

PELICAN BAY SERVICES DIVISION

Municipal Service Taxing and Benefit Unit

NOTICE OF PUBLIC MEETING

JANUARY 12, 2021

THE **CLAM BAY COMMITTEE** OF THE PELICAN BAY SERVICES DIVISION WILL MEET AT **9:00 AM** ON **TUESDAY, JANUARY 12** AT THE COMMUNITY CENTER AT PELICAN BAY, 8960 HAMMOCK OAK DRIVE, NAPLES, FLORIDA 34108.

AGENDA

1. Roll call
2. Agenda approval
3. Approval of 10/27/2020 meeting minutes
4. Audience comments
5. Clam Bay
 - a. Highlights and recommendations from annual report
 - b. Estimated cost of implementing recommendations
 - c. Proposal for scaevola treatment
 - d. Update on canoe trail marker 8
 - e. Draft article for PB Post
6. Boater safety signage
 - a. Update from Coastal Zone Management
7. Clam Pass
 - a. Update on recent dredging and lessons learned
 - b. Results of post dredging survey
 - c. Next bathymetric survey
 - d. Tidal ratio results for days since dredging
 - e. 2020 physical and tidal monitoring report due March 22, 2021
8. Water Quality
 - a. 2020 WQ report due March 22, 2021
9. Next meeting: March 30, 2021 at 1:30 p.m. (Community Center)
10. Adjournment

ANY PERSON WISHING TO SPEAK ON AN AGENDA ITEM WILL RECEIVE UP TO THREE (3) MINUTES PER ITEM TO ADDRESS THE BOARD. THE BOARD WILL SOLICIT PUBLIC COMMENTS ON SUBJECTS NOT ON THIS AGENDA AND ANY PERSON WISHING TO SPEAK WILL RECEIVE UP TO THREE (3) MINUTES. THE BOARD ENCOURAGES YOU TO SUBMIT YOUR COMMENTS IN WRITING IN ADVANCE OF THE MEETING. ANY PERSON WHO DECIDES TO APPEAL A DECISION OF THIS BOARD WILL NEED A RECORD OF THE PROCEEDING PERTAINING THERETO, AND THEREFORE MAY NEED TO ENSURE THAT A VERBATIM RECORD IS MADE, WHICH INCLUDES THE TESTIMONY AND EVIDENCE UPON WHICH THE APPEAL IS TO BE BASED. IF YOU ARE A PERSON WITH A DISABILITY WHO NEEDS AN ACCOMMODATION IN ORDER TO PARTICIPATE IN THIS MEETING YOU ARE ENTITLED TO THE PROVISION OF CERTAIN ASSISTANCE.

**PELICAN BAY SERVICES DIVISION
CLAM BAY COMMITTEE MEETING
OCTOBER 27, 2020**

The Clam Bay Committee of the Pelican Bay Services Division met on Tuesday, October 27 at 1:30 p.m. at the Community Center, 8960 Hammock Oak Dr., Naples, Florida 34108. In attendance were:

Clam Bay Committee

Susan O'Brien, Chairman
Denise McLaughlin (*absent*)

Rick Swider
Michael Weir

Pelican Bay Services Division Staff

Neil Dorrill, Administrator
Chad Coleman, Operations Manager
Darren Duprey, Assoc. Project Manager (*absent*)

Karin Herrmann, Operations Analyst
Lisa Jacob, Project Manager
Barbara Shea, Admin. Assistant

Also Present

Jennifer Bobka, Earth Tech
Mohamed Dabees, Humiston & Moore
Michael Fogg, PBSB Board

Tim Hall, Turrell, Hall & Associates
Jeremy Sterk, Earth Tech

APPROVED AGENDA (AS PRESENTED)

1. Roll call
2. Agenda approval
3. Approval of 03/12/2020 meeting minutes
4. Audience comments
5. Clam Pass
 - a. Station 14 tidal gauge repair update
 - b. Clam Bay Management Plan Dredging Policy
 - c. Tidal ratio data for 2016-2020
 - d. Bathymetric survey report May 2020
 - e. Aerial photos from 2017 and 2018
 - f. Timeline to dredge Clam Pass
 - g. Intervention strategies
6. Water Quality
 - a. 2019 annual WQ report
 - b. 2020 WQ report for April, May & June
 - c. Copper results
7. Clam Bay
 - a. Update on spring and fall mangrove monitoring
 - b. Update on hand-dug channel maintenance
 - c. Canoe trail marker 6 signage
 - d. Scaevola treatment proposal
 - e. County boater safety signage

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8. Dates for annual reports
 - a. Clam Bay: December 18
 - b. Clam Pass Physical and Tidal monitoring: December 18
 - c. Water Quality: March 12, 2021
9. Next meeting
10. Adjournment

ROLL CALL

Ms. McLaughlin was absent and a quorum was established

AGENDA APPROVAL

Mr. Weir motioned, Ms. O'Brien seconded to approve the agenda as presented. The motion carried unanimously.

APPROVAL OF 03/12/2020 MEETING MINUTES

Mr. Swider motioned, Ms. O'Brien seconded to approve the 03/12/2020 meeting minutes as presented. The motion carried unanimously.

AUDIENCE COMMENTS

None

CLAM PASS

STATION 14 TIDAL GAUGE REPAIR UPDATE

Ms. Jacob commented that the tidal gauge at station #14 went down about two weeks ago. The replacement equipment is expected to be delivered tomorrow, and will be installed by Earth Tech by the end of the week.

CLAM BAY MANAGEMENT PLAN DREDGING POLICY

Ms. O'Brien commented on four pages from the Clam Bay NRPA Management Plan (October 2014), included in the agenda packet, which describe the criteria which could necessitate dredging Clam Pass. She noted that this management plan was approved by the BCC in January 2015.

TIDAL RATIO DATA FOR 2016-2020

Ms. O'Brien commented on the tidal ratio data for 2016-2020 included in the agenda packet. She noted that tidal ratios throughout 2019 were consistently above .5; typically a reading below .6 would trigger a dredging event. Dr. Dabees consultant with Humiston & Moore, commented that in October overall ratios fell below .5 (similar to readings in March/April 2020); Marker 4 is now at .4.

CURRENT CONDITIONS AND POSSIBLE INTERVENTION STRATEGIES

A 10/13/2020 memo from Dr. Dabees discussing October Clam Pass conditions and recommendations was provided to the committee and added to the record. Dr. Dabees commented that the County's late 2019 sand renourishment project south of Clam Pass has resulted in sand migrating north and accumulating in the entrance of Clam Pass. He noted that the constriction is

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concentrated in Section A; there is not an abundance of sand in Sections B and C at this time. Dr. Dabees suggested that we may need to do a maintenance grading project each year to cope with County sand renourishment projects. His recommendation is to file a request for a Notice to Proceed from the DEP to regrade the inlet mouth following the turtle nesting season. Conditions will be reassessed in the Spring to determine whether a full dredge event of Sections A, B and C is needed. Mr. Dorrill commented that our intent is to avoid an emergency dredge in the Spring.

Mr. Dorrill commented that once Dr. Dabees completes the scope of work for the operational maintenance and grading work, staff will utilize the County's marine contractor services contract to request quotes from the four approved contractors for this project. He noted that we are tentatively included on the Nov. 23 TDC agenda to seek approval for funding of this project. We will not be seeking "emergency approval." Mr. Dorrill commented that our goal is to complete the project before Christmas. Dr. Dabees suggested that when the project is bid out, we could allow for the annual grading of the Clam Pass inlet banks. Mr. Dorrill expects to provide the marine contractor quotes for the project at the Nov. 12 PBSB Board meeting.

Ms. O'Brien commented that according to the Clam Bay Management Plan, it is the responsibility of the PBSB Board to advise the BCC on significant Clam Bay issues and secure their approval for dredging events. Mr. Dorrill noted that the County Manager's Office and our County Commissioner were briefed on our Spring Clam Pass maintenance regrading work.

Mr. Weir motioned, Mr. Swider seconded to recommend to our full board that we do a small dredge grading event soon and then gear up to do a full dredge in possibly next April. The motion carried unanimously.

WATER QUALITY

2019 ANNUAL WQ REPORT & 2020 WQ REPORT FOR APRIL, MAY & JUNE

Ms. O'Brien provided five pages from the 2019 annual WQ report, included in the agenda packet, prepared by Dr. Tomasko and Ms. Keenan, consultants with Environmental Science Assoc. (ESA). She highlighted good news on copper and total nitrogen results, while total phosphorous results were not so good. Mr. Hall, consultant with Turrell, Hall & Assoc., commented that although phosphorus levels remain high, they have improved over prior years. He noted that the months of January and April show the highest levels which were also months with heavy rainfall events. Mr. Hall is of the opinion that remaining Hurricane Irma debris in Clam Bay is causing the high phosphorus levels, and that it generally takes years to flush out hurricane debris.

Mr. Hall noted that Dr. Tomasko will be less involved in future ESA WQ reports, while Ms. Emily Keenan will become more involved in the preparation of these reports.

CLAM BAY

UPDATE ON SPRING AND FALL MANGROVE MONITORING

Mr. Sterk, consultant with Earth Tech, commented that overall, the spring and fall mangrove monitoring events show plots to be steady or improving. He noted that there are a few areas of concern on the west side which are being closely monitored. Ms. Bobka, consultant with Earth Tech, is in the process of comparing the 2020 infrared photo of Clam Bay to the 2019 infrared photo.

UPDATE ON HAND-DUG CHANNEL MAINTENANCE

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Mr. Sterk reported that this year's hand-dug channel maintenance included 2.1 miles of targeted areas.

CANOE TRAIL MARKER 6 SIGNAGE

Mr. Sterk commented that he is working with Ms. Jacob and County personnel on the repair of canoe trail marker #6 signage. He noted that the poles on several canoe trail markers are reaching the end of their life, and that County staff has indicated that they plan on replacing these poles with fiberglass poles, at their expense.

SCAEVOLA TREATMENT PROPOSAL

Ms. O'Brien asked for an update on the status of a scaevola treatment proposal and whether funds were included in the FY2021 budget for a scaevola treatment project. Ms. Jacob commented that she is working on a project for exotic removal for \$78,000, which does not include scaevola. She commented that she was not aware of any FY2021 funds specifically budgeted for scaevola removal. Mr. Fogg commented that there are plenty of funds in the Clam Bay Fund, resulting from FY2020 carryover funds. He suggested that staff come up with a plan, with possible options and related proposals, to bring back to this committee and/or the board. Mr. Sterk offered to work with Ms. Jacob to develop a scaevola removal project for an initial phase. Additional phases could be spread over future years.

Ms. O'Brien motioned, Mr. Weir seconded to ask staff to come up with a proposal for scaevola treatment in Clam Bay by December 14. The motion carried unanimously.

COUNTY BOATER SAFETY SIGNAGE

Ms. O'Brien commented that she recently attended a meeting with Mr. Hall, Mr. Coleman, Ms. Jacob, and County Coastal Zone Management (CZM) staff to discuss obtaining speed restriction signage for Clam Bay. She noted that ultimately PBF approval is required for all Clam Bay signage. Mr. Hall commented that putting signs on the three bridges, a sign at the kayak launch, and a sign on the PBF beach were discussed at the meeting and that we will continue to work with CZM staff to achieve our goal of obtaining all the signage that we are entitled to. The County is suggesting that all signs should say "slow speed" instead of "idle speed."

DATES FOR ANNUAL REPORTS

CLAM BAY: DECEMBER 18

Ms. O'Brien suggested a due date of Dec. 18 for the Annual Clam Bay Report. Mr. Sterk agreed to this date.

CLAM PASS PHYSICAL AND TIDAL MONITORING: DECEMBER 18

Ms. O'Brien suggested a due date of Dec. 18 for the Annual Clam Pass and Tidal Monitoring Report. Dr. Dabees suggested a mid-January due date in light of the probable December regrading event.

WATER QUALITY: MARCH 12, 2021

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Ms. O'Brien suggested a due date of Mar. 12 for the Annual Clam Pass and Tidal Monitoring Report. Mr. Hall suggested that it is unlikely that the County will provide all of the water quality data in time to meet this deadline.

NEXT MEETING:

By consensus, the committee agreed that the next meeting of the committee would be held sometime in January.

ADJOURNMENT

The meeting was adjourned at 3:00 p.m.

Susan O'Brien, Chairman

Minutes approved [] *as presented* OR [] *as amended* ON [] *date*

12.0 SUMMARY

The Clam Bay estuary experienced fairly “normal” weather conditions during 2020. The system experienced Tropical Storm Eta in early November which brought an unseasonable amount of wind and rain.

The following are brief summaries of work completed by Earth Tech Environmental (ETE) in 2020 and recommendations for each major monitoring category:

Mangrove Monitoring

ETE monitored 21 mangrove plots within the Clam Bay estuary; eleven (11) plots that were previously established by Turrell, Hall & Associates, two (2) plots that were previously established by Lewis Environmental, and eight (8) plots that were previously established in historical mangrove die-off areas by ETE. In each plot, the mangrove species, diameter and condition were recorded. Generally, the 2015 mangrove die-off areas have stabilized and do not appear to be expanding in the area. Overall, the health of the majority of the mangrove plots appears to have slightly improved and/or stabilized from 2019. Plot TH-11 decreased slightly in health and as such should be closely monitored in 2021. Hand dug channel maintenance appears to have a direct effect on the health of the mangroves. The four (4) photo stations along the berm were installed following Hurricane Irma in 2017 and are demonstrating continued recruitment and recovery.

Four (4) new areas of stressed mangroves were identified in 2019 west of Inner Clam Bay. Areas 1 and 4 are located in areas void of hand dug channels and appear to be transitioning from black to red mangrove dominated communities. These areas could be experiencing stagnant water and a lack of drainage, potentially contributing to the stress factors. These areas should be closely monitored to see if they continue to transition to red mangrove dominated communities. Area 3 appears to have grown slightly since 2019. Areas 2 and 3 have hand dug channels in them or in the immediate vicinity. Most of these channels were maintained in August of 2019. Updated channel assessments are advisable in these areas. It may be advisable to establish monitoring plots in these areas to better understand the situation and track changes over time.

In 2020, Earth Tech Environmental conducted aerial mangrove monitoring for the Clam Bay estuary. A protocol was created in 2019 to obtain consistent aerial views in order to monitor mangrove health over time, and to potentially identify new areas of stressed mangroves. Nine (9) aerial monitoring locations were chosen along the Pelican Bay berm and boardwalk in an attempt to provide total aerial coverage of the estuary. It is recommended to conduct aerial mangrove monitoring biannually in 2021.

Hand Dug Channel Maintenance

Using field observations from the mangrove monitoring from March 2020 as a guide for areas within the Clam Bay system that may need channel maintenance, ETE targeted specific networks of channels around mangrove plots that appeared to be in decline due to lack of proper flushing. Additional areas were maintained where visible blockages/debris were noted previously in the field. Specifically, channels in the vicinity of plots TH-2, TH-4, TH-10, TH-11, ETE-3, ETE-5, and LE-4, were identified for maintenance. Figure 8 highlights the channels that were identified in 2020 for routine maintenance.

In August 2020, ETE conducted hand dug channel maintenance whereby approximately 2.14 miles of channels were cleared of vegetation, muck and debris to allow more sufficient drainage within the estuary. The channel maintenance was conducted with hand tools to remove fallen and leaning logs, trees, limbs, muck and detritus from above and within the channels following Hurricane Irma. Debris material was moved away from the channels, though left in the estuary.

Coastal Scrub Monitoring

Overall, the coastal dune vegetation in Clam Bay is stable. There is continued presence of beach naupaka (*Scaevola taccada*) within the coastal scrub habitat in Clam Bay. Beach naupaka is a Category 1 exotic plant as defined by the Florida Exotic Pest Plant Council's list of invasive plant species. It is known for supplanting native coastal vegetation, forming dense monoculture areas. The coastal scrub habitat is home to a significant population of gopher tortoise. As noted last year, the gopher tortoise would benefit greatly if the beach naupaka were removed; management of these exotic vegetation infestations could improve the tortoise foraging habitat and help increase the overall gopher tortoise population. A beach naupaka maintenance event is tentatively scheduled for early 2021.

Seagrass Monitoring

Overall seagrass coverage in 2020 was 3.21 acres vs. 3.53 acres in 2019. The southern portion of Clam Bay (Transect 1) contained no seagrass in 2020 or 2019. The decrease in coverage could be attributed to the inconsistency in the health and structure of the mouth of Clam Pass this year (open and flowing vs. blocked and slowed). A wide variety and abundance of benthic organisms were observed during this year's monitoring.

Listed Species Monitoring

ETE conducted a specific purpose survey to determine gopher tortoise (*Gopherus polyphemus*) utilization of habitat within the Clam Bay NRPA. A total of 151 potentially occupied burrows were identified during the survey. The gopher tortoise population was estimated at 76 individuals (adults & juveniles). This is an increase from the 2019 results: 142 potentially occupied burrows/71 individuals. Abandoned burrows were also noted in the survey, which may include old, collapsed burrows or potential armadillo burrows. The number of abandoned burrows increased from 35 in 2019 to 57 in 2020. The increase in abandoned burrows in 2020 is thought to be a remnant of tortoise displacement following Hurricane Irma, whereby individual tortoise dug multiple burrows, which they later abandoned.

Management of foraging habitat within the coastal scrub is key to maintaining and growing the existing gopher tortoise population.

ETE droned the bird rookery on the north end of the estuary in 2020 and observed a number of species utilizing the island for nesting and roosting. Continued monitoring is recommended in 2021 to further determine the population of birds using the island.

Exotic Vegetation Monitoring

Based on past and current observations, Figure 16 details the scope of exotic and nuisance vegetation treatment events throughout Clam Bay in 2020. The majority of exotic and nuisance vegetation in Clam Bay is located along the "margins" – the east side of the mangroves along the tram berm & the west side of the NRPA in the beach dunes. These areas are adjacent to the most human activity around the system. Exotics identified during the course of treatment events included but were not limited to shoebutton ardisia, Brazilian pepper, Cuban laurel fig, Bishopwood, seaside mahoe, Java plum, carrotwood, old world climbing fern, umbrella tree, and primrose willow.

ETE and Aquagenix have been targeting these fringe areas (exclusive of beach naupaka). ETE utilizes GPS trackers to ensure coverage of areas by personnel in the field. Figure 17 details the tracking locations of exotic treatment events performed through 2020. Exotic vegetation control performed by ETE in 2020 included the Clam Bay NRPA, a 50-foot swath along the eastern side of the tram berm, and extensive work in the dune swale, just west of Bay Colony. One area, just west of the Commons is still getting intensive treatments to kill large trees and re-sprouts in this area. As the mangrove areas along the eastern side of the system continue to recover, it may be necessary

to add portions of them into the exotic removal regimen. Hurricane Irma in 2017 opened up the canopy and new bare ground areas are allowing some exotics to sprout. Beach naupaka was mapped along the dunes and 1.11 acres were identified. Removal of this invasive species is recommended for the health of the coastal scrub habitat as well as for the benefit of gopher tortoise.

Water Level Monitoring

In January and February 2019, all three water loggers were replaced with Onset HOBO MX-2001 loggers. Throughout the year, data gaps due to logger failure occurred at Wells #1 & #2. During the second quarter downloading event, Well #3 failed, and consequently was replaced with an Onset HOBO RX 2104 logger on November 5, 2019. Wells #1 & #2 were also replaced on November 5, 2019 with Onset HOBO MX-2001 loggers. ETE coordinated heavily with the manufacturer of the water level loggers in 2019, resulting in all three (3) loggers being replaced under warranty.

MW-2 appears to have stabilized and water levels are in stride with seasonal fluctuations. MW-1 and MW-3 appear to continuously be experiencing technical difficulties, potentially due to muck/sedimentation in the wells themselves. ETE will further diagnose and work with the manufacturer to troubleshoot the issues in 2021.

Recreation Facilities Monitoring

Canoe channel marker #8 is down (piling and sign) and is in need of replacement. Canoe channel marker #14 was replaced in October 2020 after toppling over in an attempt to replace the sensor.

The four (4) tide stations located on channel markers #4, #14, #26, & #32 were maintained by ETE throughout 2020. During maintenance events, the solar panels and sensors were cleaned. New modems were installed at all stations in December 2018. The sensor at #26 was replaced in July 2020 and the battery was replaced in October 2019. At #14, all of the equipment including sensor, modem, battery, and solar panel was replaced in October 2020.

In general, there were a lot of channel marker issues in 2020. After the failure of the pole and loss of equipment on marker #14 this year, ETE is recommending that the other channel maker poles for the tide stations are replaced before they potentially fail.

Archaeological Site Monitoring

No obvious signs of shell mounds were observed in the locations identified and no signs of human disturbance was observed in 2020.

Draft article for PB Post

Clam Bay Update

Mangrove Forest

Encouraging signs that the mangroves are continuing to improve following the damage incurred during Hurricane Irma in September 2017 is a major finding in the 2020 Clam Bay Report. Only one of 21 mangrove monitoring plots, assessed twice a year, had a score less than it did in previous monitoring since Irma. After Irma, four photo stations were established in the east and north areas where most of the mangrove damage occurred. These photos also document the improvement since Irma. The Pelican Bay Services Division's (PBSD) consultant, Earth Tech Environmental, added nine drone monitoring stations in Clam Bay in 2019 to help identify any new areas of stressed mangroves. Four areas of stressed mangroves west of Inner Clam Bay were noted in 2020, and these areas will be monitored closely in 2021. Hopefully these signs of recovery will continue, and efforts to identify new areas of stressed mangroves will allow early intervention to address the issues.

Clam Pass

About _____ cubic yards of sand were removed from Sections A and B of Clam Pass and the adjacent beaches were graded in December 2020. Hopefully this dredging event will result in adequate flow in and out of Clam Bay so the estuary remains healthy. Tidal flow is continually monitored by four tidal gauges in Clam Bay. The accumulation of sand in Clam Pass is monitored by at least one bathymetric survey a year. The 2020 Physical and Tidal Monitoring Report is due in March 2021.

Water Quality

PBSD also monitors water quality in Clam Bay. The 2020 report is due in March, 2021, and the major findings will be summarized in a PB Post article.

Additional information and questions

The 2020 Clam Bay Report is available _____. Please send any comments or questions about Clam Bay to _____.

Submitted by PBSD's Clam Bay Committee: Denise McLaughlin, Susan O'Brien, Rick Swider, and Michael Weir.

Suggested photos to accompany article

3.2.23 Photo Station 2

This station is located north of Photo Station 1, east of Inner Clam Bay and approximately 200 feet off the berm. This station was installed and marked with a PVC pole and flagging tape on March 7, 2018. It was added as a fourth station after the other three were already installed. It was in a high Hurricane Irma (2017) impact zone. The plot has shown increased recruitment since, with an intense burst of white mangrove recruitment in 2020. Channel maintenance in the surrounding area could potentially lead to continued improved health of the area.



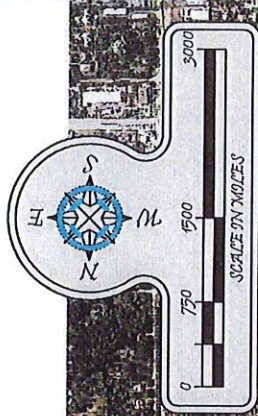
Photo Station 2 panorama facing north - September 11, 2018



Photo Station 2 panorama facing north - September 12, 2019



Photo Station 2 panorama facing north - September 16, 2020



MANATEE SIGN LEGEND	
NUMBER	SIGN
①	IDLE SPEED / NO WAKE WITHIN 500' OF LAUNCH
②	SLOW SPEED / MINIMUM WAKE
③	IDLE SPEED / NO WAKE
④	IDLE SPEED / NO WAKE
⑤	SLOW SPEED / MINIMUM WAKE OR INFORMATION SIGN



Putting signs 2, 3, & 4 on the three bridges near where these signs are shown and putting signs 1 & 5 in the locations shown appeared to be agreeable to PBSD & CZM representatives at the meeting on Oct 20, 2020.



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CLAM BAY

SPEED ZONES AND SIGNAGE LOCATIONS

DESIGNED:	TH	DATE:	08/09
DRAWN BY:	RMJ	SCALE:	AS SHOWN
CREATED:	02-10-14		
JOB NO.:	8945		
SHEET NO.:	02		
SECTION-08/09		TOWNSHIP-	49S
		RANGE-	25E