letter is in regards to FDEP Permit No.: 0128463-001-JC, in Collier County. Collier County is working on achieving compliance with the navigational aspect of the above mentioned permit. Part of the permit requirements are installing navigation, red and green, day-board markers, five "Idle Speed-NoWake" signs and five (5) signs stating; "Caution –Shallow Water and Natural Resources Present-Tilt Motor Up to Prevent Prop Dredge –Damage to Natural Resources Subject to Fines, Pursuant to Ch. 370, F.S." found on page 9 of 21.

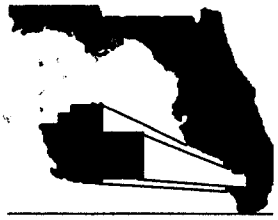
Collier County is in the process of applying for the navigational and "Idle Speed-NoWake" markers permitted through U.S. Coast Guard, FDEP and FWC. However, the "Caution-Shallow Water..." markers, due to the verbiage, are not allowed to be permitted according to FWC.

Please provide our department within Collier County with suggestions of the appropriate wording that could be permitted through FWC and in compliance with the Clam Bay permit. Thank you for all your assistance and if you need any additional information, please contact Pamela Keyes at (239)-252-2980 or PamelaKeyes@colliergov.net.

Sincerely,

Pamela Keyes,
Environmental Specialist

CC: Jim Burke
John Petty
Kyle Lukasz
Tim Hall
David Buser
Tara Alford



COLLIER COUNTY

COLLIER COUNTY DIVISION OF PUBLIC SERVICES

Coastal Zone Management

3300 Santa Barbara Boulevard * Naples, Florida 34116-6601
(239)-213-2966 * FAX 239-353-4061

TO: **Tara Alford, Management Analyst**

FROM: **Pamela Keyes, Environmental Specialist**

DATE: **5/9/08**

SUBJECT: **Clam Bay Waterways Markers, Collier County**

I would like to start by apologizing in regards to the volume of phone calls you have been receiving on the Clam Bay project. I have provided a little background information on this project to help with future decisions that may help resolve any confusion.

The signage in question is being requested as a requirement of a 1998 DEP permit. Special condition 5 of the permit (on page 9 of 21) states that "Florida Marine Patrol approved signs that state "Idle Speed – No Wake" and "Caution – Shallow Water and Natural Resources Present – Tilt Motor Up to Prevent Prop Dredge – Damage to Natural Resources Subject to Fines, Pursuant to Ch. 370, F.S." shall be placed at five locations within the system. The five locations are also identified. I understand that the "tilt motor" sign would not be allowed at all because it is for resource protection and not for public safety or manatee protection.

In 1996 Collier County adopted ordinance 96-10 (attached) to impose an idle speed zone within the Clam Bay system "in the interest for the safety and welfare of the canoeing public, kayakers, and small boat operators,..." We still believe that these markers will protect public safety in the following manner(s):

- Clam Pass is a shallow, generally wade-able pass that is subject to high visitation rates by beachgoers. People are always wading or swimming this pass and the "Idle Speed" restriction will help to protect these swimmers and waders at the beach.
- There are two canoe and kayak launch points, one in Outer Clam Bay and another off of the northernmost Pelican Bay boardwalk. The "Idle Speed" restriction will help to avoid potentially adverse interactions between the motorized and non-motorized vessels.
- The Clam Bay Estuary is a series of three bays connected by a very narrow and winding channel with limited line-of sight. Canoes and kayaks regularly travel the channels between the bays and the "Idle Speed" restriction will protect them from faster moving motorized vessels that could upset or over-run them.

Project Goals:

- We would like to work with your office to obtain authorization for the Idle Speed signs as well as a modified version of the "tilt motor" sign that would read "Shallow Water and Seagrasses Present – Please Proceed with Caution" (please see attached example)

- Modify the placement of the signage from the locations identified in the DEP permit by using the three bridges and the piling near Seagate. This would prevent placing four additional posts and would be easier to maintain.

Please find attached the following items:

- A copy of the 1998 FDEP permit with the signage special condition highlighted on page 9 of 21 for background information.

- A copy of Collier County Ordinance Number 96-16 dedicating the Clam Pass System as an Idle Speed zone.

- An map depicting the required (in the DEP permit) signage locations with coordinates. We can coordinate with your office and DEP if alternative locations are needed.

- A Uniform Waterway Marker Application (form FWC\DLE 153) with the proposed signage information.

Please let me know if you need any further information. I can be reached at 239-252-2980 or at Pamelakeyes@colliergov.net Thank you for your time.

COLLIER COUNTY
COLLIER COUNTY DIVISION OF PUBLIC SERVICES
COASTAL ZONE MANAGEMENT
3300 Santa Barbara Blvd. * Naples, Florida 34116-6601
(239)-213-2966 * FAX (239) 353-4061 * http://www.colliergov.net

April 21, 2008

FLDEP
2295 Victoria Ave.
Suite 364W
Ft. Myers, FL 33901

RE: Exemption Application for Rule # 40E-4.501 (7)

To Whom It May Concern:

Collier County Coastal Zone Management Department has recently filed an application for the construction of a new waterways channel in the Clam Bay area. This application has been sent and is pending approval by the U.S Coast Guard. The waterways channel will consist of twenty eight green (28) and red dayboard markers, five (5) "Idle Speed No Wake" and five (5) Informational markers.
Please find attached a copy of the original application to the U.S. Coast Guard, and map of the proposed channel and section A of the NGP. This letter is being written by Collier County to request an Exemption Permit through DEP under rule #40E-4.051.
If you have any questions or need additional information regarding this application, please call Pamela Keyes at 239-252-2980. Thank you for your assistance with this request.

Sincerely,

Pamela Keyes
Environmental Specialist

Florida Department of Environmental Protection

South District Office
P.O. Box 2549
Ft. Myers, Florida 33902-2549

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

May 21, 2008

Collier County
Coastal Zone Management Department
c/o Pamela Keyes
3300 Santa Barbara Blvd.
Naples, FL 34106

Re: Collier County - ERP
File No. 11-0288121-001

Dear Coastal Zone Management Department:

This is to acknowledge receipt of your application on April 22, 2008 for an Environmental Resource Permit, pursuant to Part IV, Chapter 373, Florida Statutes (F.S.), and an authorization to use state-owned submerged lands, pursuant to Chapter 253, F.S., to construct 28 red and green channel markers, 5 Idle Speed No Wake signs, and 5 Informational signs, located within a navigable channel from the Gulf of Mexico into Clam Bay, Class II Waters, Collier County.

In order to review your application, we need the items listed in the enclosed request for additional information (RAI) by August 19, 2008. If necessary, you may request an extension up to ninety (90) additional days. If neither the information nor a request for an extension is received by August 19, 2008, your application may be denied without prejudice. If you revise your project after submitting the initial joint application, please contact us as soon as possible.

We appreciate your cooperation. If you have any questions, please contact **Tim Schwan at the letterhead address, by telephone at (239) 332-6975 extension 193 or by email at Timothy.Schwan@dep.state.fl.us.** When referring to this project, please reference the file number listed above.

Sincerely,

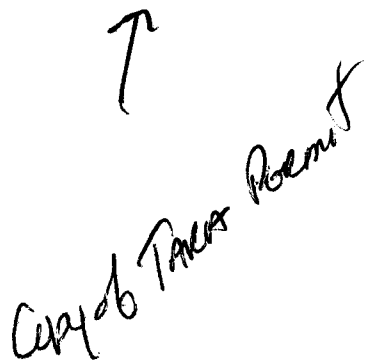
Tim Schwan
Environmental Specialist
Submerged Lands and
Environmental Resources Program

Enclosure: Request for Additional Information

REQUEST FOR ADDITIONAL INFORMATION (RAI)
BOARDWALKS, DOCKS, AND PIERS

Part I
(Chapter 62-343, Florida Administrative Code)

1. The exemption for Aids to Navigation, 40E-4.051(7) Florida Administrative Code, states the following, "The installation of aids to navigation, including bridge fender piles, No Wake and similar regulatory signs, and buoys associated with such aids, **provided that the devices are marked in accordance with Section 327.40, F.S.**". Please provide reasonable assurance that the devices are marked in accordance with Section 327.40, F.S.



FOR YOUR INFORMATION

Your project may be located within or adjacent to:

X manatee habitat
___ turtle habitat
___ a shellfish harvesting area
___ an area of critical state concern
___ a national or state park
___ the _____ Aquatic Preserve
___ other _____

and may be affected by comments from those entities having special interest in the project. Modifications to your project may be necessary upon receipt of the requested comments.

Your proposal may require a coastal construction permit from the Department's Bureau of Beaches and Coastal Systems. Please contact them at 3900 Commonwealth Boulevard, Mail Station 310, Tallahassee, Florida 32399, phone 904-488-3181 or 487-4475, to obtain a determination. If a permit is required, submittal of a complete copy of the permit will be needed to complete this application.

An inspection of the project site may be conducted to determine and evaluate the resources expected to be impacted. Project modifications may be required following the inspection.

In addition, you must provide reasonable assurance that this activity is not contrary to the public interest. However, if an activity significantly degrades or is within an Outstanding Florida Water (OFW), that project must be shown to be clearly in the public interest. Your project is not within an OFW. In determining whether a project is clearly in the public interest, the Department will consider and balance the following criteria:

1. Whether the project will adversely affect the public health, safety, or welfare or the property of others;
2. Whether the project will adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats;
3. Whether the project will adversely affect navigation or the flow of water or cause harmful erosion or shoaling;
4. Whether the project will adversely affect the fishing or recreational values or marine productivity in the vicinity of the project;
5. Whether the project will be of temporary or permanent nature;
6. Whether the project will adversely affect or will enhance significant historical and archaeological resources under the provisions of section 267.061; and
7. The current condition and relative value of functions being performed by areas affected by the proposed activity. [See 373.414, F.S.]

The Department, in deciding to grant or deny a permit, shall consider measures proposed by or acceptable to the applicant to mitigate adverse effects which may be caused by the project. If the applicant is unable to meet water quality standards because existing ambient water quality does not meet standards, the Department shall consider mitigation measures proposed or acceptable to the applicant that cause net improvement of the water quality in the receiving body of water for those parameters which do not meet standards. Before considering mitigation, all reasonable measures must first be taken to reduce the adverse effects which otherwise render the project unpermittable. [373.414(b), F.S.]

Part II
CONSENT OF USE
(Chapter 18-21, Florida Administrative Code)

Note: The following questions are only applicable if your activity will affect state-owned sovereign, submerged lands. If you can document that your proposed project does not affect state-owned sovereign, submerged lands, please contact our office and provide copies of the documentation. Otherwise, please proceed to answer the following questions.

1. The exemption for Aids to Navigation, 40E-4.051(7) Florida Administrative Code, states the following, "The installation of aids to navigation, including bridge fender piles, No Wake and similar regulatory signs, and buoys associated with such aids, **provided that the devices are marked in accordance with Section 327.40, F.S.**". Please provide reasonable assurance that the devices are marked in accordance with Section 327.40, F.S.

   Please note: If the project meets the exemption criteria of 40E-4.051(7), proprietary authorization will be authorized through consent by rule.

FWCC File No.:	**FLORIDA UNIFORM WATERWAY MARKER APPLICATION** ***Office of Boating Safety & Waterway Management***	FWCC Status:

1. Date: 4/16/08

2. Action Requested: A. ☐ Establish Boating Restricted Area B. X Permit to Place & Maintain Uniform Waterway Marker(s) C. ☐ Change/Amend FUWM Permit # D. ☐ Discontinue Request or Repeal Existing Permit # E. ☐ Transfer of Ownership

3. Name of Affected Waterway(s): Clam Bay

4. Locality: Clam Bay City Naples County Collier

5. Intracoastal Waterway: ___ Yes __X__ No

6. Type of Regulatory, Special Purpose, or Other Buoy UMW(s) Requested (check all that apply) :
☐ Slow Speed Minimum Wake X Idle Speed No Wake ☐ Resume Normal Safe Operation ☐ Vessel Exclusion ☐ Danger ☐ Mooring Buoy X Information ☐ Other (specify)
☐ Speed Zone _____MPH ☐ Special Marine Event Aid to Navigation

7. Applicant: Collier County

Applicant Name: Coastal Zone Management Department

Contact Person: Pamela Keyes

County: Collier

Address w/zip code:
3300 Santa Barbra Blvd
Naples, FL 34116

E-MAIL ADDRESS:
pamelakeyes@colliergov.net

8. Person Responsible For Placement & Maintenance of UMW (s)

Name: Pamela Keyes

Title: Environmental Specialist

Address w/zip code: 3300 Santa Barbra Blvd. Naples, FL 34106

Phone: (239) 252 -2980 ext. Suncom: -

Fax #: (239) 353 - 4061

E-MAIL ADDRESS:
pamelakeyes@colliergov.net

10. Local Governmental Action Establishing Boating Restricted Area:

Ordinance # 96-16 Date 2/ 11 /1997 Rule # _____ Date / /

9. Hold Harmless Agreement ***(Nongovernmental applicants only)***

The applicant, to the extent authorized by law, agrees and promises to hold harmless the State of Florida, its employees, agents or successors, from fault with respect to any claim or claims arising from alleged negligence in the placement, maintenance, operation, and removal any and all marker signs placed by the applicant pursuant to this permit. Applicant further agrees to indemnify the State of Florida for any and all legal fees and costs incurred in defense of any suit brought against the State as a result of alleged negligence by the applicant in the placement, maintenance, operation, or removal of the marker signs.

Authorized Signature:

Print Name: _____

Title:

- #1 is not required when requesting a mooring buoy or placement of informational markers (Canoe/Kayak Trail, Marina, Seagrass, etc.)
- You must provide copies of your completed applications to USCG, USCOE & DEP @ the time you submit your completed application to this office
- ***All permits must be received prior to installation of any marker(s), unless otherwise directed by the Boating Safety & Waterway Section***

Other Agency Permits/Approval:

☐ Florida Fish & Wildlife Conservation Commission ___/___/

x *United States Coast Guard (USCG)* __/__/__

☐ *Army Corps of Engineers (USCOE)* ___/___/

☐ *Fl. Department of Environmental Protection (DEP)* 7 /6 / 1998

Your application package for placement of regulatory markers must include:
1. A certified copy of the city/county ordinance, (only required for regulatory markers),
2. A map of the body of water with the approximate location of each marker(s),
3. The latitude/longitude coordinates (Degrees and Decimal minutes) of each marker(s)
4. The name and telephone number of the individual(s) responsible for placement and maintenance of marker(s).

[redacted]

*If you are completing this application for **boating safety, private aids to navigation, moorings, and/or informational type markers; or markers for homeland security**, please contact the individual below with any questions:*

Ms. Tara Alford, Management Analyst
Boating and Waterways Section
620 South Meridian Street
Tallahassee, Florida 32399
850-410-0656 ext. 17169 facsimile 850-488-9284
or via e-mail to: tara.alford@myfwc.com

*If you are completing this application for **manatee protection and/or informational type makers**, please contact the individual below with any questions:*

Ms. Dawn Griffin, Management Analyst
Boating and Waterways Section
620 South Meridian Street
Tallahassee, Florida 32399
850-410-0656 ext. 17179 facsimile 850-488-9284
or via e-mail to: dawn.griffin@myfwc.com

In addition to FWC, you will need authorizations from the various agencies highlighted in yellow to the left of this column before a final permit can be issued.

FLORIDA UNIFORM WATERWAY MARKER APPLICATION

MARKER NUMBER: *Note* each sign equals *(1) marker number* *(Must match number on scale drawing)*	***LATITUDE/LONGITUDE:*** **Provide exact coordinates for location of marker expressed in Degrees and Decimal minutes. Example 30.07.980N, 81.27.675W** ***DO NOT USE LORAN-C COORDINATES*** ***DATUM FORMAT IS REQUIRED***	*SITE CODE:* 01 - bay/sound 02 - inlet 03 - ocean/gulf 04 - lake/pond 05 - river 06 - creek 07 - canal/cut 08 - port/harbor 99 - other (Specify)	*LOCATION CODE:* S - shore W - water	*MOUNTING CODE:* B - buoy D - dock F - bridge/fender P - pile/pole O - other (specify)	*DIRECTION FACING CODE:* N - North NE - Northeast E - East SE - Southeast S - South SW - Southwest W - West NW - Northwest	*SYMBOL CODE:* C - Circle D - Diamond X - Crossed Diamond R - Rectangle *SIGNBOARD SHAPE:* S-SQUARE R-RECTANGLE T-TRIANGLE		*REGULATORY CODE:* SSMW - Slow Speed Minimum Wake ISNW - Idle Speed No Wake RNSO - Resume Normal Safe Operation SZ - Speed Zone (numeric MPH) VSLX - Vessel Exclusion SWIM – Swimming Area DNGR - Danger (i.e., rocks, reef, etc.) MTZN - Manatee Zone CONST - Construction Area OTHER - (must specify)
NO.	LATITUDE/LONGITUDE	SITE	LOCATION	MOUNTING	DIRECTION	SYMBOL	SIGNBOARD	WORDING
Entrance Clam Bay	26 .21972 81.8178	02	W	P	E	R	R	Idle Speed No Wake and Shallow water and seagrass present PLEASE proceed with CAUTION
Entrance to Outer Clam Bay on Bridge	26.21611 -81.8142	02	W	F	N	R	R	Idle Speed No Wake and Shallow water and seagrass present PLEASE proceed with CAUTION
Entrance to Outer Clam Bay	26.22833 – 81.8169	02	W	P	S	R	R	Idle Speed No Wake and Shallow water and seagrass present PLEASE proceed with CAUTION
Entrance Upper Clam Bay	26.24 -81.8164	01	W	P	S	R	R	Idle Speed No Wake and Shallow water and seagrass present PLEASE proceed with CAUTION
Outer Clam Bay/Seagat Drive	26.21111 -81.8133	01	W	P	SE	R	R	Idle Speed No Wake and Shallow water and seagrass present PLEASE proceed with CAUTION
Entrance Clam Bay	26 .21972 81.8178	02	W	P	E	R	R	Shallow water and seagrass present PLEASE proceed with CAUTION
Entrance to Outer Clam Bay on Bridge	26.21611 -81.8142	02	W	F	N	R	R	Shallow water and seagrass present PLEASE proceed with CAUTION
Entrance Upper Clam Bay	26.24 -81.8164	01	W	P	S	R	R	Idle Speed No Wake and Shallow water and seagrass present PLEASE proceed

								with CAUTION
Outer Clam Bay/Seagat Drive	26.21111 -81.8133	01	W	P	SE	R	R	Shallow water and seagrass present PLEASE proceed with CAUTION

KeyesPamela

From: Alford, Tara [tara.alford@MyFWC.com]
Sent: Tuesday, June 03, 2008 2:48 PM
To: Margot Osborne; SoreySan@aol.com; mrlc@mac.com
Cc: KeyesPamela; Ouellette, Paul; McAlpinGary; mbauer@naplesgov.com; bmoss@naplesgov.com; mayor@naplesgov.com; joseph.b.embres@uscg.mil; Keyser, Carol; Lainie.Edwards@dep.state.fl.us; Lucy.Blair@dep.state.fl.us; fiala_d; HalasFrank; CoyleFred; ColettaJim; henning_t; ochs_l; ramsey_m
Subject: RE: Proposed markers in Clam Pass/Clam Bay
Expires: Sunday, November 30, 2008 12:00 AM
Attachments: 68D23-110 - Inspection and Certification.doc

Dear Collier County/Clam Pass/Clam Bay Stakeholders:

Thank you for your interest in this issue. I have received several emails and phone calls from you regarding this issue. While we appreciate your concern and interested in this issue, this office is not the primary permitting agency for private aids to navigation markers (PATN's).

Collier County has applied for a permit to place regulatory/informational markers in Clam Pass, Outer Clam Bay and Pelican Bay Boardwalk. There is no mention of any red/green markers, which are typically referred to as private aids to navigation in the application and/or associated materials.

In March of 2000, Collier Co., via a consultant requested and obtained a permit for placement of thirty-two (32) canoe trail markers. These markers are strictly informational and in no way 'direct or regulate vessel traffic'. It should also be noted that Collier Co., nor its consultant at the time, have ever provided the required updates for these signage as outlined in 68D-23.110 FAC. In fairness to Collier Co., this portion of the existing rule 68D-23 was not enacted until December 2001 and amended again in October 2006, with copies of the entire rule being provided.

During my preliminary review of their latest application for markers in Clam Bay/Pass, etc., it appears the county is desiring to place informational (seagrass, shallow, etc.,) markers along with regulatory (idle speed no wake) markers. It should be noted that so long as the

county has provided the required criteria for placement of markers, which at this time it appears they have, we will issue a permit based upon authorization from the United States Coast Guard, the Florida Department of Environmental Protection, the US Army Corps of Engineers and any local agencies.

If you have concerns with the direction of this project, I urge you to contact the county, specifically the coastal zone management office. I have copied that office with this email and would ask that they provide each of you with an electronic version of the application sent me. My point of contact with that office is Ms. Pamela Keyes, and her email address is pamelakeyes@colliergov.net

Thank you again for your interest in this issue.

Tara

Tara Alford, Management Analyst
Boating and Waterways Section
Florida Fish & Wildlife Conservation Commission
Division of Law Enforcement
620 South Meridian Street
Tallahassee, Florida 32399-1600

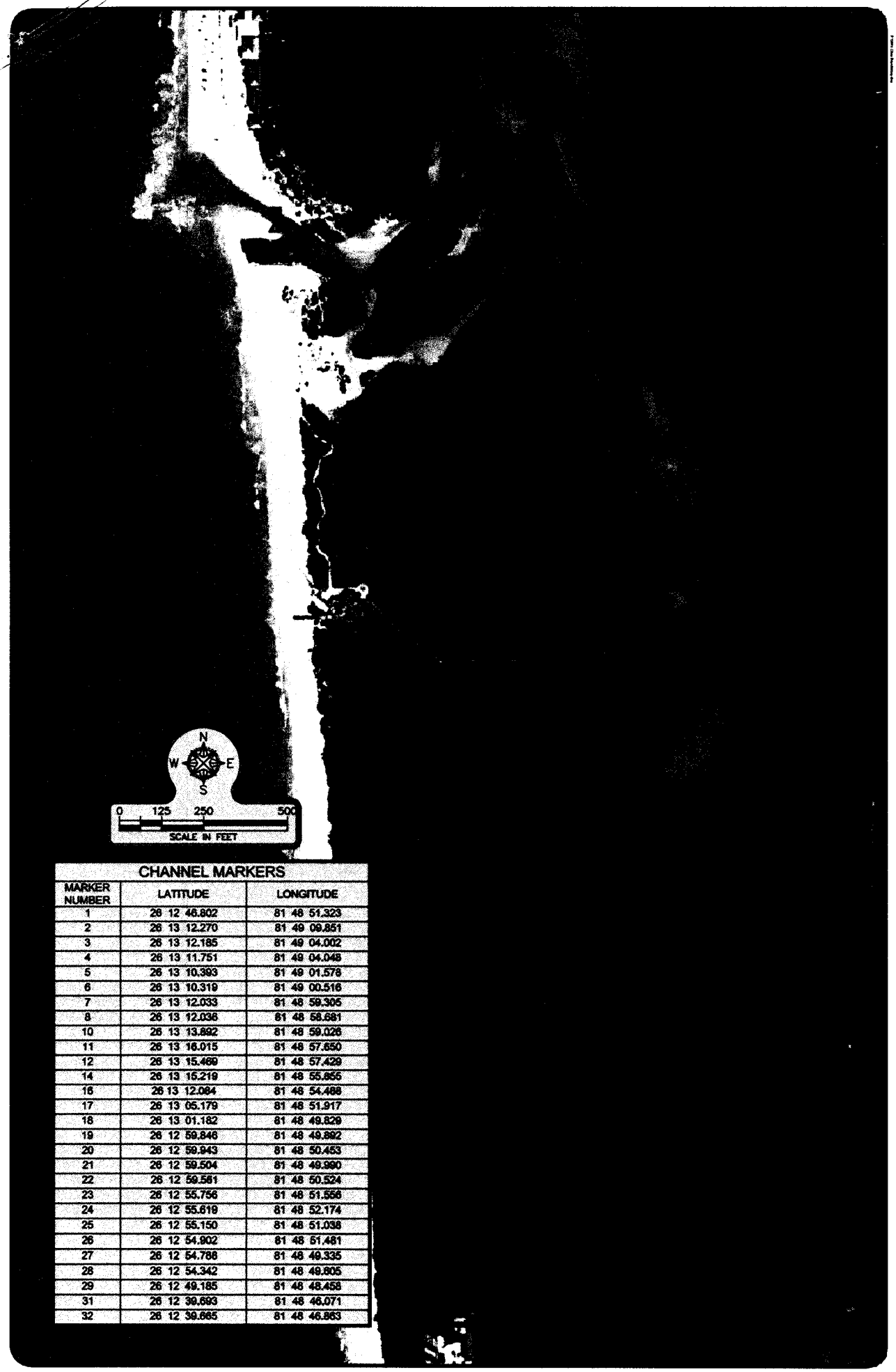
Patrol, Protect, Preserve

850-410-0656, ext. 17169
850-251-7220 - Cell
195*105*2598 - Nextel DC
850-488-9284 - Fax

tara.alford@myfwc.com

From: Margot Osborne [mailto:mcosborne@mac.com]
Sent: Monday, June 02, 2008 9:25 PM
To: joseph.b.embres@uscg.mil; Alford, Tara; Keyser, Carol; Lainie.Edwards@dep.state.fl.us; Lucy.Blair@dep.state.fl.us; DonnaFiala@colliergov. Net; frankhalas@colliergov.net; Fredcoyle@Colliergov. Net; JimColetta@colliergov. Net; TomHenning@colliergov. Net; LeoOchs@colliergov.net; marlaramsey@colliergov.net; GaryMcAlpin@colliergov.net; mbauer@naplesgov.com; bmoss@naplesgov.com; SoreySan@aol.com; mayor@naplesgov.com


CAUTION
SEAGRASS
AREA
Permit 06-034



CHANNEL MARKERS

MARKER NUMBER	LATITUDE	LONGITUDE
1	26 12 46.802	81 48 51.323
2	26 13 12.270	81 49 09.851
3	26 13 12.185	81 49 04.002
4	26 13 11.751	81 49 04.048
5	26 13 10.393	81 49 01.578
6	26 13 10.319	81 49 00.516
7	26 13 12.033	81 48 59.305
8	26 13 12.038	81 48 58.681
10	26 13 13.892	81 48 59.026
11	26 13 16.015	81 48 57.650
12	26 13 15.469	81 48 57.429
14	26 13 15.219	81 48 55.856
16	26 13 12.084	81 48 54.488
17	26 13 05.179	81 48 51.917
18	26 13 01.182	81 48 49.829
19	26 12 59.846	81 48 49.892
20	26 12 59.943	81 48 50.453
21	26 12 59.504	81 48 49.990
22	26 12 59.561	81 48 50.524
23	26 12 55.756	81 48 51.556
24	26 12 55.619	81 48 52.174
25	26 12 55.150	81 48 51.038
26	26 12 54.902	81 48 51.481
27	26 12 54.788	81 48 49.335
28	26 12 54.342	81 48 49.805
29	26 12 49.185	81 48 48.458
31	26 12 39.693	81 48 46.071
32	26 12 39.665	81 48 46.863

PROPOSED BY MARCIA CRAVENS TO GARY MCALPIN ON 10/30/08

CHANNEL MARKERS		
MARKER NUMBER	LATITUDE	LONGITUDE
2	26 13 13.892	81 48 59.026
4	26 13 15.219	81 48 55.855
6	26 13 12.084	81 48 54.488
7	26 13 05.179	81 48 51.917
8	26 13 01.182	81 48 49.829
10	26 12 59.561	81 48 50.524
12	26 12 55.619	81 48 52.174
14	26 12 54.342	81 48 49.605
16	26 12 39.693	81 48 46.071

Clam Bay Advisory Committee Draft Proposal

1/16/09

Creation and Purpose of the Clam Bay Advisory Committee.

The Committee will be specifically tasked to address all issues affecting the entire Clam Bay estuary. The Committee is created to assist the Coastal Advisory Committee and the Board of County Commissioners with all issues affecting the management, direction, health, and long term viability of Clam Bay.

Functions, Powers and Duties of the Advisory Committee.

The functions, powers and duties of the Committee shall be to advise and make recommendations to the Coastal Advisory Committee and the Board of County Commissioners on matters pertaining to Clam Bay including the immediate management permit issues, development of a comprehensive long term master plan, and the day to day operation of the estuary. The long term management plan will address, among other issues, water quality and sampling; best management practices for Clam Bay and adjacent water bodies; tidal flushing and mixing; mangrove maintenance; channel maintenance associated with the hand-dug channels; nutrient loadings, runoff control; Clam Pass maintenance; sand bypassing at Clam Pass; navigation; marine life; education and outreach; funding; and permit compliance.

The Committee and Coastal Advisory Committee will assume responsibility for any and all previous permit direction and/or permit management of this estuary. The Committee will also address funding requirements and present recommendations to the Coastal Advisory Committee and Board of County Commissioners.