EXECUTIVE SUMMARY

Recommend approval of staff recommended budget of $150,000 for next phase of numerical modeling of alternatives at Wiggins Pass.

OBJECTIVE: To approve a budget of $150,000 for next phase of numerical modeling of alternatives at Wiggins Pass.

CONSIDERATIONS: Phase one of the modeling program for Wiggins Pass was completed in September of 2007 and identified that the existing pass maintenance policies have accelerated erosion of Barefoot Beach, eroded the pass protecting ebb shoal and the increase formation of the flood shoal which caused channel instability. Additionally, it has been proven that continuing with this course of action will accelerate and lead to a shortened dredge cycle with larger quantities of material removed. It has been recommended from this phase of the study that the Pass be reestablished to the naturally occurring, relatively self maintaining conditions that existed 20 years ago. In the 1980's an 800 foot channel with a MLW depth of 4.5 feet existed. Currently, a 400 foot channel with a MLW of 3.0 feet exists and requires dredging every 12 to 18 months to maintain.

The second phase of the model study needs to be funded to complete the FDEP required alternative analysis. This phase will utilize system modeling to design and analyze various options for performance and effectiveness. Structural and non-structural options will be considered. Examples of some alternates that will be considered are:

1. No Action
2. Reconstruct Shoal without structures
3. Jetty
4. T-groins
5. Segmented Breakwater
6. Combinations of options like Breakwaters and T-Groins.
7. Temporary Structures vs. Permanent Structures under each scenario

Data from this modeling study is required to effectively analyze conformance to Collier County's Comprehensive Plan and Land Use Code. Concurrently with this modeling program, CZM would work with Collier County Environmental Services, Engineering and Comprehensive Planning to verify Comprehensive Plan and Land Use Consistency. This analysis can not be completed until a significant portion of the modeling program is completed.

After a consistency determination, a "Community Solution" would be developed via discussions with all stakeholder groups, knowledgeable industry experts, the surrounding community and FDEP. Not until this point would potential solutions be discussed. However, regular progress updates would be held at the CAC.

FISCAL IMPACT: The Source of funds is from Category “A” Tourist Development Tax fund.

ADVISORY COMMITTEE RECOMMENDATIONS: This Item was approved at the CAC December 13, 2007 meeting, unanimously 7-0, with the following recommendations: Mrs. Kulpa will chair a Sub-Committee consisting of different parties for input on this item. Nicole Ryan's, The Conservancy of SW Florida, letter to Councilman Sorey dated December 13, 2007 outlining their recommendations be included. Mr. Pires questions from the October 2007 CAC meeting be included. Dr. Pilkey's summary of his visit and input with the Estuary Conservation Association be included.

GROWTH MANAGEMENT IMPACT: This study is required to determine if the Wiggins Pass Improvement Project alternatives are consistent with Collier County's Growth Management Plan.

RECOMMENDATION: Approve staff recommendation budget of $150,000 for next phase of numerical modeling of alternatives at Wiggins Pass and any necessary Work Orders.

PREPARED BY: Gary McAlpin, Director

attachment #1 — Question from Tony Pires from 10/2007 CAC Meeting w/ JG McAlpin Answers

October 17, 2007

Question/Comments/ for County Staff as follow-up to discussion regarding Wiggins Pass Modeling Study

1. Any opinion to be obtained with regards to whether or not placement of erosion control structures is consistent with the Conservation and Coastal Management Element ("CCME") and all the other elements of the Collier County Growth Management Plan ("GMP") should be provided by the appropriate person in the Community Development and Environmental Services Department ("CDES"). There is a formalized process outlined within the Land Development Code ("LDC") for requesting and obtaining formal interpretations and my experience has been that any opinions rendered by the County Attorney's Office are not binding under the LDC as opposed to those issued following the formal interpretation process within the LDC.

Answer: Coastal Zone Management and the County Attorney's Office will coordinate and work with other staff organizations to assure that other County organizations are fully aware and involved in review/discussion process. This has taken place to the extent that the CDES Engineering and Environmental Services Director, Bill Lorenz has be consulted on this issue and the recommended review process for Environmental and Comprehensive Planning Review.

Any decisions or opinions rendered will be consistent with and follow all policies and procedures as required by the BCC.

No additional verification will be required by CAC members on information provided.

2. Confirm that Hideaway Beach is not part of the CBRS, the Coastal Barrier Resource System, and that situation is different, as Barefoot Beach is within the CBRS.

Answer: Both Hideaway and Barefoot are part of the "Natural Barrier" systems regardless of how they are administratively categorized. Additionally, the northern part of Barefoot is developed similar to Hideaway. Temporary T-Groins were an effective erosion control device that was used successfully at Hideaway Beach. If properly designed, we would expect that temporary T-Groins would be an effective erosion control device at Barefoot Beach.

3. How would the proposed erosion control structures protect, maintain and enhance the natural function of the Barefoot Beach undeveloped coastal barrier, [see CCME Objective 10.3].

Answer: The conceptual erosion control design contemplated under the August 2007 Wiggins Pass Study incorporates features that modify incoming wave energy to the extent that shoreline stability will be improved and transport of sand into the inlet will be reduced. The design does not block all wave energy responsible for littoral sand transport, nor does it physically obstruct sand transport.

The objective of the design is therefore to restore natural coastal processes to more like what they were prior to realization of the cumulative dredging impacts that have resulted in the loss of approximately 200 feet of beach and formation of a receding erosion escarpment that has resulted in a beach littered with fallen trees. The cumulative impacts have reduced the recreational value of the beach, reduced the land area of the park, and destroyed upland coastal hammock that was documented by Collier County Natural Resources staff as being gopher tortoise habitat with numerous active burrows.

4. CCME Objective 10.3.4, states "Public expenditure shall be limited to property acquisition and for public safety, education, restoration, exotic removal, for recreation and resource facilities that will not substantially alter the natural characteristics and the natural function of the undeveloped Coastal Barrier System". In what category listed in the foregoing would this erosion control project qualify?

Answer: Public safety, education, restoration, recreation and the use of this beach a s an enhanced resource facility would all benefit from the elimination of erosion and the restoration of the southern portion of Barefoot Beach. The natural function and natural characteristics would be restored to this beach.

5. CCME Policy 10.3.6 prohibits "construction of structures seaward of the coastal construction control line on undeveloped coastal barriers." There is an exception for passive recreational structures, access crossovers, and where enforcement would not allow any reasonable economic utilization of such property. Please explain how this prohibition can be bypassed?

Answer: Construction of structures seaward of the Coastal Construction Control Line usually refers to vertical construction that is upland of the MHW line. That is not the case here since this temporary structure will be horizontal and seaward of the MLW line. More importantly, this effort will restore a passive natural shoal that will prevent erosion in the future. This passive natural shoal has a significant environmental and recreational value to the inlet and beach.

6. Please quantify the diminished recreational value of Barefoot Beach as referenced on page 4 of the 2004 Humiston & Moore Feasibility Study.

Answer: The southern portion of the beach has eroded 200 feet. The upland path to the beach is not usable due to the greater than 6 foot erosion drop off. No beach exists as the tree line and other vegetation trees is toppled due to erosion.

7. Please quantify the number of sea turtle nests that have been adversely impacted by erosion of 300-400 feet of the inlet at the South end of Barefoot Beach.

Answer: Detailed information is not available but it stands to reason that if no beach exists that there is no place for sea turtles to nest.

8. Please quantify the number of Gopher Tortoise active burrows that have been adversely impacted by the erosion of approximately 300-400 feet of the inlet at the South end of Barefoot Beach.

Answer: In 2004 Collier Count Natural Resources staff identified thirteen active gopher tortoise burrows on the south portion of Barefoot Beach in the area that was being threatened by erosion. There has been no follow-up study to determine how many of these burrows may have been lost since then. There is no information on the number of nests that were lost as the result of the 200 feet of erosion that has been documented.

9. Please address the possibility of the reopening of Little Hickory Pass as outlined in the PUD for Lely Barefoot Beach, Ordinance No. 06-22 and more specifically Exhibit C that limits development in the area formerly known as Little Hickory Pass and states: "The Active Community Recreation Area" is located at site of the former Little Hickory Pass. The existence of the former pass, the well-developed back-barrier channels converging at this point, and the sites low elevation result in a high potential for island embreachment during a major coastal storm."

   Please explain why this consideration and possibility is not taken into account in the Modeling Study.

Answer: Little Hickory Pass is an old inlet that no longer exists approximately 2 miles north of Wiggins Pass between monuments R6 and R7. Little Hickory Pass closed on its own when it had significantly more tidal prism. Both Wiggins Pass and Big Hickory Pass are larger now and carry more of the tidal prism from the common bay area making it less likely that Little Hickory Pass would reopen.

10. Please address the prohibition contained within Section 3.03.07.C of the Land Development Code that prohibits filling on undeveloped coastal barriers, with certain limited exceptions.

Answer: The effort would be to restore the natural condition to Barefoot Beach, filling would be to replace eroded beach and restore natural vegetation.

Attachment II – Agenda for Orrin Pilkey Visit

ESTUARY CONSERVATION ASSOCIATION

AGENDA FOR VISIT BY DR. ORRIN PILKEY

Title of Event: Environmentally and Economically Sound Methods to Maintain Wiggins Pass as a Navigable Waterway" sponsored by the Estuary Conservation Association

Purpose of Event: To convene local and national experts, government officials, waterway users, and interested citizens to discuss environmentally and economically sound methods of maintaining Wiggins Pass as a navigable waterway.

Participants will discuss the following topics:

1) history of Wiggins Pass in relation to the geological history of this area of the Southwest Florida coastline;

2) history of efforts to maintain the Pass as a navigable waterway and their costs and benefits;

3) future options to maintain the Pass as a navigable waterway and consideration of their potential benefits and costs including the *Humiston and Moore* model; and

4) suggestions and recommendations for consideration.

SCHEDULE OF EVENTS:

Wednesday, October 17, 2007

11:10 AM – Dr. Pilkey - pick up at Ft. Myers Airport and check in at LaPlaya Beach Resort

1PM - Dr. Pilkey to Pelican Isle Yacht Club (PIYC)

1:15 PM - Luncheon Attendees:

Dr. Pilkey, Mr. Joe Moreland, Mr. Dick Lydon, Mr.Gary McAlpin, Mr.Geof Burgerhoff, Mr John Findley ,Ranger Bob Steiger, Dr. John Steiger, Mr.David Roellig, Ms. Katie Sproul, Ms. Kathy Worley,

2:30 PM - View of Wiggins Pass from PIYC High Rise Condo. (Peter Franck's residence)

3 PM - Water cruise of Wiggins Pass and Estuary

4:30 PM - Depart for Humiston & Moore's office for Briefing/Discussion

6:30 PM - Depart for cocktails and dinner at PIYC and continued discussions

Attendees: Dr. Pilkey, Mr. Moreland, Mr. Lydon, Dr. Fitch, Mr. McAlpin, Mr. Ken Humiston, Mr. Burgerhoff, Mr. Findley, Mr. Steiger, Ms. Sproul, Mr. Nath

9 PM - Adjourn and return Dr. Pilkey to his hotel

Thursday, October 18

9 AM - Continued discussions in private dining room at LaPlaya Resort

12 Noon - Luncheon meeting /briefing/ discussion with "Persons With Interest"

Attendees: Dr.Pilkey, Mr. Moreland, Mr. Lydon Dr. Fitch, Ms.Sproul, Mr. Burgerhoff, Ms. Kathy Worley, Mr. Nick Latch, Mr. Roellig, Mr. Humiston, Mr. Ananta Nath, Mr. McAlpin, Ms. Donna Carron (Collier County Planning Committee, formerly on ECA Board), Ms. Nicole Ryan (Conservency of SWF.), Mr. Bob Steiger (Delnor-Wiggins State Park Ranger), CAC Represenatvie, District 2 Representative, Barefoot Beach Representative,

4 PM – Adjourn and take Dr. Pilkey to Ft. Myers Airport

Attachment III - Notes of Pilkey visit

Title: "Brief Notes of Workshops Convened by the Estuary Conservation Association on October 17 and 18, 2007 to Discuss Environmentally and Economically Sound Methods to Maintain Wiggins Pass as a Navigable Waterway With Dr. Orrin Pilkey as a Visiting Coastal Expert"

Purpose of Workshops: To convene local and national experts, government officials, waterway users, and interested citizens to discuss environmentally and economically sound methods of maintaining Wiggins Pass as a navigable waterway

Major Topics to Be Discussed:

1. History of Wiggins Pass in relation to the geological history of this region of the Southwest Florida coastline;
2. History of efforts to maintain the Pass as a navigable waterway and their lessons, costs, benefits, and problems;
3. Future options to maintain the Pass as a navigable waterway and consideration of their potential costs, benefits, and risks; and
4. Suggestions and recommendations for consideration

Schedule of Workshop Events

A. Wednesday, October 17, 2007

1. Lunch with Dr. Pilkey at the Pelican Isle Yacht Club (1:15 pm to 2:30 pm)--- Notes taken
2. View of Wiggins Pass from the Pelican Isle High Rise Condo of Peter Franck (2:30 pm to 3 pm)--Notes taken
3. Cruise in the Cocohatchee Estuary and Wiggins Pass (3 pm to 4:30 pm)--- Notes taken
4. Briefing and Discussion of Humiston and Moore's Model and Report at the Cocohatchee Coast Guard Station (4:30 pm to 6:15 pm)--Notes taken
5. Dinner at the Pelican Isle Yacht Club (6:30 pm to 9 pm)

B. Thursday, October 18, 2007

1. Morning review of progress with the central question of identifying challenges and best management practices that can be taken to sustain Wiggins Pass as a navigable waterway within an Outstanding Florida Water between to parks established for conservation and recreation (9 am to noon)--Notes taken
2. Lunch at the La Playa Resort

Lists of Participants at Workshop Events Where Notes Were Taken

A. Wednesday, October 17, 2007

1. Lunch at the Pelican Isle Yacht Club
   a. Greeter: Joe Moreland
   b. Participants: Mr. Geoff Burgerhoff, Mr. Jim Burke, Mr. David Busher, Ms. Donna Caron, Mr. John Findley, Mr. Ezell Givens , Ms. Heidi Kulpa, Mr. Dick Lydon, Mr. Gary McAlpin, Christina Olsen, Dr. Orrin Pilkey, Mr. David Roellig, Ms. Nicole Ryan, Dr. John Staiger, Mr. Robert Steiger, Mr. Sri Tammisette, Ms. Kathy Worley

2. View of Pass from High Rise Condo
   a. Informal Speaker: Mr. Gary McAlpin
   b. Participants: Mr. Geoff Burgerhoff, Mr. Jim Burke, Mr. David Busher, Ms. Donna Caron, Mr. John Findley, Mr. Ezell Givens , Ms. Heidi Kulpa, Mr. Dick Lydon, Mr. Gary McAlpin, Mr. Joe Moreland, Christina Olsen, Dr. Orrin Pilkey, Mr. David Roellig, Ms. Nicole Ryan, Dr. John Staiger, Mr. Robert Steiger, Mr. Sri Tammisette, Ms. Kathy Worley

3. Cruise
   a. Informal Speaker: Mr. Gary McAlpin
   c. Participants: Mr. Geoff Burgerhoff, Mr. John Findley, Mr. Ken Humiston, Mr. Ezell Givens, Ms. Heidi Kulpa, Mr. Dick Lydon, Mr. Joe Moreland, Christina Olsen, Dr. Orrin Pilkey, Mr. David Roellig, Ms. Nicole Ryan, Dr. John Staiger, Mr. Robert Steiger, Mr. Sri Tammisette, Ms. Kathy Worley

4. Huminston and Moore Model and Report
   a. Speaker: Mr. Ken Humiston, Dr. Mohamed Dabees, Dr. Orrin Pilkey
   b. Participants: Mr. Geoff Burgerhoff, Mr. Jim Burke, Mr. David Busher, Ms. Donna Caron, Mr. John Findley, Mr. Ezell Givens, Ms. Heidi Kulpa, Mr. Dick Lydon, Mr. Gary McAlpin, Mr. Joe Moreland, Christina Olsen, Mr. David Roellig, Ms. Nicole Ryan, Dr. John Staiger, Mr. Robert Steiger, Mr. Sri Tammisette, Ms. Kathy Worley

5. Dinner
   a. Participants: Mr. Geoff Burgerhoff, Ms. Donna Caron, Dr. Mohamed Dabees, Mr. John Findley, Dr. John Fitch, Mr. Ken Humiston, Mr. Joe Moreland, Dr. Orrin Pilkey

B. Thursday, October 18, 2007
1. Morning Review:
   a. Facilitator: Dr. John Fitch
   b. Participants: Mr. Geoff Burgerhoff, Mr. John Findley, Mr. Ezell Givens, Mr. Joe Moreland, Christina Olsen, Dr. Orrin Pilkey, Mr. David Roellig, Ms. Nicole Ryan, Dr. John Staiger, Mr. Robert Steiger, Mr. Sri Tammisette, Ms. Kathy Worley

Summary of: Discussion of Environmentally and Economically Sound Methods to Maintain Wiggins Pass as a Navigable Waterway With Dr. Orrin Pilkey as a Visiting Coastal Expert

The Wiggins Pass Estuary System's designation as a Florida Outstanding Water represents a commitment and partnership between public and private stakeholders to sustain the ecological and recreational significance of Wiggins Pass for present and future generations.

Movement of sand is an issue which threatens the ecological and recreational significance of the Wiggins Pass Estuary System. From an ecological perspective Sand Movement is causing erosion at Bare Foot Beach Preserve and Accretion at Delnor Wiggins Pass State Park. From a recreational perspective Sand Movement requires that the Wiggins Pass Inlet be proactively managed to assure channel safety for boaters.

In October workshops were Convened by the Estuary Conservation Association on October 17 and 18, 2007 to "Discuss Environmentally and Economically Sound Methods to Maintain Wiggins Pass as a Navigable Waterway With Dr. Orrin Pilkey as a Visiting Coastal Expert". The following is a list of major topics that were discussed:

1. History of Wiggins Pass in relation to the geological history of this region of the Southwest Florida coastline;
2. History of efforts to maintain the Pass as a navigable waterway and their lessons, costs, benefits, and problems;
3. Future options to maintain the Pass as a navigable waterway and consideration of their potential costs, benefits, and risks; and
4. Suggestions and recommendations for consideration

Discussions of these major topics created a dialogue between public and private stakeholders. At the conclusion of these discussions, public and private stakeholders were unified based upon the following points:

1. Erosion at Barefoot Beach is leading to Accretion at Wiggins Pass Inlet.
2. Maintaining Safe Navigation at Wiggins Pass Inlet Will Require Preventing Erosion At Barefoot Beach.
3. Erosion at Barefoot Beach Can Be Prevented Through Management Actions That Encourage Accretion at the Barefoot Beach Shoal Where Erosion Is Occurring.
4. Every Effort Should Be Made To Encourage Accretion at The Barefoot Beach Shoal Where Erosion Is Occurring Without Using Permanent Structures. Temporary Structures Should Be Considered Only If They Stabilize Accretion And Can Be Taken Out As Soon As Possible.
5. Precision Maintenance Dredging Year Round Should Be Considered In Conjunction With Actions To Increase Accretion Of The Barefoot Beach Shoal Where Erosion Is Occurring.
6. Proactive Movement Of Channel Markers Should Be Considered As A Means Of Keeping Boaters Informed During Efforts To Encourage Accretion At The Barefoot Beach Shoal Where Erosion Is Occurring.
7. Points 1-6 Were Reflections Of Ideas Generated. All Participants Agreed That There Need To Be Further Discussions To Ensure That Every Approach That Is Environmentally Sound And Maintains Navigability Is Incorporated Into Plans. Therefore, We Recommend That Additional Workshops With Nationally Recognized Experts Should Be Convened by the Estuary

Conservation Association to Continue Discussion of Environmentally and Economically Sound Methods to Maintain Wiggins Pass as a Navigable Waterway.

Attachment IV ① Notes of Pilkey Visit by Joe Moreland

② Summary from Christine Olson, Biologist State of Florida

McAlpinGary

From: Heidi Kulpa [heidikulpa@msn.com]
Sent: Thursday, December 06, 2007 3:07 PM
To: McAlpinGary
Subject: Fw: WIGGINS PASS WORKSHOP SUMMARY OCT.17-18 2007

Gary, FYI heidi

----- Original Message -----
From: JMorel2409@aol.com
To: crowehrc@earthlink.net ; BJBurkhard@comcast.net ; dolson@lifeinnovations.com ; Ezell.Givens@dep.state.fl.us ; DLYDON124@aol.com ; johnfindley@piyc.net ; j.h.fitch@comcast.net ; dsroellig@naples.net ; KSproul@barroncollier.com ; JCSTAIGER@MSN.COM ; Kathyw@conservancy.org ; gburger@eagle.fgcu.edu ; kh@humistonandmoore.com ; srinivias.tammisetti@dep.state.fl.us ; mark.latch@dep.state.fl.us ; robert.steiger@dep.state.fl.us ; djreed@comcast.net ; therightperson@msn.com ; davidbusher@comcast.net ; heidikulpa@msn.com ; GaryMcAlpin@colliergov.net ; Mherrmann219@aol.com ; NicoleR@conservancy.org ; JMorel2409@aol.com
Sent: Tuesday, December 04, 2007 2:29 PM
Subject: WIGGINS PASS WORKSHOP SUMMARY OCT.17-18 2007

Below please find the summary of discussion points raised during the workshop discussions. Also included are expanded comments by the Florid DEP, and should be considered as part of the summary.

Thank for participating. I hope you will agree that this effort of focused discussion and exchange of thoughts was a productive step in the right direction.

Respectfully,
Joe

Joe Moreland
Estuary Conservation Association

Title: "Brief Notes of Workshops Convened by the Estuary Conservation Association on October 17 and 18, 2007 to Discuss Environmentally and Economically Sound Methods to Maintain Wiggins Pass as a Navigable Waterway With Dr. Orrin Pilkey as a Visiting Coastal Expert"

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Ms. Donna Caron, Mr. John Findley, Mr. Ezell Givens,
Ms. Heidi Kulpa, Mr. Dick Lydon, Mr. Gary McAlpin,
Mr. Joe Moreland, Christina Olsen, Mr. David Roellig,
Ms. Nicole Ryan, Dr. John Staiger, Mr. Robert Steiger,
Mr. Sri Tammisette, Ms. Kathy Worley

5. Dinner
   a. Participants: Mr. Geoff Burgerhoff, Ms. Donna Caron,
   Dr. Mohamed Dabees, Mr. John Findley, Dr. John Fitch,
   Mr. Ken Humiston, Mr. Joe Moreland, Dr. Orrin Pilkey

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1. Morning Review:
   a. Facilitator: Dr. John Fitch
   b. Participants: Mr. Geoff Burgerhoff, Mr. John Findley, Mr. Ezell Givens,
   Mr. Joe Moreland, Christina Olsen, Dr. Orrin Pilkey,
   Mr. David Roellig, Ms. Nicole Ryan, Dr. John Staiger,
   Mr. Robert Steiger, Mr. Sri Tammisette, Ms. Kathy Worley

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2. Maintaining Safe Navigation at Wiggins Pass Inlet Will Require Preventing Erosion At Barefoot Beach.
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4. Every Effort Should Be Made To Encourage Accretion at The Barefoot Beach Shoal Where Erosion Is Occurring Without Using Permanent Structures. Temporary Structures Should Be Considered Only If They Stabilize Accretion And Can Be Taken Out As Soon As Possible.
5. Precision Maintenance Dredging Year Round Should Be Considered In Conjunction With

Actions To Increase Accretion Of The Barefoot Beach Shoal Where Erosion Is Occurring.

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7. Points 1-6 Were Reflections Of Ideas Generated. All Participants Agreed That There Need To Be Further Discussions To Ensure That Every Approach That Is Environmentally Sound And Maintains Navigability Is Incorporated Into Plans. Therefore, We Recommend That Additional Workshops With Nationally Recognized Experts Should Be Convened by the Estuary Conservation Association to Continue Discussion of Environmentally and Economically Sound Methods to Maintain Wiggins Pass as a Navigable Waterway.

Comments Submitted By Meeting Participants

Florida Department of Environmental Protection
From: Olson, Christina
Sent: Tuesday, November 13, 2007 1:03 PM
To: 'gburger@eagle.fgcu.edu'
Cc: 'Jmorel2409@aol.com'; Subic, Valinda; Givens, Ezell; Latch, Mark; Tammisetti, Srinivas; Steiger, Robert; Hingtgen, Terry
Subject: FW: DRAFT SUMMARY OF OCT 22/23 WIGGINS PASS WORK SHOP

Here are the combined comments from the DEP-Division of Recreation and Parks in regards to the summary of the October ECA workshops and an attached document illustrating recommended changes to the text of the summary:

1. The accretion on the south end of the pass has been on the near shoal and inlet of the pass, however, Wiggins Pass State Park has experienced erosion that threatens park facilities as a result of the current dredging activities.
2. Any modeling proposal or modifications should include a trigger point to protect Wiggins Pass State Park from excessive erosion. This trigger point should be decided in conjunction with DEP-Division of Recreation Parks Coastal Projects Manager, Mark Latch, and Coastal Engineer, Sri Tammisetti. Once that trigger point has been reached, an action will be required to either remove temporary structures or mitigate the state park.
3. Renourish the beach at Barefoot Beach north of the Wiggins Pass.
4. Reconstruct the shoals on either side of the pass to reestablish the pre-dredging conditions.
5. Decrease the channel cross section to increase the flow velocity within the channel.
6. Collier County should consider an alternate dredge template as a way to nudge the inlet back into healthy conditions as opposed to temporary structures that could shock the system and have severe repercussions to the surrounding areas.
7. Side casting as Dr. Pilkey suggested.
8. Collier County should consider purchasing a small dredge so that on an as needed basis a small amount of material can be removed to maintain a navigable channel.
9. Realigning channel markers on an as needed basis to properly guide the boating community.
10. Encourage partnership with WCIND to pursue cost effective dredging alternatives.
11. Biological surveys need to be undertaken of the existing Wiggins Pass shoals and inlet to fully understand and minimize impacts to natural resources and habitat within the pass due to dredging.
12. Dr. Pilkey was very adamant that modeling of coastal processes can be highly misleading and inaccurate and that coastal project managers should be very weary of these models. His opinions should be more reflective in the summary.

Please let me know if you have any questions.
Thank you,
Christina Olson (FLDEP)

Attachment IV - Dr. Pilkey Notes on modeling

Subj: **models**
Date: 10/26/2007 11:47:23 A.M. Eastern Daylight Time
From: opilkey@duke.edu
To: JMorel2409@aol.com, djreed@comcast.net, rnicoler@conservancy.org, ribert.steiger@dep.state.fl.us, j.h.fitch@comcast.net, ryoung@email.wcu.edu, acoburn@email.wcu.edu

Joe Thanks for your letter

Re your question about why I am skeptical about the Humiston models. No quantitative mathematical models of the shoreline have ever proved to be accurate except in the short term of a few months or years. Things change at the beach. Weather patterns and hence wave patterns change on a decadal basis Bathymetry changes and hence wave patterns change on a monthly to annual basis. And then along comes the storm ——— often from an "unusual" direction with "unusual" intensity for "unusual" duration. To assume that we can describe beach behavior with mathematics is absurd. Below is a list of parameters that determine nearshore sediment transport (from my bargain $29.50 book) - of varying importance thru time and space. Most models consider around 6 of these and the other 33 parameters are assumed to be unimportant which may be true sometimes and sometimes not.

What are your alternatives? 1. Assume that the models are a poor educated guess that certainly wont apply for more than a few years - do nothing that will damage the shoreline on the basis of these models and 3 dredge more often or with different type dredges. Dont let the models drag you into doing it on the cheap.

ALWAYS IMPORTANT

*wave height

*wave period- (time for passage of 2 wave crests)

*angle of wave approach to the shore

storms

*shoreface shape

feedback continuous offshore bar shape changes

*grain size

underlying geology- rock and mud layers beneath beach

*water depth

USUALLY IMPORTANT

offshore bar shape and location

The interactions of waves and currents

wave setup

wave energy loss by friction (with sea floor)

seaward sand transport by waves

seaward sand transport by currents

loss or gain of sand from wind transport

loss of sand from storm overwash

coastal type, e.g. rocky, sandy, reef

sediment supply

engineering structures

- revetments
- breakwaters
- beach nourishment

beachrock

nearshore winds

shell pavements

bedforms ripple marks etc,

bottom roughness

SOMETIMES IMPORTANT

bed liquefaction (quicksand formed as wave impacts)

beach state (e.g. pre or post storm)

storm surges

tidal range

tidal currents

offshore coastal currents

sea water infiltration

wave types

*wave breaking parameters

wave reflection

infragravity waves

wave reformation (after breaking)

water temperature

sediment sorting

beach stratigraphy-vertical layering

shape of gravel and larger clasts

* specific gravity of sand grains

pore pressure from groundwater flowing from beach

organic mats on beach surface

downhill flow of dense sediment filled water

sediment churning/burrowing by organisms

rip currents through the surf zone

seaward return of storm surges (storm surge ebb)

Well I got that off my chest!@!!

Orrin H. Pilkey
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See: Useless Arithmetic (Columbia 2007), A Celebration of the Worlds Barrier Islands (Columbia), How to Read a North Carolina Beach (UNC), The Corps and the Shore (Island)

attachment VI - local safety information

SEA TOW®

"Your Road Service At Sea."

November 14, 2007

To Whom It May Concern:

Guardian Marine Inc. D.B.A. Sea Tow Naples is a full-time, licensed and insured professional marine towing and salvage company with a fleet of four vessels. Sea Tow Naples provides emergency and non emergency services to boaters on the waters of Naples, Florida.

Sea Tow Naples fleet of vessels is ready and available 24 hours a day, 7 days a week, 365 days of the year to provide mariners with premium marine assistance.

Sea Tow Naples has had an emergency response vessel in the Cocohatchee River Marina for the past three years. This vessel covers the Wiggins pass area from the Lee County line south to Doctors Pass.

The volume of calls in the Wiggins Pass area has increased significantly in the last year. The "Sea Tow Vessel North Naples" located in Wiggins Pass is always available but was only on patrol Saturday and Sunday. In the last year we have had to add several days during the week to handle the call load.

The majority of the work we do in this area is related to vessels running aground in Wiggins Pass. The pass has been a very difficult area to navigate for years but has been getting progressively worse. Not only is it a hazardous pass for our Sea Tow members but for our towboats as well. There have been many occasions when our towboat will pick up a vessel off shore and arrive at the pass and have to wait for the tide to come in for several hours to tow the boat through the pass in order not to damage the vessel in tow.

I hope this information is useful and if there are any questions please feel free to contact my office any time.

Sincerely,

Capt. Jack Moran
Owner/President
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December 13, 2007

Chairman John Sorey III
Collier County Coastal Advisory Committee
Coastal Zone Management
3300 Santa Barbara Blvd.
Naples, Florida 34116

VIA: E-Mail

RE: Next Phase of Numerical Modeling of Structural Alternatives at Wiggins Pass

Dear Chairman Sorey and Costal Advisory Committee Members:

The Conservancy of Southwest Florida requests that any study of maintenance alternatives for Wiggins Pass and stabilization of the south end of the Barefoot Beach Preserve focus on solutions that are environmentally compatible and minimize the extent of man-made manipulation to our coastal shorelines. As both Barefoot Beach and Wiggins Pass are part of our natural shoreline system, they are constantly in a state of dynamic change. While the study phase you are being asked to approve mentions non-structural alternatives as past of the assessment, we are concerned that based on the conclusions of the August 2007 Wiggins Pass Study, the need and appropriateness of structures on the beach are already a foregone conclusion. The recommendation by Humiston & Moore was to consider erosion control structures on the Barefoot Beach Preserve. The Conservancy asks that your approval of funding for this next phase of study include a requirement to thoroughly and completely assess non-structural alternatives, in order to determine the least impacting and most environmentally sensitive set of solutions for this natural and dynamic shoreline system.

The Conservancy understands there is a desire to stop the erosion on Barefoot Beach Preserve. However, all stakeholders must realize that shorelines are going to shift and change. They are in a constant state of flux. Problems arise when communities attempt to maintain or "fix" shorelines in a constant, or static, state, through structures, such as groins. A major concern with all groins, temporary or permanent, T-groin or otherwise, is the fact that they are artificially trapping sand that would naturally be deposited elsewhere. Such interruption of the sand transport system can create man-induced consequences miles downstream from the location of the structure, which may then result in additional structures built to relieve the sand deficit.

In addition to our concerns over the physical impacts of structures on Barefoot Beach Preserve, the Conservancy believes, from a policy perspective, the Growth Management Plan does not

allow such structures on beach preserves. Policy 10.5.8. of the Conservation and Coastal Management Element states that Collier County shall, "Prohibit shoreline armoring processes and encourage non-structural methods for stabilizing beaches and dunes." This policy directs the County to focus on non-structural alternatives. Without such assessment, any recommendation to place structures on the beach is premature and inconsistent with this policy.

However, we understand that as part of the next phase of study, structures on the beach will be evaluated. Our request is that non-structural solutions also be fully explored. As you vote on approval for this next phase of study, the Conservancy requests the following items specifically be required as potential non-structural solutions to be explored:

1. As a solution to safety concerns, Collier County should immediately re-examine the process in place for adjustment of channel markers. Currently, it takes months for channel markers to be moved when a pass or navigation channel shifts. The readjustment of these markers is imperative for safe navigation in systems where passes and channels are dynamic and shift frequently. Collier County must accept that these passes will migrate on a regular basis, and create a mechanism for working with nature, instead of fighting the natural system. Thus, instead of attempting to dredge a new, more "fixed" channel within Wiggins Pass, Collier County should determine a flexible process for realigning channel markers, or installing buoys, as a means to work with the natural system as it migrates.
2. Collier County should examine the feasibility of purchasing a small dredge, or contracting with a local small dredge operator, for inlet management purposes between larger-scale dredge projects. This could allow for more frequent but less impacting dredging, due to the reduced quantity of material involved. If a side-casting dredge were considered, the dredged sand could be placed on the currently depleted north ebb shoal, thus removing the need for lengthy permitting processes involved in placing dredged sand on nearby beaches. While this may not replace the need for larger-scale periodic dredging by outside contractors, it could be beneficial for in-between maintenance. In addition, if the County did purchase a dredge, the initial costs of dredge purchase should be balanced by the long-term use of the equipment and cost savings expected from reduced large-scale contracted dredging. Collier County could also explore the interest of Lee County, or other governmental entities, in potentially sharing the cost or the use of a smaller dredge.
   The environmental impacts of dredging must also be assessed, in order to determine whether more frequent dredging with less quantity of materials removed is environmentally feasible.
3. Collier County should examine non-structural alternatives for maintaining the pass and inlet system between dredge projects, including determining the feasibility of building up the north ebb shoal through pumping of the dredged sand to enhance shoal development.
4. Collier County must acknowledge that any manipulation of the shoreline could have unintended negative consequences for the environment. As such, incremental steps versus more drastic and structural alternatives should be the priority, along with a plan for changing the course of action, if necessary. Mitigation for unintended environmental impacts must also be part of any process for pass maintenance.
5. Collier County should create an education, monitoring and enforcement program that is focused on ensuring the three-foot draft maximum within the system is not violated by boaters. As part of educational outreach, the County should also educate boater regarding the potential constraints of using the estuarine system for boating during low

tides, since some of the back bay areas are extremely shallow during low tide and cannot accommodate boats with a three-foot draft.

6. There should be a continued forum for stakeholders to share innovative ideas for non-structural solutions for accommodating boats of no greater than a three-foot draft in the pass, while protecting the integrity of the natural system.

The Conservancy believes there are viable solutions available for management of Wiggins Pass that are less-impacting and more environmentally compatible. It is the obligation of County staff, decision-makers, community stakeholders, interested citizens and technical experts to find solutions that work with, not against, nature. The Conservancy believes non-structural alternatives for our beaches must be a priority as the County studies options for the management of Wiggins Pass. A solution may be a blending of a variety of options, but the goal must be to work with nature and respect our dynamic shorelines.

The Conservancy looks forward to participating in future discussions on these innovative solutions. If you have any questions, please call me at (239) 403-4220.

Sincerely,

Nicole Ryan

Nicole Ryan
Governmental Relations Manager

CC: Gary McAlpin