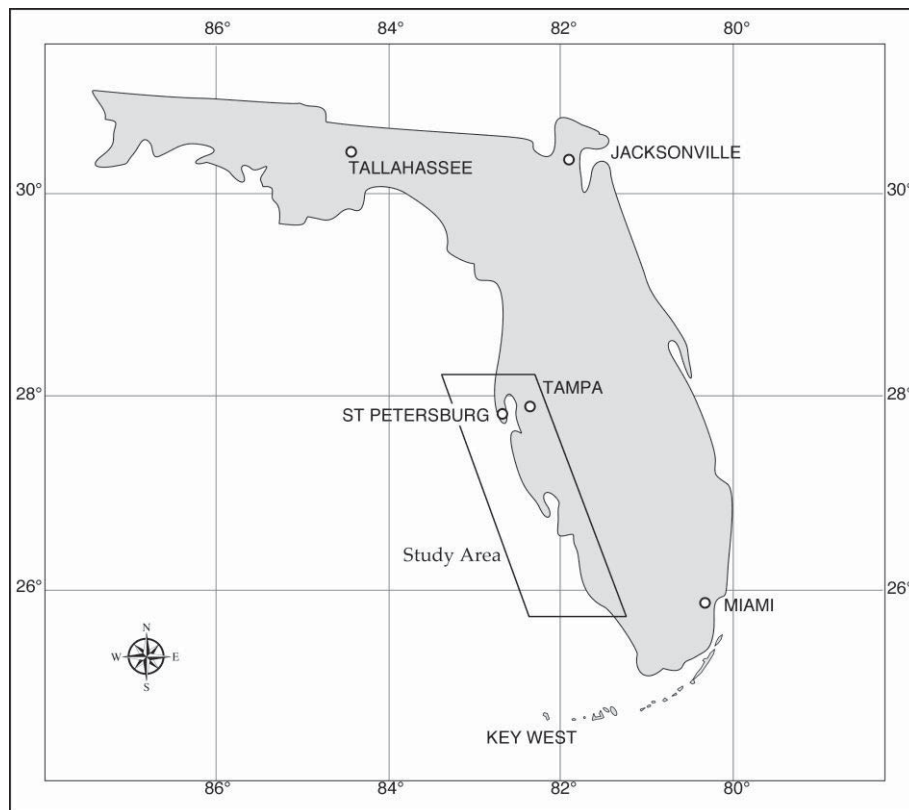


# Tidal Inlet Protection Strategies for Oil-Spill Response

## U.S. Coast Guard Sector St. Petersburg



**Original research in 1994/1995 supported by**  
***Marine Spill Response Corporation***  
***and***  
***Florida Department of Environmental Protection***

**Present research in 2011 supported by**  
**U. S. Coast Guard and NOAA**  
***and***  
**Florida Fish and Wildlife Conservation Commission**

**October 2011**

# Tidal Inlet Protection Strategies for Oil-Spill Response

**U.S. Coast Guard  
Sector St. Petersburg**

Original research in 1994/1995 supported by  
*Marine Spill Response Corporation*  
*and*  
*Florida Department of Environmental Protection*

Present research in 2011 supported by  
**U. S. Coast Guard, NOAA**  
**and**  
**Florida Fish and Wildlife Conservation Commission**

October 2011

Prepared by Miles O. Hayes, Jeffrey Dahlin, and Joseph Holmes,  
Research Planning, Inc.

## TABLE OF CONTENTS

	Page
List of Figures .....	ii
List of Tables .....	ii
Acknowledgments .....	iii
Introduction .....	1
Tidal Inlets – General.....	6
Origin.....	6
Morphology .....	6
Tidal Inlets – USCG Sector St. Petersburg.....	8
Inlet Protection Strategies Used.....	12
Inlet Classification.....	16
Boom Requirements .....	17
Explanation of Terms Used .....	21
Beach Morphology.....	21
Coastal Sediments.....	21
Other commonly used terms.....	22
References .....	26
Inlet Summary Sheets, Strategy Maps and Collection Point Descriptions	
Hurricane Pass (Pinellas Co.) .....	28
Dunedin Pass .....	36
Clearwater Pass .....	38
Johns Pass B.....	52
Blind Pass (Pinellas Co.).....	61
North/Pass-A-Grille Channels .....	68
Bunces Pass .....	85
Egmont Channel.....	94
Southwest Channel .....	94
Passage Key Inlet .....	96
Longboat Pass.....	101
New Pass (Sarasota Co.).....	112
Big Sarasota Pass .....	122
Midnight Pass .....	131
Venice Inlet .....	133

Deertown Gully .....	145
Stump Pass .....	147
Gasparilla Pass.....	156
Boca Grande Inlet.....	169
Captiva Pass.....	175
Charley Pass .....	184
Redfish Pass .....	186
Blind Pass (Lee Co.) .....	196
San Carlos Bay Entrance .....	203
Estero/Matanzas Pass .....	216
Big Carlos Pass .....	225
New Pass (Lee Co.) .....	237
Big Hickory Pass .....	244
Wiggins Pass .....	255
Clam Pass .....	265
Doctors Pass .....	267
Gordon Pass .....	276
Keewaydin Is. Washovers .....	283
Hurricane Pass (Collier Co.) .....	285
Big Marco Pass .....	293
Caxambas Pass .....	306
Blind Pass (Collier Co.).....	318
Morgan Bay.....	321



## LIST OF FIGURES

Figure	Page
1 Area covered in this volume – USCG Sector St. Petersburg.....	2
2 Inlets occurring along the coast of USCG Sector St. Petersburg .....	4
3 General model showing the morphological components of a typical tidal inlet.....	7
4 Inferred longshore sediment transport patterns on the southwest coast of Florida.....	11
5 Angles to set booms to avoid entrainment of the oil based on water current velocity in miles per hour .....	14
6 Flood-tide protection strategy recommended for Longboat Pass .....	15
7 Nomenclature used for the sand beaches of Florida .....	21
8 Grain size scale (after Wentworth, 1922) .....	22

## LIST OF TABLES

Table	Page
1 Inlets surveyed in USCG Sector St. Petersburg .....	3
2 Maximum tidal-current velocities in the tidal inlets on the coastline of the USCG Sector St. Petersburg.....	10
3 Proposed ranking scale for the coastal inlets of the USCG Sector St. Petersburg, based on estimated degree of difficulty for containment and recovery .....	16
4 Amount of boom required for the potential protection strategies presented for the major tidal inlets in USCG Sector St. Petersburg – classified as protection and deflection boom .....	17
5 Amount of boom required for the potential protection strategies presented for USCG Sector St. Petersburg - classified as primary, secondary, and tertiary .....	19

## ACKNOWLEDGMENTS

This project was funded under a contract with the United States Coast Guard [CO, CG, BSU Miami (fp); Felicia R. Anderson. Contracting Officer]. Regional Response Team IV & Caribbean RRT Coordinator Earle McFarlane was the contract coordinator and his overview and constant assistance throughout the project is gratefully acknowledged. Brad Benggio, the NOAA Scientific Support Coordinator, with offices in Miami, also contributed to the success of the project in a number of ways.

Ground surveys of the original 37 inlets were carried out between 30 May and 4 June 1995. All of the protection strategies presented in the original publication document (Marine Spill Response Corporation/Florida Department of Environmental Protection, 1995) were arrived at collectively by a field team consisting of the following:

- Miles Hayes and Todd Montello, Coastal Geomorphologists – RPI
- Anita Wooldridge, Environmental Advisor – MSRC
- Fernando Martinez and Dave White, Marine Spill Responders – MSRC
- Chris Rossbach, Emergency Response Manager – State of Florida
- Jane Urquhart-Donnelly, Emergency Response Coordinator – State of Florida
- Tim McMullen, Emergency Response Coordinator – State of Florida

At RPI, Jacqui Michel is acknowledged for serving as project manager of the present activity, and Wendy Early and Jack Moore are acknowledged for sharing the responsibility of producing the final product.

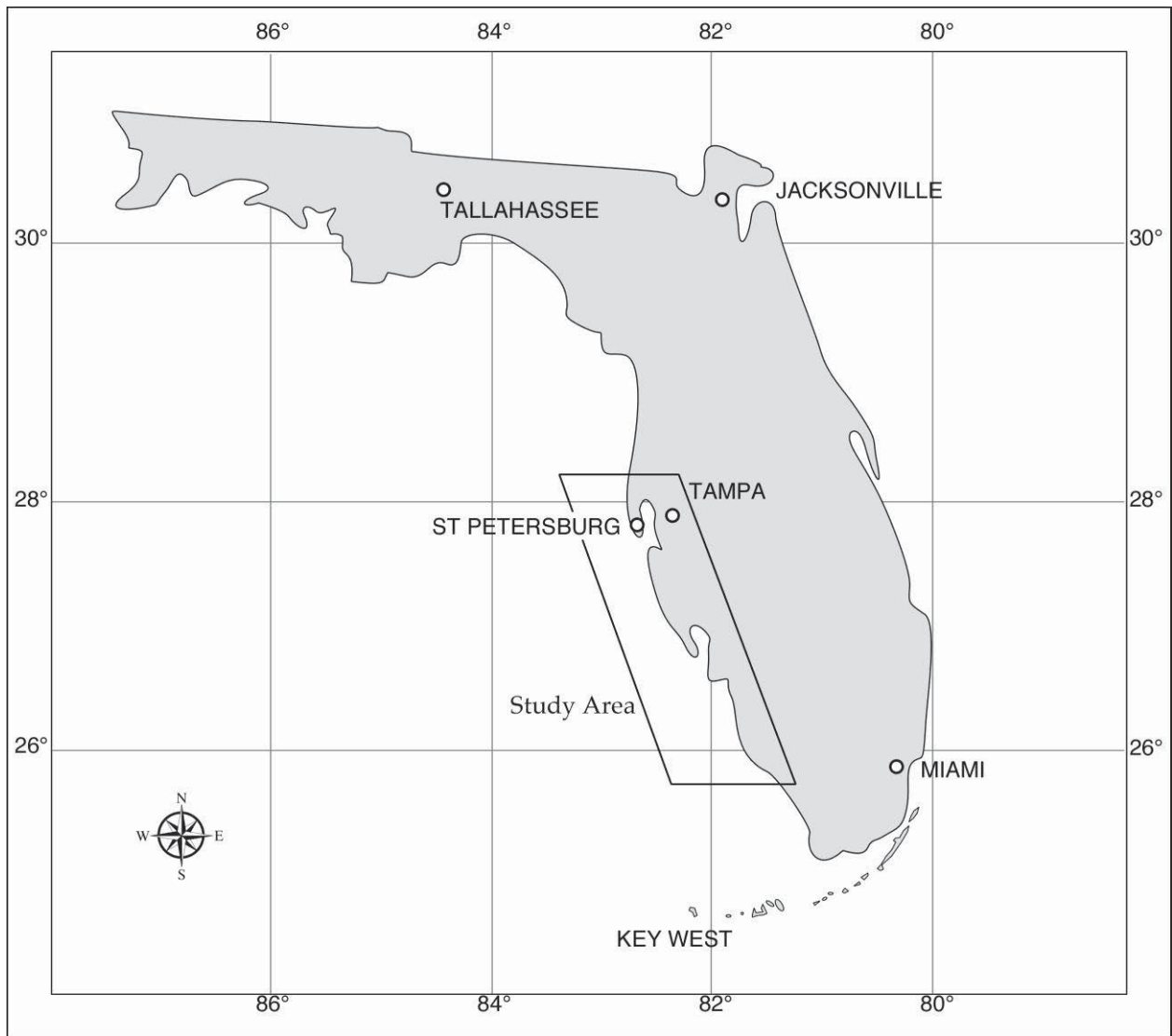
## INTRODUCTION

The coastal inlets of Florida are the focal points for designing strategies to protect the vital resources of the state's estuaries and bays, because it is through these conduits that oil spilled on open ocean waters could reach these resources. Therefore, this project under sponsorship of the U. S. Coast Guard is an update of an original study of Florida inlets carried out in 1994/1995 that was commissioned jointly by the Marine Spill Response Corporation (MSRC) and the Florida Department of Environmental Protection. The goal of this updated project is to present potential protection strategies (in the event of a large oil spill) for each major tidal inlet that occurs along the shore of USCG Sector St. Petersburg. Unlike the original project, which involved extensive field surveys (see Acknowledgments), this update relied on in-house study of much-improved vertical imagery (Microsoft Bing, Google Earth, etc.), as well as an abundance of oblique aerial photos (Microsoft Bing Pictometry, Google Street View, etc.).

These proposed protection strategies are based on our best professional judgment of what would work under average wave and tide conditions. The diagrams that accompany the proposed protection strategies are schematic representations of boom placement, collection points, anchor points, and skimmer locations. The symbols used to depict boom configurations and lengths are not necessarily shown to true scale. The actual length of boom segments will be determined by local conditions at the time of the spill. The proposed strategies should not be interpreted as the only workable protection scheme. Each spill will be time, place, and circumstance specific. Therefore, the strategy finally used to protect the inlet will have to be chosen at the time of the spill.

This discussion covers shoreline of USCG Sector St. Petersburg, which extends from Hurricane Pass (Hillsborough County) to Cape Romano in the south (see Figures 1 and 2). A total of 38 inlets, located on Figure 2, are treated in the discussion. Pinellas, Hillsborough, Manatee, Sarasota, Charlotte, Lee, and Collier Counties are covered in this volume.

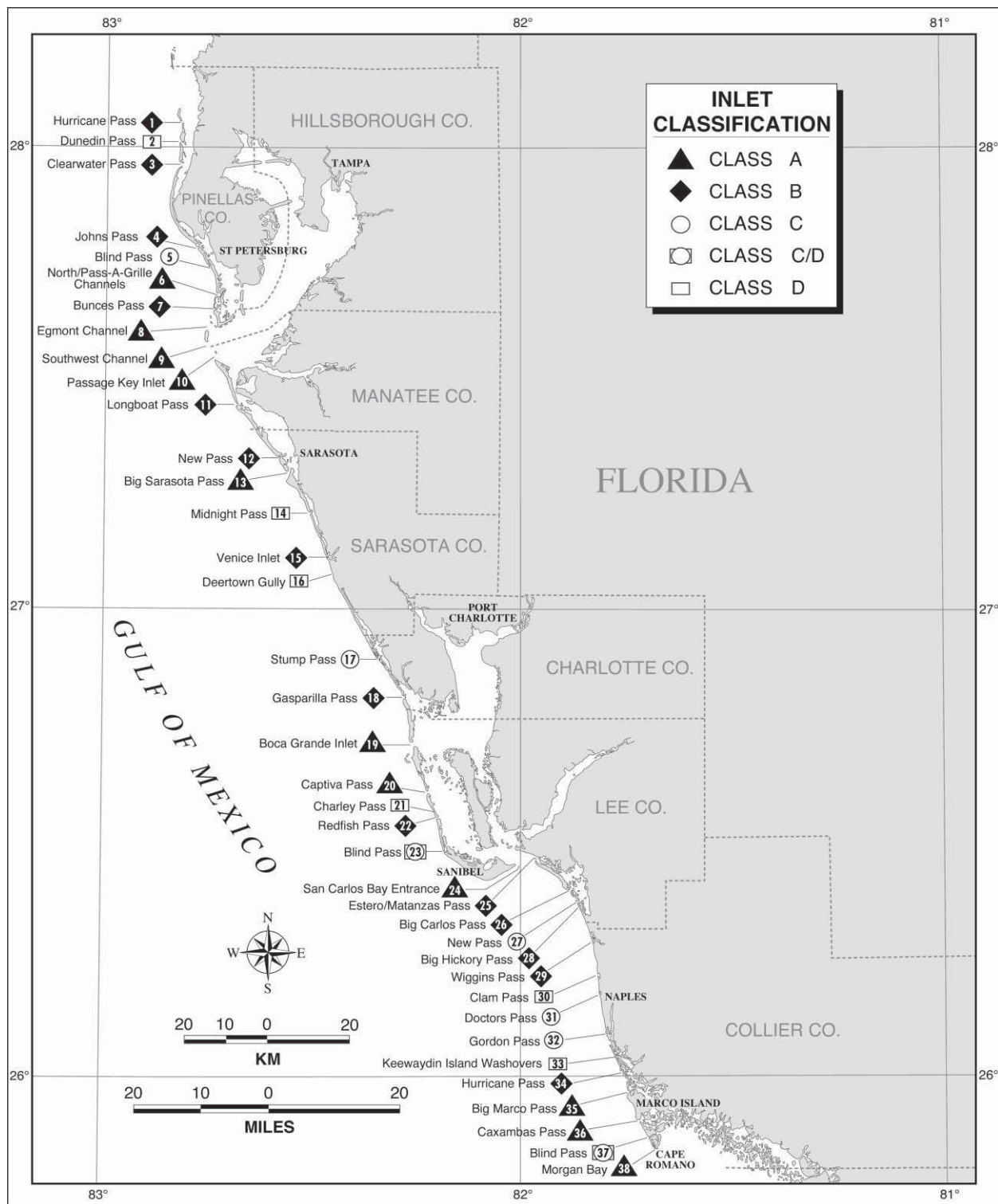
Hillsboro Inlet north of Miami was surveyed on 15-16 March 1994 by Hayes (RPI) and an MSRC/State of Florida field team. A protection strategy was devised that was field-tested on 19 April 1994. The finalized strategy created for Hillsboro Inlet during this project is presented in the discussion of USCG Sector Miami. It is important to point out that the results of the field test in Hillsboro Inlet, as well as the results of similar tests carried out elsewhere (e.g., on the New Jersey shore), verified the basic concepts used in preparing those strategies and encouraged us to use similar techniques for the other tidal inlets we investigated in Florida and in other states.



**FIGURE 1.** Area covered in this volume - the USCG Sector St. Petersburg.

**TABLE 1.** Inlets surveyed in USCG Sector St. Petersburg (see Figure 2).

INLET NUMBER/NAME	CLASS	INLET NUMBER/NAME	CLASS
1. Hurricane Pass (Pinellas Co.)	B	20. Captiva Pass	A
2. Dunedin Pass	D	21. Charley Pass	D
3. Clearwater Pass	B	22. Redfish Pass	B
4. Johns Pass	B	23. Blind Pass (Lee Co.)	C
5. Blind Pass (Pinellas Co.)	C	24. San Carlos Bay Entrance	A
6. North/Pass-A-Grille Channels	A	25. Estero/Matanzas Pass	B
7. Bunces Pass	B	26. Big Carlos Pass	B
8. Egmont Channel	A	27. New Pass (Lee Co.)	C
9. Southwest Channel	A	28. Big Hickory Pass	B
10. Passage Key Inlet	A	29. Wiggins Pass	B
11. Longboat Pass	B	30. Clam Pass	D
12. New Pass (Sarasota Co.)	B	31. Doctors Pass	C
13. Big Sarasota Pass	A	32. Gordon Pass	C
14. Midnight Pass	D	33. Keewaydin Is. Washovers	D
15. Venice Inlet	B	34. Hurricane Pass (Collier Co.)	B
16. Deertown Gully	D	35. Big Marco Pass	A
17. Stump Pass	C	36. Caxambas Pass	A
18. Gasparilla Pass	B	37. Blind Pass (Collier Co.)	C/D
19. Boca Grande Inlet	A	38. Morgan Bay	A



**FIGURE 2.** Inlets surveyed along the coast of southwest Florida in USCG Sector St. Petersburg.

This volume includes potential protection strategies for 38 tidal inlets in USCG Sector St. Petersburg. The proposed strategies emphasize flood-tidal conditions, because the basic assumption is that the strategy be designed to deal with spilled oil coming to the inlet from the open ocean. These proposed potential strategies are based on the information at hand on waves and tidal currents. Where such data are missing, inferences based on the geomorphology were used.

The following elements are included in the discussion of all of the individual inlets:

- Inlet summary sheet, which includes ranking (based on degree of difficulty of protection), brief summaries of principal resources at risk, a verbal description of the potential protection strategy, and other comments.
- Collection point information record, which includes a description of relevant information about each proposed collection point, such as GPS location, expected current velocities, shoreline type, and access, as well a digital image of the collection site with the protection strategy superimposed on it.

## TIDAL INLETS – GENERAL

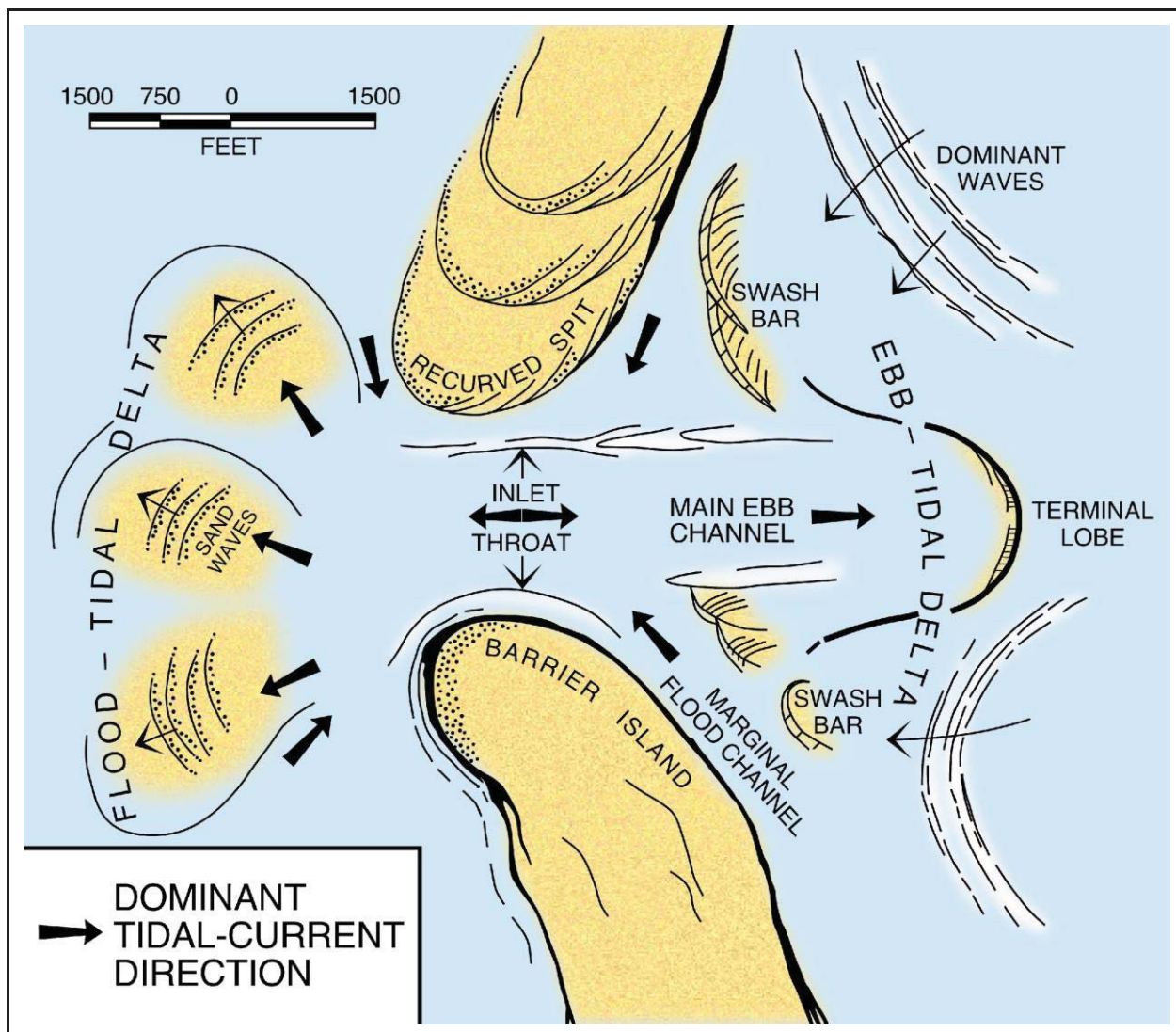
### Origin

In the classic sense, tidal inlets are channels that divide barrier islands into segments. They are subject to reversing tidal currents, and are conduits for the volume of water that flows in and out of the bay/estuarine system landward of the inlet during a tidal cycle, called the tidal prism. Tidal inlets on the sandy coastal plains of the eastern USA are usually formed by either of two mechanisms: (1) storm-generated scour channels (resulting inlets are usually shallow and prone to rapid migration); and (2) closure of estuarine entrances by growth of sand spits (resulting inlets usually deep and fixed in place).

### Morphology

As shown in Figure 3, a typical tidal inlet in a barrier island setting consists of a deep channel between the adjacent sand spits, called the inlet throat, and lobate-shaped sand bodies on either side of the inlet, called tidal deltas. The sand deposit on the landward side of the inlet, the flood-tidal delta, is typically composed of sheet-like lobes of sand with seaward-sloping ramps on their seaward sides covered by landward migrating waves of sand. The sand deposit on the seaward side of the inlet, the ebb-tidal delta, is built seaward by ebb-tidal currents, but waves mould the outer margins into an arcuate shape and build landward migrating intertidal bars (swash bars) on the delta surface. The tidal flow on the ebb-tidal delta is horizontally segregated, with the main ebb channel, which usually projects perpendicular to shore off the inlet throat, being dominated by ebb-tidal currents. Shallower, flood-dominant channels (marginal flood channels) flank both sides of the ebb-tidal delta (Figure 3). The marginal flood channels are important in oil-spill response because the first waters to enter the inlet during the rising tide flow along these channels, even as residual ebb-tidal currents are flowing out of the main ebb channel. This allows for a period of time (one hour or so) when any oil heading landward would be moving only through the marginal flood channels, during which time it could possibly be diverted to the adjacent sand beach, rather than allowing it to enter the inlet and the highly sensitive bay/estuary behind it.





**FIGURE 3.** General model showing the morphological components of a typical tidal inlet.

## TIDAL INLETS – USCG SECTOR ST. PETERSBURG

Unlike the east coast of Florida, where most of the tidal inlets have been modified significantly by man, only five inlets on the southwest coast are controlled by a set of two jetties. These inlets are – Clearwater Pass, Blind Pass (Pinellas Co.), Venice Inlet, Doctors Pass, and Gordon Pass. Six of the inlets have a jetty on only one side and five others have man-made shore protection structures (seawalls, riprap, etc.) along at least one shoreline of the inlet. Nineteen of the inlets are in a completely natural state, except for aperiodic dredging activities in some instances. Two of the inlets studied in 1994-95, Dunedin Pass and Midnight Pass, had been closed recently by natural processes, though Davis *et al.* (1987) suggested that the closing of Midnight Pass was the result of dredging in the Intracoastal Waterway.

Meaningful tidal current information on the tidal inlets of southwest Florida is relatively scarce. Table 2 summarizes current data taken from the NOAA (1995) Tidal Current Tables and two Florida Sea Grant reports [Meta, Jones, and Adams (1976); Jones (1980)]. We have current data for only 18 of the inlets, one of which closes from time to time (Midnight Pass). As the table shows, maximum tidal current velocities of between one and two knots are common in many of the inlets. Higher velocities are to be expected during conditions of wind-assisted flows. Velocities up to 3.0 knots have been measured in Big Hickory Pass. Also, our field team observed ebb current velocities up to 3.0 knots in Wiggins Pass on 2 June 1995.

The longshore currents generated by wave action are very complex along this shoreline. The inferred longshore sediment transport directions plotted on Figure 4, indicators of prevailing longshore current directions, are based on our interpretation of geomorphological features of the tidal inlets, such as the presence of recurved spits, inlet offsets, and sand fillets behind jetties and groins. The following trends are apparent (from north to south; see Figure 4):

- 1) Sand is transported to the north and to the south away from a headland in central Pinellas County.
- 2) The large inlets of the mouth of Tampa Bay create an apparent null point in longshore sediment transport, with tidal currents perpendicular to shore predominating.
- 3) There is a prevailing north to south shoreline sediment transport trend from just south of the entrance to Tampa Bay to the south end of Sanibel Island.

- 4) A reversal of transport back to the north occurs from the entrance to San Carlos Bay to about 20 miles south (between Clam and Doctors Passes).
- 5) From Doctors Pass south, the longshore sediment transport is again predominantly to the south, with some complex wave refraction patterns occurring along the shore of Captiva Island.

The trends noted above are not necessarily consistent from year to year. For example, Davis *et al.* (1987) found that Midnight Pass migrated 1,230 feet to the north between 1942 and 1958 and 1,400 feet to the south between 1948 and 1958, indicating a major, long-term reversal in longshore sediment transport direction in that area. The present geomorphic indicators (Figure 4) show a prevailing north to south transport along that section of the shoreline.

Because of complexities related to their drainage networks, tidal inlets in this USCG Sector can be ebb-dominated, flood-dominated, or neutral with respect to the sediment transport capacities of the inlets. Ebb-dominated inlets have larger ebb-tidal deltas (Figure 3) than flood-tidal deltas, and vice versa. Neutral inlets, which are fairly rare, have equal sized flood- and ebb-tidal deltas. Based on an examination of the geomorphology of the inlets of this USCG Sector (carried out in 1995), 21 of the 35 open inlets were ebb dominant, 10 were flood dominant, 3 were neutral, and one could not be interpreted. The prevalence of ebb dominance in these inlets probably results from the excessive tidal prisms created by the large bays in the area, plus other as yet unstudied factors.

With so many of the inlets still in their natural state, they can be expected to change rapidly, especially during storms. And they certainly have. The inlets in this USCG Sector showed much greater changes than those in the other three USCG Sectors under study. We noted in our earlier report (Marine Spill Response Corporation/Florida Department of Environmental Protection, 1995) that at least two of the inlets had been formed during the past 150 years by hurricanes — Johns Pass in 1848 and Midnight Pass in 1921 (Davis *et al.*, 1987). [NOTE: It is important to point out that the eye of a major hurricane, Hurricane *Charley*, passed across the shoreline of this USCG Sector near Coya Costa, just north of Captiva, on 13 August 2004. This hurricane caused major changes of some of the inlets under study, as well as caused significant shore erosion in some areas. In fact, it created a new one called Charley Pass (in Lee County) that is included in this discussion.]

**TABLE 2.** Maximum tidal current velocities (in knots) in the tidal inlets in the USCG Sector St. Petersburg. Unless otherwise indicated, the data are from the NOAA (1995) Tidal Current Tables.

Inlet Name	Maximum Flood (kts)	Maximum Ebb (kts)
Clearwater Pass	1.3	1.1
Johns Pass	2.0	1.5
* Blind Pass (Pinellas Co.)	1.5	1.4
Bunces Pass	1.0	1.0
Egmont Channel	1.3	1.3
Southwest Channel	0.8	1.2
Longboat Pass	1.8	1.6
New Pass (Sarasota Co.)	1.6	1.0
Big Sarasota Pass	1.5	1.0
† Midnight Pass	1.8	1.4
Venice Inlet	1.1	0.9
Gasparilla Pass	1.0	1.1
*** Boca Grande Inlet	3.6	3.6
*** Captiva Pass	2.9	2.5
*** Redfish Pass	1.7	1.4
# Blind Pass (Lee Co.)	2.5	2.6
*** San Carlos Bay Entrance	1.7	2.0
** Big Carlos Pass	1.5	1.6
** New Pass (Lee Co.)	1.5	1.3
** Big Hickory Pass	current velocities from 1.8-3.0 kts	

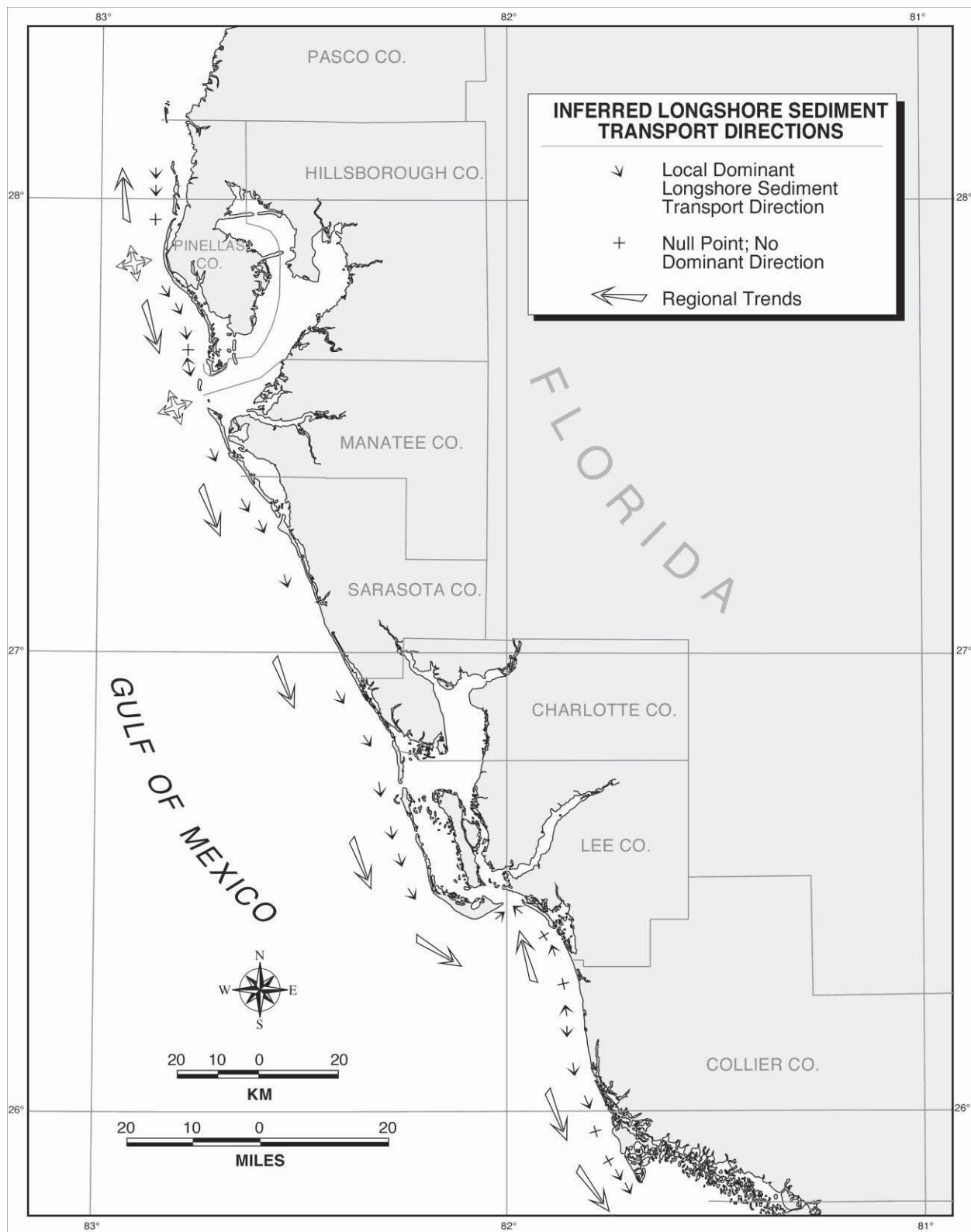
\* Meta, Jones, and Adams (1976)

† Sometimes closed

\*\* Jones (1980)

\*\*\* NOAA NOS predicted currents 2012

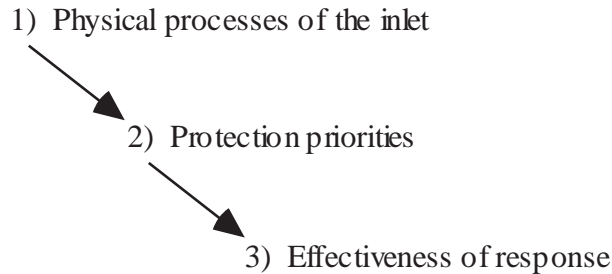
# Lee County Natural Resources Division Blind Pass Monitoring, November 2009



**FIGURE 4.** Inferred longshore sediment transport patterns on the southwest coast of Florida, based on interpretations of the geomorphology of the tidal inlets.

## INLET PROTECTION STRATEGIES USED

As discussed above, the field team that devised the original protection strategies was diverse, with backgrounds in geomorphology, environmental concerns, and operational experience. In making a decision on a protection strategy, the following hierarchy of controls dictated the final strategy:



If the waves were assumed to be too large or tidal currents too strong for booms to function in certain parts of the inlet, the strategy called for fall back to more protected sites. Information from a number of sources dictated which parts of the bay system landward of the inlet required priority protection. Typically, most of the inlets contained sensitive mangroves and tidal flats. Important human resources and archaeological sites are other examples of areas needing protection. The potential effectiveness of response was also given careful consideration. The probable effectiveness of a response would be controlled by such factors as access, particularly to collection points, types of equipment required, and logistics support required.

Several additional assumptions affected the final decision on a particular protection strategy:

- When oil is on the water, the first priority is containment and the second is recovery.
- Following guidelines established by the U.S. Coast Guard Strike Team, we conclude that deflection booms are the best means of controlling oil in the vicinity of tidal inlets because of the common occurrence of tidal currents greater than 0.7 knots, the threshold velocity for entrainment of oil past a boom set at 90° to the current (see diagram in Figure 5).
- The preferred method of recovery is to divert oil to a collection point along shore where the oil can be collected from the water surface. Trapping oil against vertical pilings, concrete seawalls, or protection boom is desirable. It is also possible to use as collection points fine- to medium-grained sand beaches, which are easily cleaned and penetration of oil into the sediment is minimal. Coarse-grained sand, gravel, and coarse shell beaches, riprap, tidal

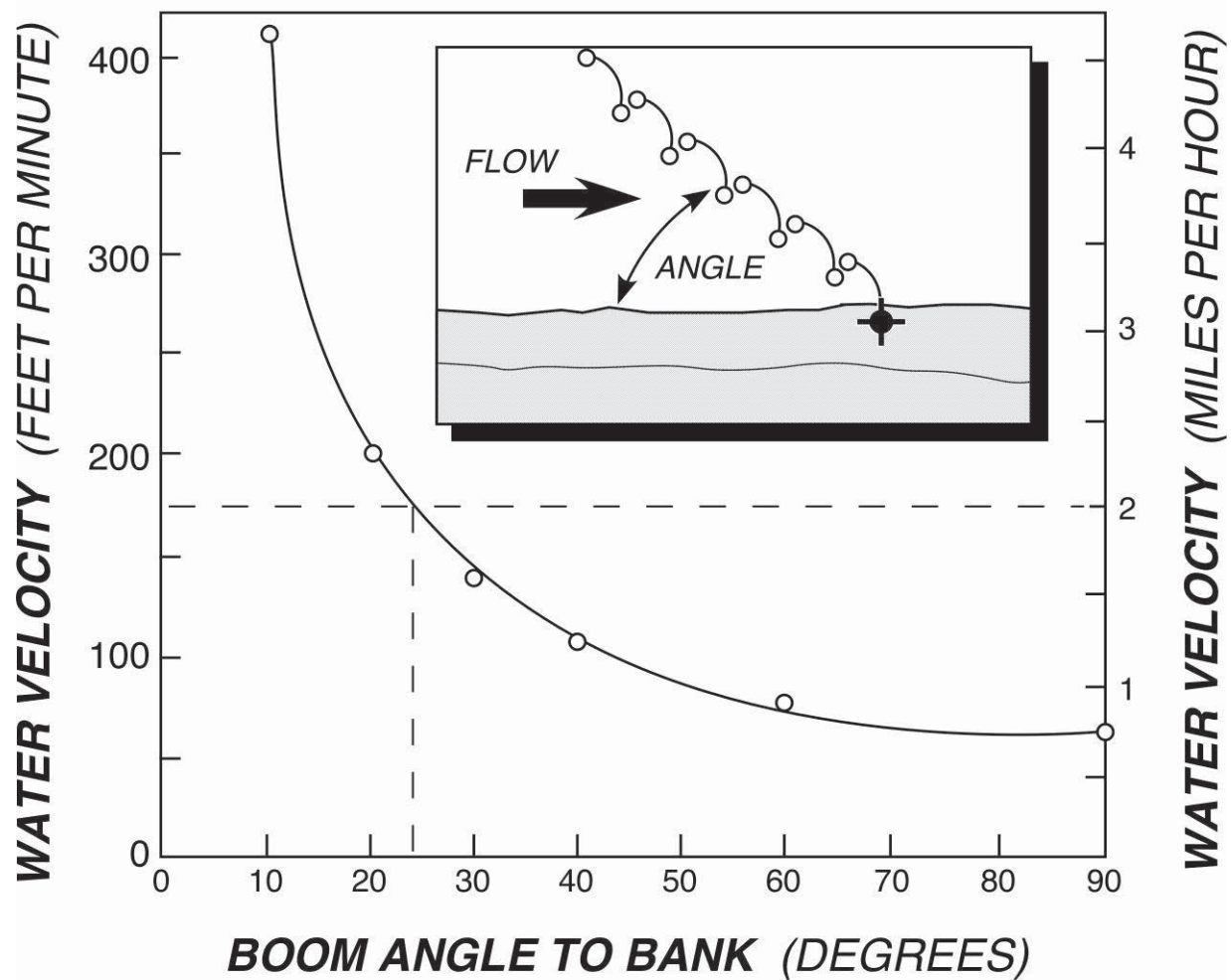


flats, marshes and mangroves should not be used as collection points except as a last resort.

- Entrainment of the deflection booms will occur, unless the angle of deployment is extremely small, if the current velocity exceeds about 3.5 knots. Large waves also may cause both entrainment and splashover, depending upon the physical configuration of the boom.
- The protection strategies depicted relate only to spills located seaward of the inlet, and the strategy recommended applies only to flood-tide conditions.

An example of how one of the protection strategies completed in October 2011, Longboat Pass, is presented graphically in Figure 6. The first step recommended is to divert oil entering the inlet through the marginal flood channels to collection points along the outer beaches (collection points 1 and 2). Next, erect a Christmas tree configuration of deflection boom with the lead anchor point being in the main inlet channel parallel with the outer beach shoreline. The north limb of this Christmas tree would divert oil to the sand beach on the south end of Anna Maria Island (collection point 3), and the south limb would divert oil to the sand beach on the north end of Longboat Key (just west of where the Route 789 Bridge across Longboat Pass meets the shore; collection point 8). Position the lead anchor point of another Christmas tree of deflection boom at the Route 789 Bridge that is designed to prevent oil from reaching the large and well-defined flood-tidal delta and the mangroves on Jewfish Key. The north limb of this Christmas tree would divert oil to a sand beach on the east shore of Anna Maria Island (collection point 4), and the south limb would divert oil to another sand beach on the northeast end of Longboat Key (collection point 6). About 400 yards north of collection point 4, extend a line of deflection boom out into the channel that would divert oil to the sand beach at collection point 5. About 300 yards south of collection point 6, extend a line of deflection boom all the way across the adjoining channel to Jewfish Key that would divert oil to the sand beach at collection point 7. Place a line of protection boom around the north end of Longboat Key east of collection point 8 in order to keep oil out of that zone of tidal flats and mangroves (in a side channel). Also place protection boom all the way around Jewfish Key to keep oil out of the abundant mangroves on that island

## BOOM ANGLES FOR VARIOUS CURRENTS



(Courtesy of USCG)

**FIGURE 5.** Angles to set booms to avoid entrainment of the oil based on water current velocity in miles per hour (courtesy of U.S. Coast Guard Strike Team). THE SYMBOLS USED TO DEPICT BOOMS ARE NOT SHOWN TO TRUE SCALE. The length of the segments of boom to be used will be determined by local conditions.





**FIGURE 6.** Flood-tide protection strategy recommended for Longboat Pass.

## INLET CLASSIFICATION

After much deliberation and discussion, a decision was made to classify the coastal inlets of Florida on the basis of the degree of difficulty for containment and recovery of spilled oil once it reaches the inlet. This ranking, which is summarized in Table 3, is on a scale that ranges from A to D, with the inlets classed as A's being the most difficult, and, consequently, the most expensive ones to deal with. The occurrence of the different inlets, by class, is illustrated in Figure 2 (see also Table 1). In USCG Sector St. Petersburg , 11 inlets were classified as A, 14 as B, 6 as C, 6 as D, and 1 as C/D.

**TABLE 3.** Proposed ranking scale for the tidal inlets of USCG Sector St. Petersburg, based on estimated degree of difficulty for containment and recovery.

- 
- A. Extremely difficult because of large size and extreme physical conditions. Large expense because of magnitude of resources to protect.
  - B. Difficult because it is subject to strong tidal currents and/or large waves.
  - C. Less difficult because of small tidal prism and relatively weak tidal currents.
  - D. Can be closed with sediment dike under normal adverse conditions.
-

## BOOM REQUIREMENTS

Approximate measurements of the yards of boom required for the strategies designed for the tidal inlets in USCG Sector St. Petersburg are given in Table 4. The totals given in this table include all of the back-up boom configurations shown on the strategy diagram. The amount of boom was also classified as to whether it constituted a part of the first line of defense (called primary boom), the second line of defense (i.e., some oil has to pass by the primary boom before it reaches the second line of defense; called secondary boom), or the third or more lines of defense (called tertiary boom). By definition, the boom systems that constitute the first line of defense assures that there are no “barn doors left open” for the oil to get through without somehow entraining the first lines of boom. As conditions worsen, such as the sudden occurrence of strong winds, big waves, and wind tides, the probability of entrainment increases, which creates the need for the back-up boom. Table 5 lists the amount of boom suggested for each of the tidal inlets in USCG Sector St. Petersburg based on this classification (i.e., primary, secondary, and tertiary).

**TABLE 4.** Amount of boom required for the potential protection strategies presented for the major tidal inlets in USCG Sector St. Petersburg – classified as deflection and protection boom. Refer to Figure 2 for site names and locations.

Inlet	Length in Yards			
	Class	Deflection	Protection	Grand Total
Hurricane Pass (Pinnellas)	B	4,542		4,542
Dunedin Pass	D		290	290
Clearwater Pass	B	10,974	3,830	14,804
Johns Pass	B	5,300	8,576	13,875
Blind Pass (Pinnellas)	C	1,977		1,977
North Channel	A	6,666	1,211	7,877
Bunces Pass	B	8,868	716	9,583
Egmont and Southwest Channel	A			
Passage Key Inlet	A	4,037		4,037
Longboat Pass	B	4,319	3,140	7,459
New Pass (Sarasota)	B	3,252	676	3,928
Big Sarasota Pass	A	4,778	936	5,714
Midnight Pass	D			
Venice Inlet	B	3,012	704	3,716
Deertown Gully	D			
Stump Pass	C	6,520		6,520

**TABLE 4.** Continued.

Length in Yards				
Inlet	Class	Deflection	Protection	Grand Total
Gasparilla Pass	B	6,912	2,404	9,315
Boca Grande Inlet	A	2,263		2,263
Captiva Pass	A	3,844	1,129	4,973
Charley Pass	D			
Redfish Pass	B	3,842	737	4,579
Blind Pass (Lee)	C	1,066		1,066
San Carlos Bay Entrance	A	9,194	2,723	11,917
Estero and Matanzas Pass	B	6,973	3,166	10,139
Big Carlos Pass	B	5,415	78	5,493
New Pass (Lee)	C	2,763	207	2,970
Big Hickory Pass	B	1,639	1,723	3,361
Wiggins Pass	B	2,442	410	2,852
Clam Pass	D			
Doctors Pass	C	1,460	391	1,851
Gordon Pass	C	2,328	705	3,033
Keewaydin Island Washover	D			
Hurricane Pass (Collier)	B	4,895	1,353	6,248
Big Marco Pass	A	7,202	1,878	9,080
Caxambas Pass	A	6,446	3,367	9,812
Blind Pass (Collier)	C/D	2,450		2,450
Morgan Bay	A	286		286
<b>Grand Total</b>		<b>135,663</b>	<b>40,348</b>	<b>176,011</b>

**TABLE 5.** Amount of boom required for the potential protection strategies presented for USCG Sector St. Petersburg - classified as primary, secondary, and tertiary. Refer to Figure 2 for site names and locations.

Inlet	Length in Yards				
	Class	Primary	Secondary	Tertiary	Grand Total
Hurricane Pass (Pinnellas)	B	4,129	412		4,542
Dunedin Pass	D	203	290		494
Clearwater Pass	B	3,272	5,541	5,991	14,804
Johns Pass	B	2,170	1,013	10,692	13,875
Blind Pass (Pinnellas)	C	869	198	910	1,977
North Channel	A	3,250	2,821	1,805	7,877
Bunces Pass	B	4,309	5,842		10,152
Egmont and Southwest Channel	A				
Passage Key Inlet	A	4,037			4,037
Longboat Pass	B	1,815	2,146	3,498	7,459
New Pass (Sarasota)	B	1,538	1,757	633	3,928
Big Sarasota Pass	A	3,792	1,728	194	5,714
Midnight Pass	D	48			48
Venice Inlet	B	1,364	853	1,499	3,716
Deertown Gully	D	27			27
Stump Pass	C	2,068	4,452		6,520
Gasparilla Pass	B	4,878	4,437		9,315
Boca Grande Inlet	A	2,263			2,263
Captiva Pass	A	3,440	1,533		4,973
Charley Pass	D	426			426
Redfish Pass	B	1,853	2,310	415	4,579
Blind Pass (Lee)	C	934	132		1,066
San Carlos Bay Entrance	A	11,582	336		11,917
Estero and Matanzas Pass	B	8,937	1,203		10,139
Big Carlos Pass	B	3,813	1,988		5,801
New Pass (Lee)	C	1,118	1,971		3,089
Big Hickory Pass	B	1,079	793	1,680	3,552
Wiggins Pass	B	1,114	1,346	392	2,852
Clam Pass	D	154			154
Doctors Pass	C	760	411	680	1,851
Gordon Pass	C	815	1,079	1,140	3,033
Keewaydin Island Washover	D	84			84



**TABLE 5.** Continued.

Length in Yards					
<b>Inlet</b>	<b>Class</b>	<b>Primary</b>	<b>Secondary</b>	<b>Tertiary</b>	<b>Grand Total</b>
Hurricane Pass (Collier)	B	2,705	1,869	1,673	6,248
Big Marco Pass	A	7,320	2,180	518	10,018
Caxambas Pass	A	5,576	2,899	1,457	9,932
Blind Pass (Collier)	C/D	2,308	141	442	2,891
Morgan Bay	A	1,040			1,040
<b>Grand Total</b>		<b>95,091</b>	<b>51,682</b>	<b>33,620</b>	<b>180,393</b>

## EXPLANATION OF TERMS USED

The following provides explanations and definitions for the terminology used in the discussion of protection strategies for the 38 major tidal inlets surveyed in USCG Sector St. Petersburg.

### Beach Morphology

The typical sand beach morphology found in much of the Florida shoreline is illustrated in Figure 7. Sand beaches are normally planed off flat during storms.

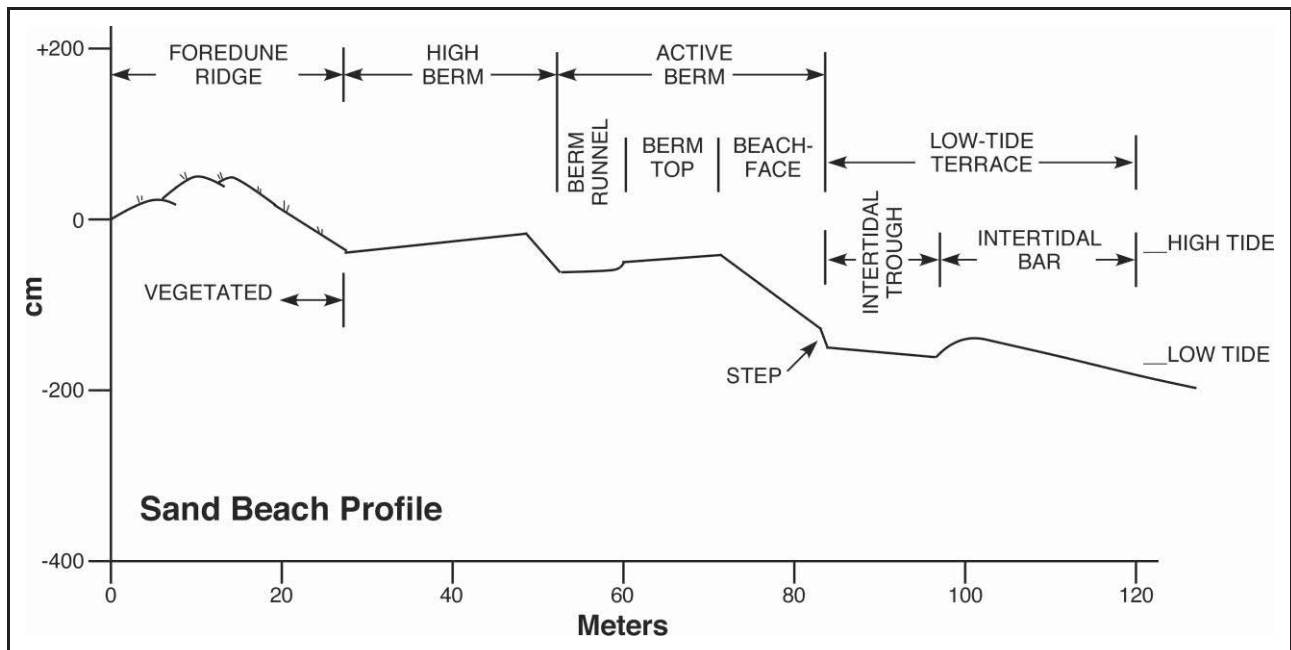


FIGURE 7. Nomenclature used for the sand beaches of Florida.

### Coastal Sediments

Coastal sediments are classified into three general categories according to the dominant size of the individual clasts: (1) gravel, mean size greater than 2.0 mm; (2) sand, mean size between 0.0625 and 2.0 mm; and (3) mud, mean size less than 0.0625 mm. As shown in Figure 8, the general classes may be subdivided further.

General Class	Wentworth Scale (Size Description)		Grain Diameter d (mm)
GRAVEL	Boulder		256.0
	Cobble		64.0
	Pebble		4.0
	Granule		2.0
SAND	Sand	Very Coarse	1.0
		Coarse	0.5
		Medium	0.25
		Fine	0.125
		Very Fine	0.0625
			0.00391
MUD	Silt		0.00024
	Clay		
	Colloid		

**FIGURE 8.** Grain size scale (after Wentworth, 1922).

### Other Commonly Used Terms

Some additional terms that are used in the descriptions of the tidal inlets of Florida are defined as follows:

**Active berm.** The most seaward and most recently activated berm.

**Anchor point.** Stabilized position to which the line of booms is attached (e.g., concrete or metal monument, the bottom of a channel, etc.).

**Berm** (on a beach). A wedge-shaped sediment mass built up along the shoreline by wave action. Typically has a relatively steep seaward face and a gently sloping



landward surface. A sharp crest (berm crest) usually separates the two oppositely sloping planar surfaces on the top of the berm. There are frequently two berms present, a high berm, the most landward, oldest berm, and an active berm, the most seaward and most recently activated berm (see Figure 6).

**Breakwater.** A structure protecting a shore area, harbor, anchorage, or basin from waves. It is typically exposed to the water on both sides of the structure (W.F. Baird, pers. Comm.).

**Bypass system.** Complex arrangement of dredges, pumps, pipes, etc. used to move sand from the updrift to the downdrift sides of a tidal inlet.

**Collection point.** Zone along the shoreline where oil is directed so it can be collected from water surface or cleaned up. An example would be a hard-packed, fine-grained sand beach from which oil contamination can be readily recovered.

**Deflection boom.** A floating barrier designed to direct the flow of oil to a suitable collection point so that it can be recovered. The boom is set at an oblique angle to the primary current flow direction. The angle is dependent on the velocity of the currents (see Figure 4).

**Ebb-tidal delta.** Lobate accumulation of sand at the seaward margin of the primary entrance channel to a tidal inlet. Formed as a result of deceleration of ebb-tidal currents. Modified by waves (see Figure 3).

**Flood-tidal delta.** Lobate accumulation of sand at the seaward margin of the primary entrance channel to a tidal inlet. Formed as a result of deceleration of flood-tidal currents (see Figure 3).

**Foredune ridge.** An amalgamated deposit of dune sand that forms a distinct ridge landward of the high berm or back-beach. Usually vegetated (see Figure 6).

**Groin.** A shore protection structure built perpendicular to the shoreline, intended to trap littoral drift and retard erosion of the shore (W.F. Baird, pers. comm.).

**Harbor.** Any protected water area affording a place of safety for vessels (W.F. Baird, pers. comm.).

**Hinge point.** An anchored position in the line of deflection boom at which a major change in the angle of the line of boom is affected.

**Inlet throat.** The deepest portion of the channel that connects the ocean to the mainland water body in a tidal inlet complex. Deep scour is the result of the accelerated flow of ebb- and flood-tidal currents in the constricted entrance channel.

**Jetty.** A structure extending into a body of water, designed to provide access to an onshore berth (W.F. Baird, pers. comm.).

**Knot.** A unit of speed in navigation equal to one nautical mile per hour (1.852 km/h) (W.F. Baird, pers. comm.).

**Longshore sediment transport.** Sediment moved on the beach and in the nearshore zone by currents generated by breaking waves.

**Main ebb channel.** Deep channel through ebb-tidal delta, scoured by ebb-tidal currents, that projects seaward directly away from the inlet throat (see Figure 3).

**Marginal flood channel.** Component of ebb-tidal delta resulting from horizontal segregation of tidal current flow. An ebb-tidal delta usually has two marginal flood channels which are oriented obliquely to the main ebb channel and roughly parallel to the adjacent beaches (see Figure 3).

**Nearshore bar.** A subtidal bar that occurs in the nearshore zone. It typically forms seaward of the break-point of the waves.

**Pile.** A heavy section of concrete, timber, or metal driven into the seabed, to serve as a support or protection (W.F. Baird, pers. comm.).

**Port.** A place where vessels may discharge or receive cargo. It may be the entire harbor, including its approaches and anchorages, or only the commercial section where the quays, wharves, facilities for transfer of cargo, docks, and repair shops are situated (W.F. Baird, pers. comm.).

**Protection boom.** Boom designed to keep oil away from some feature, such as a fringing salt marsh. Not designed specifically for deflection or collection.

**Refraction.** The process by which the direction of propagation of a wave is altered, as a result of varying bottom depths under a wave crest. Refraction tends to align the wave more closely with the bottom contours (W.F. Baird, pers. comm.).

**Riprap.** A layer of randomly placed cobble- to boulder-sized fragments of rock designated to prevent erosion or scour of a structure, embankment, or foundation (W.F. Baird, pers. comm.).

**Salt-water marsh.** Growth of herbaceous plants subject to inundation of salt water during a tidal cycle.

**Seawall.** A structure separating land and water areas, designated primarily to prevent erosion and other damages due to wave action (W.F. Baird, pers. comm.).

**Skimmer.** Mechanical device designed to float on water and remove oil or oily water mixtures from the water surface.

**Spit.** Linear inter- or supratidal sediment body built by wave action. Typically composed of multiple curving beach ridges that project away from the dominant wave approach direction.

**Tidal channel.** Permanent channel located within the intertidal zone that serves as a conduit for the rising and falling tide. These channels usually migrate slowly.

**Tidal prism.** The total volume of water that flows into and out of a bay, harbor, or estuary during one tidal cycle.

**Tide.** The periodic rising and falling of the water that results from gravitational attraction of the Moon and Sun and other astronomical bodies acting upon the rotating Earth (W.F. Baird, pers. comm.).

**Water level** (frequently referred to as “still water level”). The elevation that the surface of the water would assume if no wave action were present (W.F. Baird, pers. comm.).

## REFERENCES

- Davis, R.A., Jr., Hine, A.C., and Bland, M.J., 1987, Midnight Pass, Florida: Inlet stability due to man-related activities in Little Sarasota Bay: Coastal Sediments '87, New Orleans, Louisiana, pp. 2062-2077.
- Dombrowski, M.R. and Mehta, A.J. 1993, Inlets and Management Practices: Southeast coast of Florida: Jour. of Coastal Res., V.18, pp.29-57.
- Hoffmeister, J.E. and Multer, H.G., 1968, Geology and origin of the Florida Keys: Bull. Geol. Soc. Am., 79:1487-1501.
- Hunt, S.D., 1980, Port Canaveral Entrance, Glossary of Inlets Report No. 9, Report No. 39, Florida Sea Grant Program, University of Florida, Gainesville, Fla., 50 pp.
- Jones, C.P., 1980, Big Hickory Pass, New Pass, and Big Carlos Pass, Glossary of Inlets Report No. 8, Report No. 37, Florida Sea Grant Program, University of Florida, Gainesville, Florida, 46 pp.
- Jones, C.P. and Mehta, A.J., 1978, Ponce de Leon Inlet, Glossary of Inlets Report No. 6, Report No. 23, Florida Sea Grant Program, University of Florida, Gainesville, Fla., 57 pp.
- Marine Spill Response Corporation/Florida Department of Environmental Protection, 1995, Tidal inlet protection strategies for oil-spill response, Southwest Coast of Florida: Marine Spill Response Corporation and the Florida Department of Environmental Protection, Prepared by Research Planning, Inc., Columbia, South Carolina.
- Marine Spill Response Corporation/Florida Department of Environmental Protection, 1994a, Tidal inlet protection strategies for oil-spill response, Vol. I. East Coast of Florida: Marine Spill Response Corporation and the Florida Department of Environmental Protection, Prepared by Research Planning, Inc., Columbia, South Carolina.
- Marine Spill Response Corporation/Florida Department of Environmental Protection, 1994b, Tidal inlet protection strategies for oil-spill response, Vol. II. Florida Keys: Marine Spill Response Corporation and the Florida Department of Environmental Protection, Prepared by Research Planning, Inc., Columbia, South Carolina.

- Mehta, A.J. and Jones, C.P., 1977, Matanzas Inlet – Glossary of Inlets Report #5, Florida Sea Grant Program Report No. 21, Coastal and Oceanographic Engineering Laboratory, University of Florida, Gainesville, FL., 79 pp.
- Mehta, A.J., Adams, W.D., and Jones, C.P., 1976 Sebastian Inlet Glossary of Inlets Report #3, Florida Sea Grant Program Report No. 14.
- Mehta, A.J., Jones, C.P., and Adams, W.D., 1976, Johns Pass and Blind Pass, Glossary of Inlets Report No. 4, Report No. 18, Florida Sea Grant Program, University of Florida, Gainesville, Florida, 66 pp.
- NOAA, 1995, Tidal Current Tables 1995 – Atlantic Coast of North America, U.S. Department of Commerce, National Ocean Service, National Oceanic and Atmospheric Administration, Rockville, Maryland.
- NOAA, 1994, Tidal Current Tables 1994 – Atlantic Coast of North America, U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Rockville, Md.
- NOAA, 1989, United States Coastal Pilot, Atlantic Coast and Cape Henry to Key West, 26<sup>th</sup> Edition, U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Rockville, Maryland.
- Papy, F., 1992, Cruising guide to the Florida Keys: Colonial Press, Miami, Fla., 262 pp.
- Paschure, T.M., 1982, St. Marys Entrance, Glossary of Inlets Report No. 11, Report No. 44, Florida Sea Grant program, University of Florida, Gainesville, Fla., 46 pp.
- Walton, T.L., 1974a, St. Lucie Inlet, Glossary of Inlets Report No. 1, Report No. 2, Florida Sea Grant Program, University of Florida, Gainesville, Fla., 49 pp. plus appendices.
- Walton, T.L., 1974b, Fort Pierce Inlet, glossary of Inlets Report No. 2, Report No. 3, Florida Sea Grant Program, University of Florida, Gainesville, Fla., 39 pp. plus appendices.
- Wentworth, W.C., 1922, Grade and class terms for clastic sediments: Jour. Geology, Vol. 30, pp. 377-392.

# INLET SUMMARY SHEET

SITE: Hurricane Pass, Pinellas County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 31 May 1995; 0830

[Low @ 0725 (+0.96); Dunedin, St. Joseph Sound]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, including the Snowy plover, American oyster catcher, and Wilson's plover; wading birds, including the Great blue heron, Great egret, Snowy egret, Black crowned night heron, Cattle egret, Tricolor heron, and White ibis; and seabirds. Marina facilities, boats, seawalls, revetments, docks, etc. along the St. Joseph Sound shoreline. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

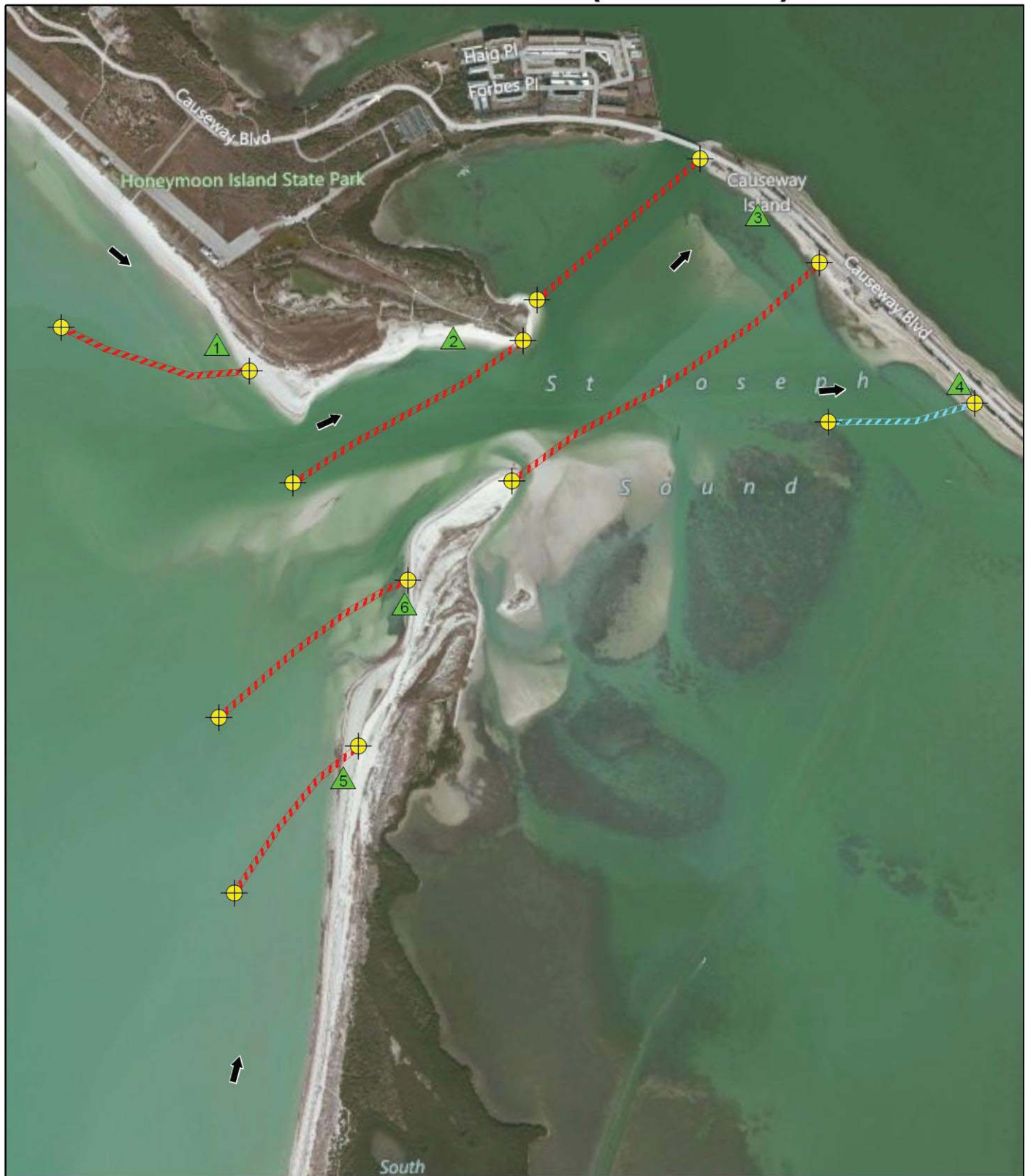
Divert oil entering the inlet through the two marginal flood channels to collection points along the outer sand beaches (CPs 1, 5, and 6). Extend a line of deflection boom obliquely across the inlet entrance to divert oil to the beach on the north side of the inlet (CP2). Place two lines of deflection boom straight parallel with the main inlet channel to the fine-grained sand beach on Causeway Island (CP3). Place another line of deflection boom across the channel southeast of CP3 to also divert oil to the fine-grained sand beach on Causeway Island (CP4).

OTHER COMMENTS:

During the field survey, signs warning the public of hazardous currents in the nearshore zone were observed.



# Hurricane Pass (Pinellas)



© Bing Imagery



1:14,000



## Collection Point Description

Inlet: Hurricane Pass, Pinellas County, Florida

Site Name: Collection Point #1

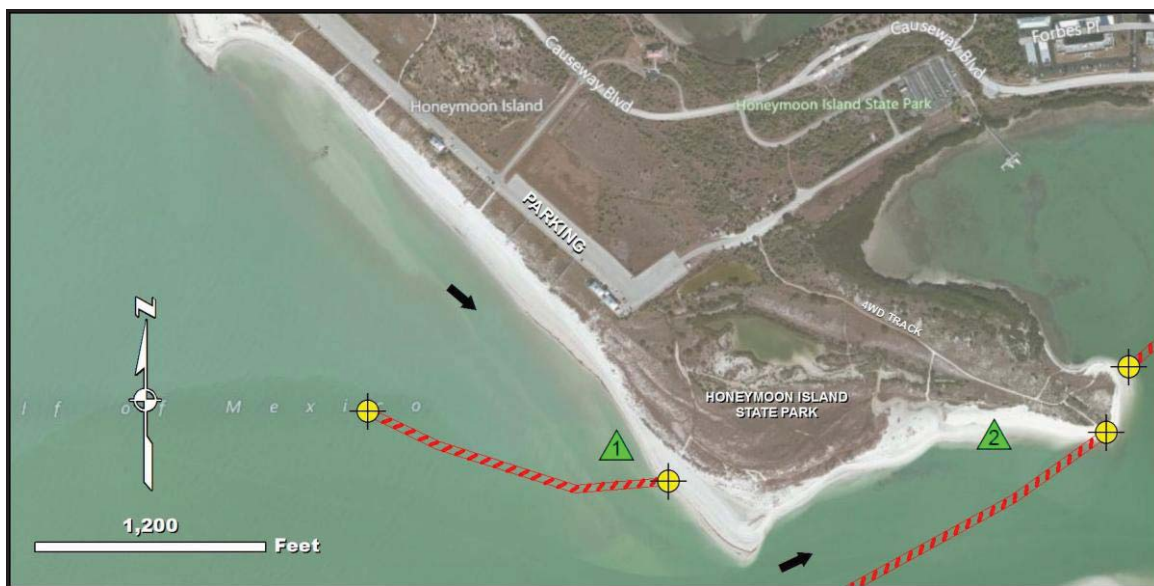
Relative Location: Outer beach on north side of main inlet channel in Honeymoon Island State Park; boom extends across the north marginal flood channel of the ebb-tidal delta.

Latitude: 28°3' 17.333" N      Longitude: 82°49' 24.747" W

Currents: 1-3 knots along shore from the north during rising tide.

Shoreline Description: Sand beach.

Access: There is a major parking area behind the beach about 300 yards to the north. A sand track appears to lead to the beach. Possibly will require 4-wheel drive vehicles.





## Collection Point Description

Inlet: Hurricane Pass, Pinellas County, Florida

Site Name: Collection Point #2

Relative Location: On the north side of main inlet channel in Honeymoon Island State Park.

Latitude: 28°3' 17.695" N     Longitude: 82°49' 2.773" W

Currents: Probably 2-4 knots.

Shoreline Description: Fine-grained sand beach.

Access: Good. A well travelled sand track leads to the beach. You can also drive on this beach.



## Collection Point Description

Inlet: Hurricane Pass, Pinellas County, Florida

Site Name: Collection Point #3

Relative Location: Along side of Causeway Boulevard on Causeway Island.

Latitude: 28°3' 27.576" N     Longitude: 82°48' 34.332" W

Currents: Possibly up to 2 knots.

Shoreline Description: Fine-grained sand beach.

Access: Beside Causeway Boulevard. Parking space is available near the road.



## Collection Point Description

Inlet: Hurricane Pass, Pinellas County, Florida

Site Name: Collection Point #4

Relative Location: Along side of Causeway Boulevard on Causeway Island.

Latitude: 28°3' 13.561" N     Longitude: 82°48' 15.790" W

Currents: Possibly up to 2 knots.

Shoreline Description: Fine-grained sand beach.

Access: Beside Causeway Boulevard. Parking space is available near the road.



## Collection Point Description

Inlet: Hurricane Pass, Pinellas County, Florida

Site Name: Collection Point #5

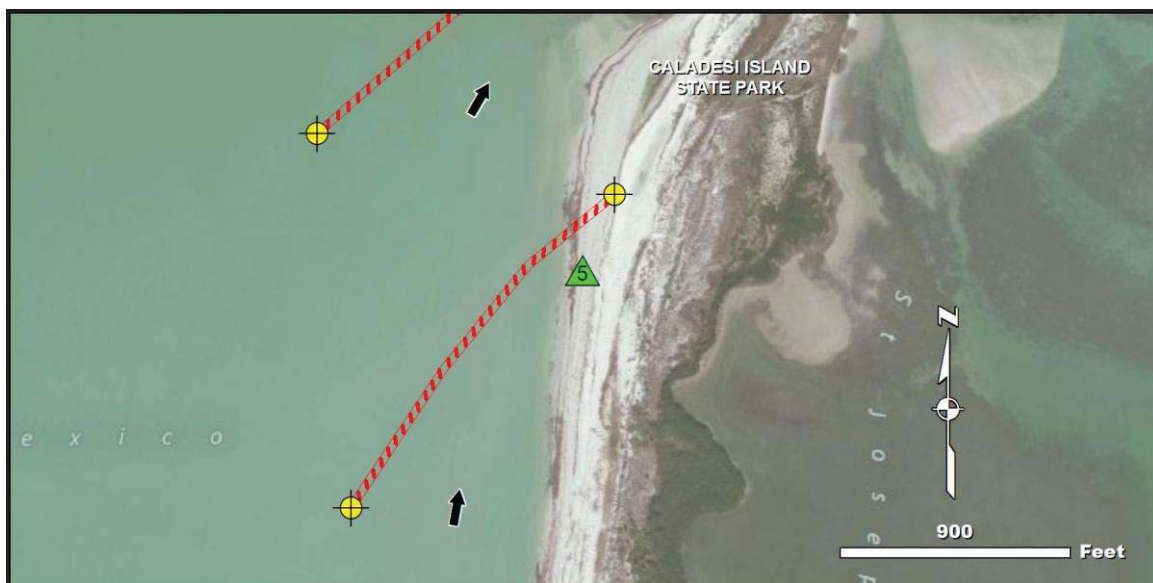
Relative Location: On the outer beach on the south side of the main entrance channel; boom extends across the south marginal flood channel of the ebb-tidal delta; in Caladesi Island State Park.

Latitude: 28°2' 41.680" N     Longitude: 82°49' 13.371" W

Currents: 1-3 knots along shore to the north during rising tides.

Shoreline Description: Sand beach.

Access: No obvious roads or sand tracks. May have to use watercraft. Difficult.



## Collection Point Description

Inlet: Hurricane Pass, Pinellas County, Florida

Site Name: Collection Point #6

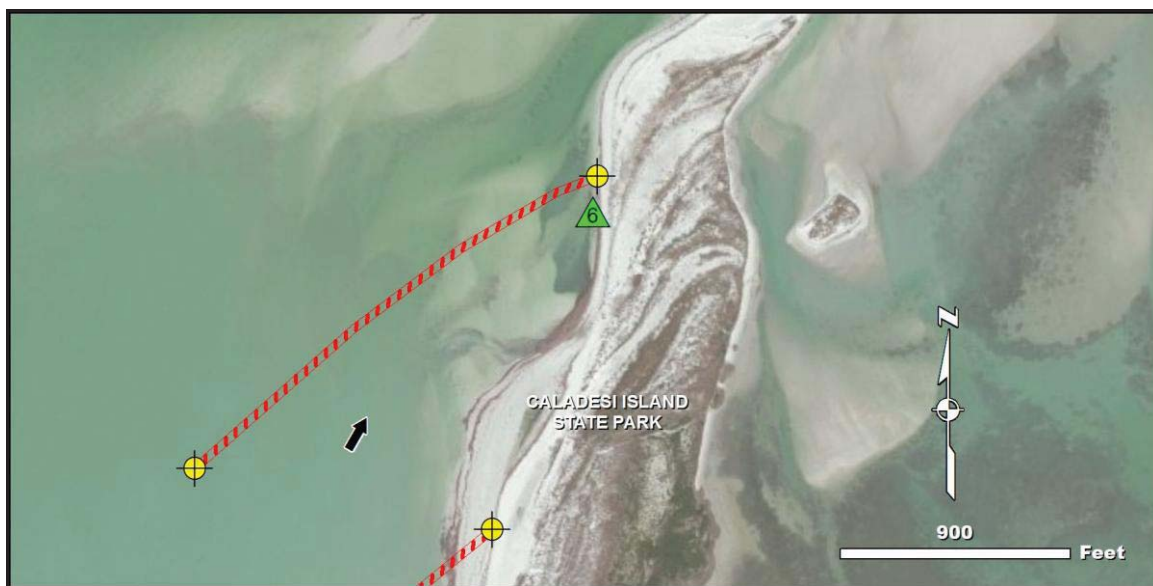
Relative Location: On the outer beach on the south side of the main entrance channel; boom extends across the south marginal flood channel of the ebb-tidal delta; in Caladesi Island State Park; closer to the end of the spit (which is forever changing!!!) than CP5.

Latitude: 28°2' 57.069" N      Longitude: 82°49' 7.180" W

Currents: 1-3 knots along shore to the north during rising tides.

Shoreline Description: Sand beach.

Access: No obvious roads or sand tracks. May have to use watercraft. Difficult.



# INLET SUMMARY SHEET

SITE: **Dunedin Pass, Pinellas County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 29 May 1995; (overflight)

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**D.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, including the Snowy plover, American oyster catcher, and Wilson's plover; wading birds; and seabirds. Marina facilities, boats, seawalls, revetments, docks, etc. along the St. Joseph Sound shoreline. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

During the original survey, this inlet was closed (as it was during the later survey). Build a sediment dike on top of the washover terrace to prevent overwash that may occur during high spring tides that coincide with adverse conditions (strong winds and large waves). Boom off the landward side of the washover terrace to back up the dike.

OTHER COMMENTS:

The dike we are recommending is about 500 feet long.



# Dunedin Pass



© Bing Imagery



1:2,000

0 62.5 125 250 375 Feet





# INLET SUMMARY SHEET

SITE: Clearwater Pass, Pinellas County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 31 May 1995; 0930  
[Low @ 0736 (+0.77); Clearwater]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Shorebirds; wading birds, including the Great blue heron, Great egret, Snowy egret, and Tricolor heron; and seabirds. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Clearwater Harbor. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels to collection points along the outer sand beaches (CPs 1 and 2). In the main inlet channel, anchor a Christmas tree configuration of deflection boom with the lead anchor point located between the jetties that is designed to divert oil to a sand collection point along the northern shoreline of the main inlet channel (CP4) and to the vertical seawall along the southern shoreline of the main inlet channel (CP3). On the landward side of the Gulf Blvd. Bridge, divert oil to the sand beaches on the landward sides of the spits flanking the inlet (CPs 5 and 6). Using several long lines of deflection boom divert oil to an open water skimmer in the middle of Clearwater Harbor (CP11), and to sand collection points along the Memorial Causeway (CPs 7 and 8). Place another Christmas tree configuration of deflection boom in the northeast section of the bay, the west limb of which diverts oil to CP8 and the east limb of which diverts oil to the seawall at CP9 on the shoreline near Clearwater. Two limbs of deflection boom are designed to divert oil to a seawall on the east side of the bay directly across from the main inlet channel at the end of Magnolia Drive (CP10). Protection boom should be located in the following three locations: 1) Around a small island containing mangroves located across the channel from Clearwater Point (on the northeast flank of the flood-tidal delta); 2) Along the tidal flats between CP9 and CP10; and 3) Along the tidal flats between CP10 and Bellevue Island.

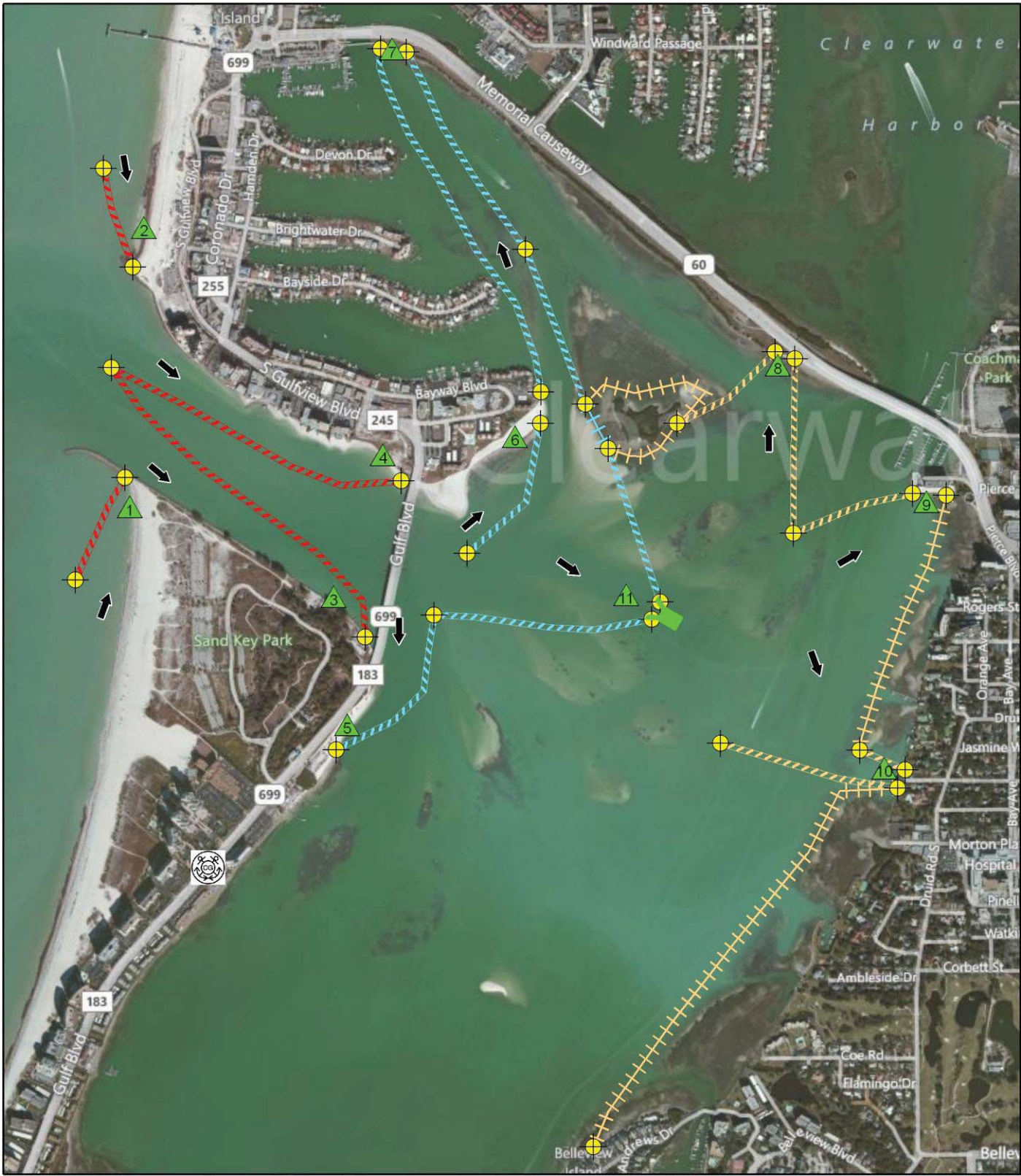
# INLET SUMMARY SHEET

SITE: Clearwater Pass, Pinellas County, Florida (continued)

## OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in Clearwater Pass to be 1.3 knots at maximum flood and 1.1 knots at maximum ebb.

# Clearwater Pass



© Bing Imagery



1:18,000



## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach just south of the south jetty in Sand Key Park.

Latitude: 27°57' 50.953" N    Longitude: 82°49' 53.899" W

Currents: 1-3 knots along shore to the north during rising tide.

Shoreline Description: Sand beach.

Access: Excellent. A big parking area is located just behind the beach.





## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #2

Relative Location: Outer beach just north of the north jetty.

Latitude: 27°58' 15.539" N    Longitude: 82°49' 52.462" W

Currents: 1-3 knots along shore from north during rising tide.

Shoreline Description: Sand beach.

Access: Excellent. There is a large parking area just behind the beach.



## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #3

Relative Location: On the southwest side of the main inlet channel just to the north of the southwest end of the Gulf Boulevard Bridge across the inlet. In Sand Key Park.

Latitude: 27°57' 39.460" N    Longitude: 82°49' 29.840" W

Currents: 1-2 knots.

Shoreline Description: Concrete seawall.

Access: Excellent access. There is a parking area right behind the seawall.



## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #4

Relative Location: On the east side of the main inlet channel just north of the east end of the Gulf Boulevard Bridge across the inlet.

Latitude: 27°57' 52.468" N    Longitude: 82°49' 22.034" W

Currents: 1-2 knots.

Shoreline Description: Sand beach to the northwest of a riprap groin.

Access: This used to be the beach in front of a Holiday Inn that was torn down in 2006/7. There is now a parking area in the large vacant lot adjacent to the beach. Good access (for now!).





## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #5

Relative Location: On the harbor shoreline about 300 yards southwest of the south end of the Gulf Boulevard Bridge across the inlet.

Latitude: 27°57' 25.886" N    Longitude: 82°49' 28.379" W

Currents: 1-2 knots.

Shoreline Description: Sand beach.

Access: Excellent. A parking area is located right by the collection point.



## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #6

Relative Location: On the south end of Clearwater Point.

Latitude: 27°57' 56.700" N    Longitude: 82°49' 6.607" W

Currents: 1-2 knots

Shoreline Description: Sand beach.

Access: There is a wide grass lawn you could drive across; however, this is a private area so you may have to use watercraft.



## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #7

Relative Location: In Clearwater Beach east of the bridge where the Memorial Causeway crossed a bay channel. CP7 is located to the south of the road.

Latitude: 27°58' 37.255" N    Longitude: 82°49' 22.276" W

Currents: Probably less than 1 knot.

Shoreline Description: Sand beach.

Access: It looks as if you could drive across a grass field to get to the beach. Could also use watercraft if necessary.



## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #8

Relative Location: On the bay shoreline by the Memorial Causeway about a half mile from where the Causeway enters Clearwater.

Latitude: 27°58' 4.816" N     Longitude: 82°48' 36.201" W

Currents: Possibly up to 1 knot.

Shoreline Description: Sand beach bounded by seawalls on both sides.

Access: It is about 160 yards from a parking area behind the beach. You could possibly drive across a grass field to get to it. Otherwise, use watercraft.



## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #9

Relative Location: In Clearwater near where the Memorial Causeway Bridge enters the east shoreline of the bay.

Latitude: 27°57' 48.878" N    Longitude: 82°48' 18.904" W

Currents: Probably less than 1 knot.

Shoreline Description: Seawall.

Access: It is probably best to use watercraft.





## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #10

Relative Location: On the east side of the bay directly across from the main inlet channel at the end of Magnolia Drive.

Latitude: 27°57' 20.075" N    Longitude: 82°48' 22.233" W

Currents: Less than 1 knot.

Shoreline Description: Seawall.

Access: At the end of a wide road that leads right up to the seawall.



## Collection Point Description

Inlet: Clearwater Pass, Pinellas County, Florida

Site Name: Collection Point #11; open water skimmer

Relative Location: In the open bay about 750 yards straight east of the Gulf Blvd. Bridge (in a relatively deep channel through the flood-tidal delta.

Latitude: 27°57' 39.344" N    Longitude: 82°48' 54.884" W

Currents: Possibly up to 2 knots.

Shoreline Description: Open water skimmer.

Access: By watercraft.





# INLET SUMMARY SHEET

SITE: **Johns Pass, Pinellas County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 31 May 1995; 1145  
[High @ 1257 (+2.46); Johns Pass; Boca Ciega Bay; Tampa Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Shorebirds; wading birds, including the Great blue heron, Great egret, Snowy egret, and Cattle egret; and seabirds, including the Brown pelican. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Boca Ciega Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Anchor two lines of Christmas tree configurations of deflection boom offshore of the inlet mouth to divert oil away from the main inlet channel (if the waves are mild enough to permit this). Divert oil entering the inlet through the marginal flood channels to collection points along the outer sand beaches (CPs 1 and 2). In the main inlet channel, anchor a Christmas tree configuration of deflection boom to the bridge, the north limb of which diverts oil to a seawall on the north shore (CP4) and the south limb of which diverts oil to a seawall on the south shore (CP3). Further inside the inlet, establish another C. tree with the south limb diverting oil to the entrance to the most easterly of the four man-made canals south of Eleanor Island (CP5). The north limb of this C. tree is a long segment of deflection boom deployed along the north side of the natural channel that bends around to the west. This boom closes off a man-made canal on the north side of the channel and diverts oil to a seawall at the west end of the channel (CP6). Place protection boom in the following four areas: 1) Around the boardwalk to the southwest of CP4; 2) Close off the man-made canal east of CP3; 3) Close off the entrances to the three remaining man-made canals south of Eleanor Island; and 4) Around Eleanor Island, Little Bird Key, and the two tidal flat/mangrove “islands” in between them. Place a mobile open water collection skimmer in the bay landward of the flood-tidal delta.

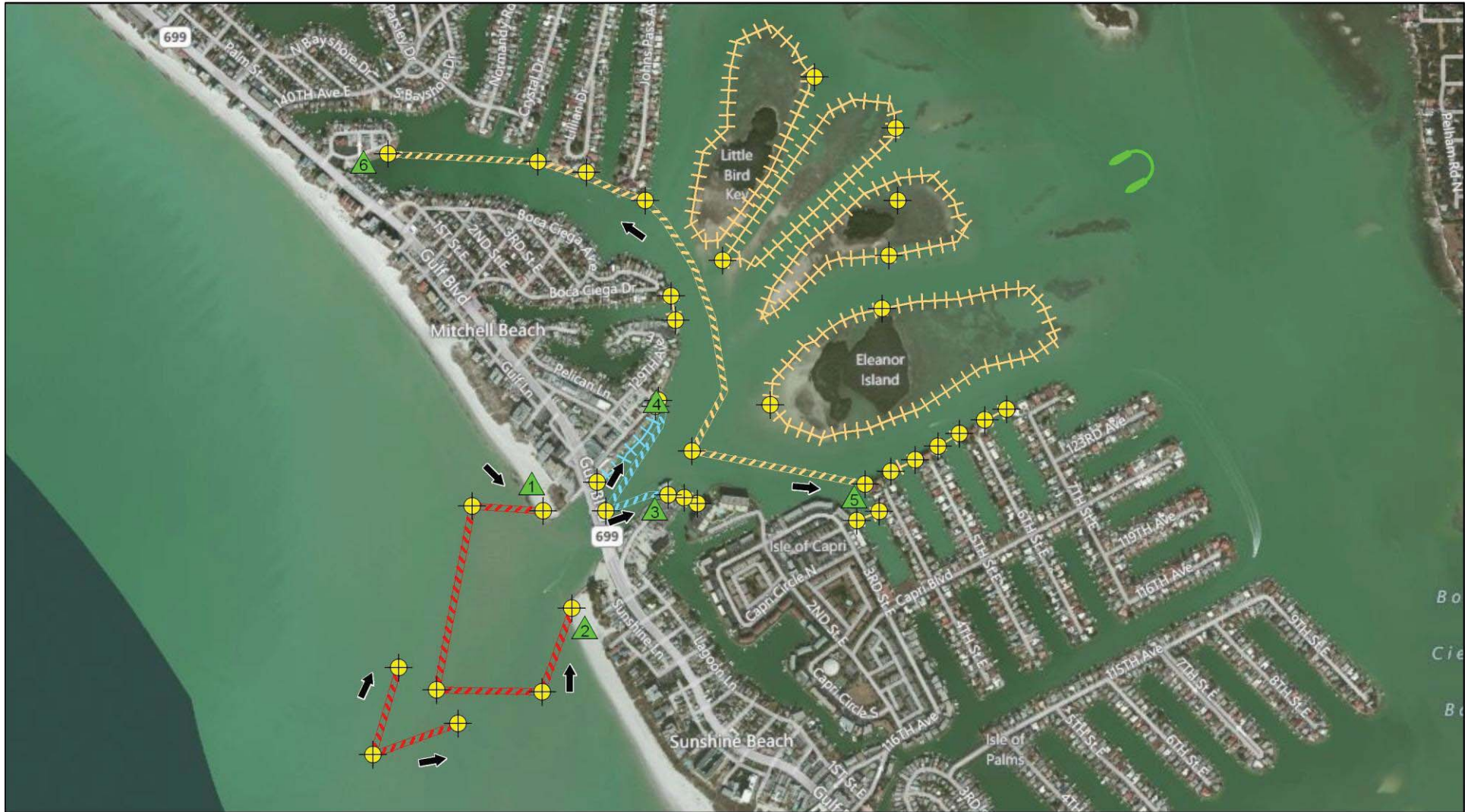
# INLET SUMMARY SHEET

SITE: **Johns Pass, Pinellas County, Florida (continued)**

## OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in Johns Pass to be 2.0 knots at maximum flood and 1.5 knots at maximum ebb. However, during the *Tampa Bay* spill, stronger currents were observed in this inlet by our field team.

# Johns Pass



© Bing Imagery



0 550 1,100 2,200 3,300 4,400 Feet

## Legend

	USCG Station		Open Water Collection		Deflection, Primary		Protection, Primary
	Collection Point		Anchor Point		Deflection, Secondary		Protection, Secondary
	Skimmer		Path of Oil		Deflection, Tertiary		Protection, Tertiary
					Dike		

## Collection Point Description

Inlet: Johns Pass, Pinellas County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the north side of the north jetty (Mitchell Beach).

Latitude: 27°47' 0.551" N     Longitude: 82°47' 4.448" W

Currents: 1-3 knots along shore from the north during rising tide.

Shoreline Description: Sand beach. The deflection boom extends across the northern marginal flood channel of the very well defined ebb-tidal delta.

Access: There is a parking area beside the beach.





## Collection Point Description

Inlet: **Johns Pass, Pinellas County, Florida**

Site Name: Collection Point #2

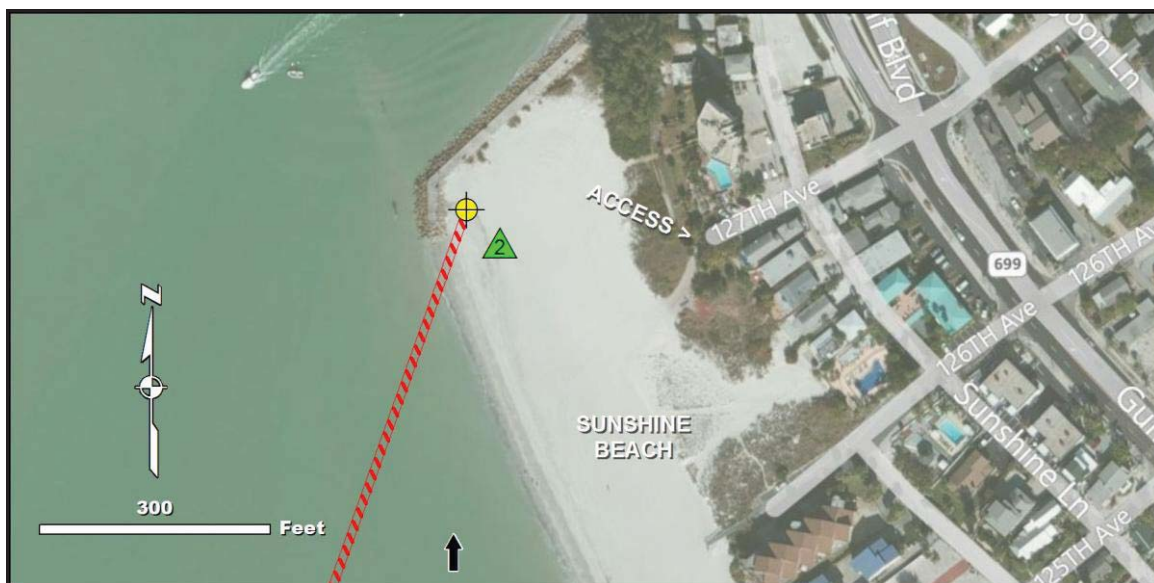
Relative Location: Outer beach on the south side of the south jetty.

Latitude: 27°46' 49.208" N    Longitude: 82°46' 59.958" W

Currents: 1-3 knots along shore from the south during rising tide.

Shoreline Description: Sand beach. The deflection boom extends across the southern marginal flood channel of the very well defined ebb-tidal delta.

Access: A parking area and access road are located just back of the beach at the end of 127<sup>th</sup> Ave.



## Collection Point Description

Inlet: **Johns Pass, Pinellas County, Florida**

Site Name: Collection Point #3

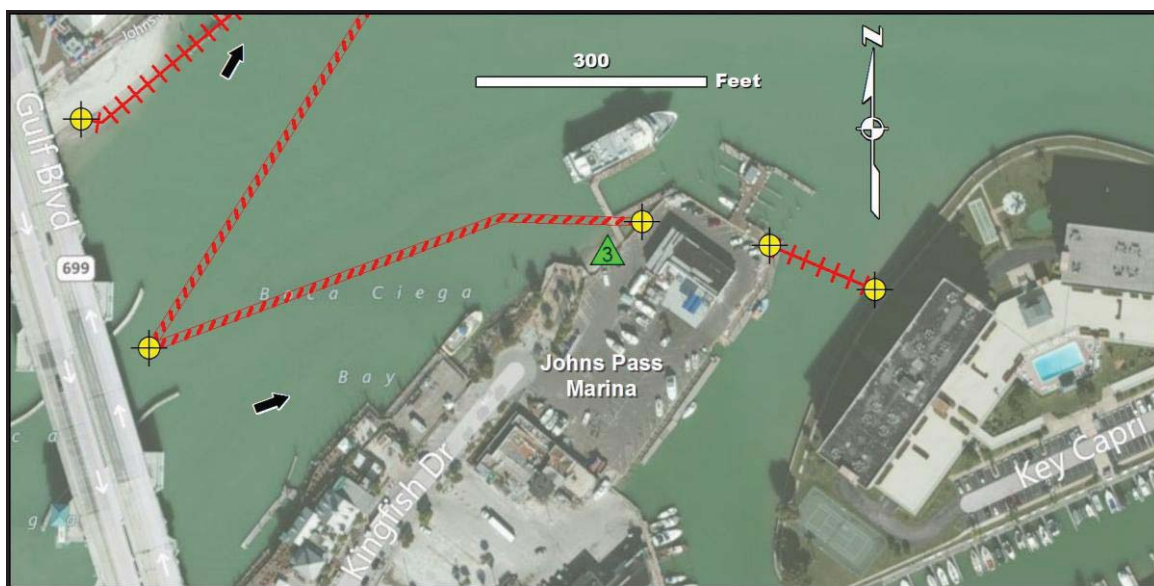
Relative Location: On the south side of the main inlet channel about 200 yards east of the Gulf Blvd. Bridge.

Latitude: 27°47' 0.662" N      Longitude: 82°46' 49.771" W

Currents: Up to 2 knots and maybe more (up to 4 knots at times).

Shoreline Description: Seawall and narrow sand beach.

Access: Parking area right by the seawall.



## Collection Point Description

Inlet: **Johns Pass, Pinellas County, Florida**

Site Name: Collection Point #4

Relative Location: On the north side of the main inlet channel about 350 yards northeast of the Gulf Blvd. Bridge. At the intersection of E. End lane and 128th Ave. E. (a major bend in the road).

Latitude: 27°47' 10.190" N    Longitude: 82°46' 50.495" W

Currents: Up to 2 knots or maybe more.

Shoreline Description: Seawall.

Access: Parking nearby. You should be able to drive right up to the seawall. Traffic on the road may cause some problems.





## Collection Point Description

Inlet: **Johns Pass, Pinellas County, Florida**

Site Name: Collection Point #5

Relative Location: On the south shore of a major natural channel south of Eleanor Island. The most westerly of four major man-made canals.

Latitude: 27°46' 59.888" N    Longitude: 82°46' 26.889" W

Currents: 1-2 knots.

Shoreline Description: Entrance to a man-made canal. Both side of the canal are composed of seawalls.

Access: By watercraft.



## Collection Point Description

Inlet: **Johns Pass, Pinellas County, Florida**

Site Name: Collection Point #6

Relative Location: On 137<sup>th</sup> Ave Circle. The entrance to this Circle is on Gulf Blvd., about 0.8 miles northwest of the Gulf Blvd. Bridge over Johns Pass.

Latitude: 27°47' 34.775" N    Longitude: 82°47' 23.797" W

Currents: Less than 1 knot.

Shoreline Description: Seawall.

Access: You should be able to drive across the empty lot right up to the seawall. If not, use watercraft.



# INLET SUMMARY SHEET

SITE: **Blind Pass, Pinellas County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 31 May 1995; 1354  
[High @ 1354 (+2.33); St. Petersburg Beach Causeway; Boca Ciega Bay; Tampa Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**C.**

PRINCIPAL RESOURCES AT RISK:

Shorebirds and seabirds. Boats, seawalls, revetments, docks, etc. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

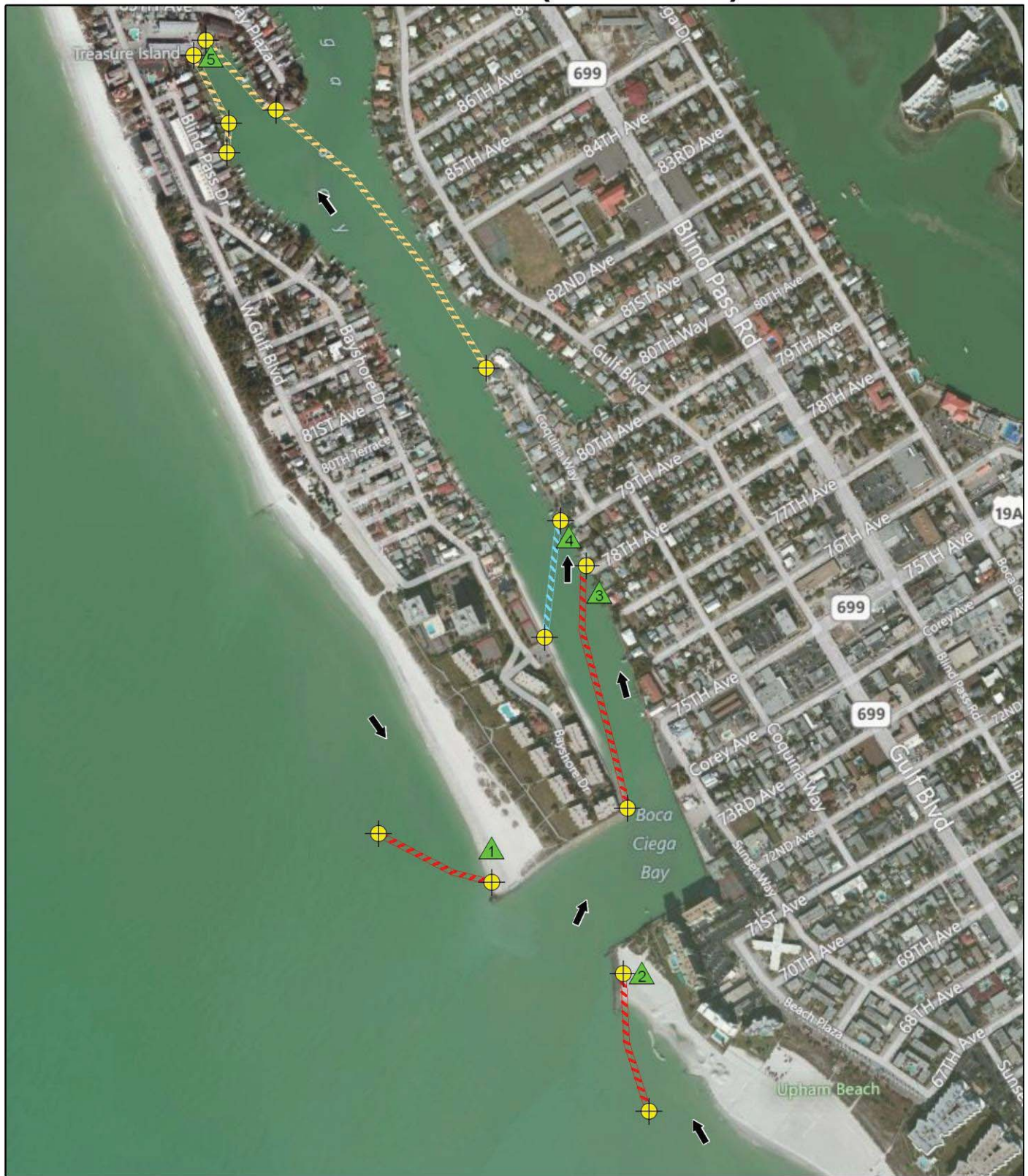
Divert oil entering the inlet through the marginal flood channels to collection points along the outer sand beaches (CPs 1 and 2). Inside the inlet, use two lines of deflection boom stretched obliquely across the main inlet channel to divert oil to collection points against the seawall along the mainland shoreline (CPs 3 and 4). Extend a long line of deflection boom obliquely across the channel further inland to divert oil to a basin on the landward side of Treasure Island, where a seawall and a small sand beach is located (CP5).

OTHER COMMENTS:

Florida Sea Grant Report Number 18 (1976) reported currents in Blind Pass to be 1.5 knots at maximum flood and 1.4 knots at maximum ebb.



# Blind Pass (Pinellas)



© Bing Imagery



1:8,500

0 265 530 1060 1590 Feet



## Collection Point Description

Inlet: **Blind Pass, Pinellas County, Florida**

Site Name: Collection Point #1

Relative Location: Outer beach on north side of north jetty.

Latitude: 27°44' 20.865" N    Longitude: 82°45' 24.444" W

Currents: 1-3 knots along shore from the north during rising tide.

Shoreline Description: Sand beach.

Access: It looks as if you may be able to drive on this beach or possibly right behind it. A parking lot and access road is located 0.3 miles north of the jetty. Otherwise, you may have to use watercraft with access from the main inlet channel.





## Collection Point Description

Inlet: **Blind Pass, Pinellas County, Florida**

Site Name: Collection Point #2

Relative Location: By the Envoy Point Condominium Complex on the outer beach just south of the south jetty.

Latitude: 27°44' 14.548" N    Longitude: 82°45' 16.073" W

Currents: 1-3 knots along shore to the north during rising tide.

Shoreline Description: Sand beach with some riprap to the south and in the groin to the north, There is a seawall behind beach to the south.

Access: You would have to go across a grass lawn in between two condos. There is a large parking area nearby. In that case, you could drive to the seawall. However, if permission to cross this private property is not granted, you may have to use a watercraft, which would be difficult (across the riprap in the jetty??).





## Collection Point Description

Inlet: **Blind Pass, Pinellas County, Florida**

Site Name: Collection Point #3

Relative Location: On the east side of the main inlet channel at the end of 78<sup>th</sup> Avenue.

Latitude: 27°44' 34.715" N    Longitude: 82°45' 18.750" W

Currents: Possibly up to 2 knots.

Shoreline Description: Seawall.

Access: You can drive to the seawall at the end of the avenue.



## Collection Point Description

Inlet: **Blind Pass, Pinellas County, Florida**

Site Name: Collection Point #4

Relative Location: On the east side of the main inlet channel at the end of 79<sup>th</sup> Avenue.

Latitude: 27°44' 36.835" N    Longitude: 82°45' 20.283" W

Currents: Possibly up to 2 knots.

Shoreline Description: Seawall.

Access: Looks like you could get to the seawall from the end of 79<sup>th</sup> Avenue. There may be some private property issues. If so, use watercraft.



## Collection Point Description

Inlet: **Blind Pass, Pinellas County, Florida**

Site Name: Collection Point #5

Relative Location: At the Sunset Cove Condos at the end of a small arm on the west side of the main inlet channel about 0.8 miles northwest of the inlet entrance.

Latitude: 27°45' 1.245" N      Longitude: 82°45' 40.389" W

Currents: Less than 1 knot.

Shoreline Description: Cement bulkhead, wooden docks and a small sand beach.

Access: Big parking lot beside the collection Point. However, this is private property, so permission for access would probably have to be granted. Could be done with watercraft, but land-based access would be considerably better.



# INLET SUMMARY SHEET

SITE: North Channel/Pass-A-Grille Channel, Pinellas County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 31 May 1995; 1415  
[High @ 1337 (+2.20); Pass-a-Grille Beach; Boca Ciega Bay; Tampa Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

A.

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Shorebirds, including the Snowy plover and Wilson's plover; wading birds, including the Great blue heron, Great egret, and White ibis; and seabirds, including the Least tern, Black skimmer, Double-crested cormorant, Laughing gull, and Brown pelican. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Boca Ciega Bay and Tampa Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels of the very well developed ebb-tidal delta to collection points along the sand beach of Long Key (CPs 1 and 2) and Shell Key Shoal (CP3). In the Pass-a-Grille Channel, anchor two Christmas tree configurations of deflection boom and divert oil to collection points against the seawalls along the shorelines of Long Key and Pine Key (CPs 9, 10, 11, and 12). With protection boom, close off the entrance to Little McPherson Bayou and the channel on the north side of Pine Key. Further to the north, use a long line of deflection boom to divert oil to a seawall at the northeast end of the bridge across the large channel to the north of Tierra Verda (Route 679; Pinellas Byway S.; CP13). Even further north, extend a line of deflection boom all the way across the north channel to Isla del Sol in order to divert oil to a seawall at the east end of the Pinellas Bayway Rd. Bridge (Route 682) (CP14). In the southeast corner of the bay, erect a small Christmas tree configuration of deflection boom, the south limb of which diverts oil to the outer sand beach on Shell Key Shoal (CP4) and the north limb of which diverts oil to a seawall on the south end of Pine Key (CP8). This C. tree may be subject to large waves at times. Because of the strong currents through the narrow inlet that separates Shell Key Shoal and Cabbage Key (as evidenced by the relatively large flood-tidal delta shoal south of the inlet), set up a small Christmas tree configuration of

# INLET SUMMARY SHEET

SITE: North Channel/Pass-A-Grille Channel, Pinellas County, Florida (continued)

PRELIMINARY PROTECTION STRATEGY (CONTINUED):

deflection boom south of the inlet, the west limb of which diverts oil to a sand beach on the south shore of Shell Key Shoal (CP5) and the east limb of which diverts oil to a sand beach on the south shore of Cabbage Key (CP6). From CP8, extend a line of protection boom along the south shore of Pine Key, and from the very southeast tip of this key place a line of deflection boom across the adjoining channel to a sand beach backed by a seawall on the east shore of this channel (CP7). Place protection boom around the western and northern sides of Cabbage Key.

OTHER COMMENTS:

Although we do not have measured data, we suspect that there are some very strong tidal currents in this inlet based on the geomorphology.



# North Channel and Passe-A-Grille



© Bing Imagery



1:20,000

0 625 1250 2500 3750 Feet





## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #1

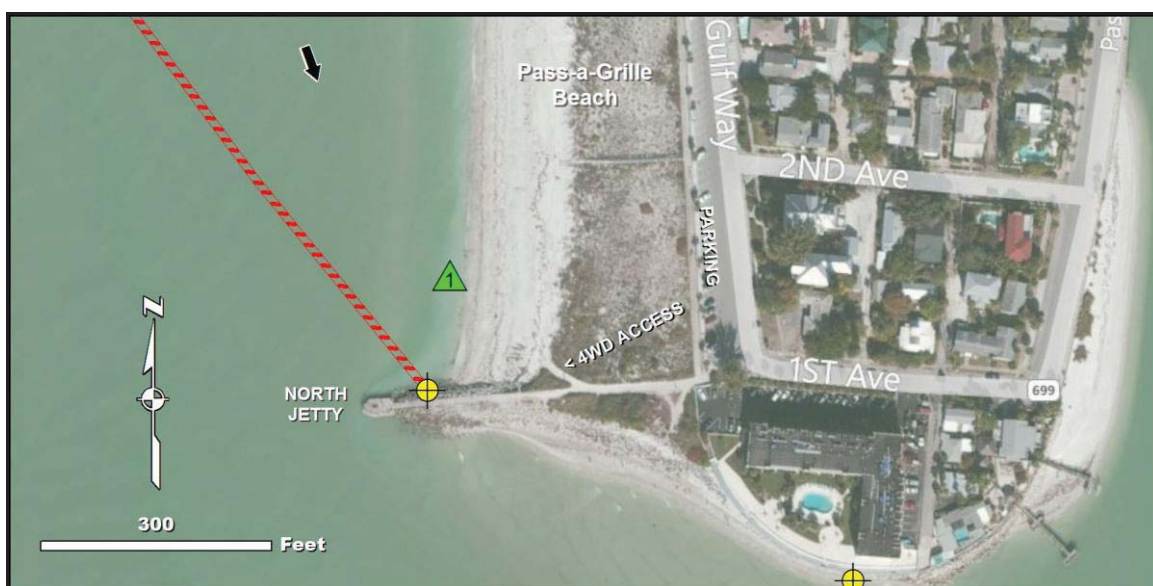
Relative Location: On the outer beach at the south end of Long Key just north of the north jetty.

Latitude: 27°41' 1.829" N      Longitude: 82°44' 20.521" W

Currents: 1-3 knots along shore toward the south during rising tide.

Shoreline Description: Sand beach; riprap groin at south end.

Access: There is a large parking area along the road (Gulf Way) landward of the beach. A track goes to the beach for which you may need 4-wheel drive vehicles.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #2

Relative Location: South end of Long Key on the north side of the main inlet channel by the Point Pass-a-Grille Condos.

Latitude: 27°40' 56.404" N    Longitude: 82°44' 18.815" W

Currents: Possibly up to 3-4 knots. The line of deflection boom extends right out into a very well defined marginal flood channel.

Shoreline Description: Sand beach but there is riprap to both sides.

Access: If you can work with the Condo owners, you could drive right up to the beach. By watercraft should work as well.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #3

Relative Location: The outer beach on the south side of the main inlet channel (on Shell Key Shoal).

Latitude: 27°40' 34.182" N    Longitude: 82°44' 30.148" W

Currents: 1-3 knots to the north during rising tide; boom crosses a not-so-well defined marginal flood channel.

Shoreline Description: Sand beach.

Access: By watercraft. No driving access.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #4

Relative Location: North side of sand spit (on Shell Key Shoal) on south side of the North Channel.

Latitude: 27°40' 29.992" N    Longitude: 82°43' 58.198" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #5

Relative Location: South side of sand spit (on Shell Key Shoal) on south side of the north channel of the flood tidal delta.

Latitude: 27°40' 27.545" N    Longitude: 82°43' 58.032" W

Currents: As much as 2-4 knots (based on presence of fairly large flood-tidal delta south of this small inlet).

Shoreline Description: Sand beach.

Access: By watercraft.





## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #6

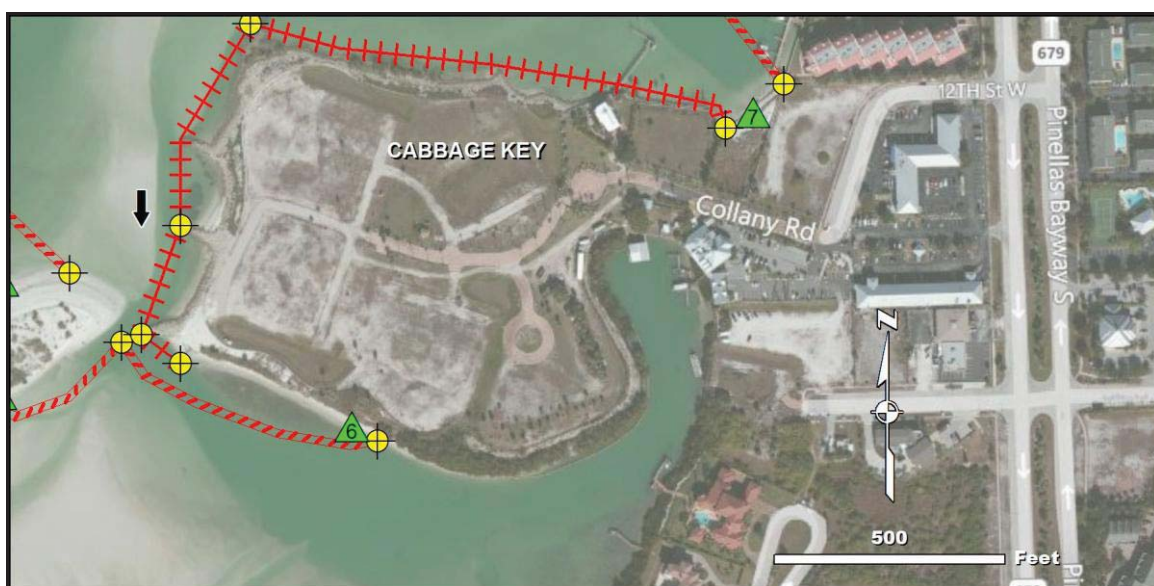
Relative Location: South side of Cabbage Key.

Latitude: 27°40' 26.885" N    Longitude: 82°43' 49.482" W

Currents: As much as 2-4 knots (based on presence of fairly large flood-tidal delta south of this small inlet).

Shoreline Description: Sand beach.

Access: A big development appears to be going up here. May be best to use watercraft.





## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #7

Relative Location: On the east shore just by the northeast end of Cabbage Key.

Latitude: 27°40' 33.524" N    Longitude: 82°43' 39.715" W

Currents: Possibly 1-2 knots.

Shoreline Description: Sand beach backed by a seawall.

Access: At the present time, you can drive right up to the seawall. May change. If so, use watercraft.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #8

Relative Location: Southwest end of Pine Key.

Latitude: 27°40' 42.961" N    Longitude: 82°43' 48.134" W

Currents: Possibly 2-3 knots.

Shoreline Description: Seawall

Access: Presently, the collection point is along the side of a large vacant lot, so, presumably, the access is very good. If/when the lot is developed you may have to use watercraft.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #9

Relative Location: East side of Long Key by 6<sup>th</sup> Avenue.

Latitude: 27°41' 10.509" N    Longitude: 82°44' 10.796" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Seawall along side of a highway (Route 699; Pass-a-Grille Way).

Access: You can park right beside the road.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #10

Relative Location: On the west shore of Pine Key at the end of 6<sup>th</sup> Street W.

Latitude: 27°41' 13.793" N    Longitude: 82°43' 49.450" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach backed by a seawall.

Access: Tightly spaced houses. Probably would have to use watercraft.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #11

Relative Location: On east shore of Long Key near 12<sup>th</sup> Avenue.

Latitude: 27°41' 26.831" N    Longitude: 82°44' 9.033" W

Currents: Possibly up to 2 knots.

Shoreline Description: Seawall along side of Pass-a-Grille Way (Route 699).

Access: You can park by the side of the road.





## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #12

Relative Location: West side of Pine Key at the end of Madonna Blvd.

Latitude: 27°41' 29.478" N    Longitude: 82°43' 46.198" W

Currents: Possibly up to 2 knots.

Shoreline Description: Seawall with riprap in front of it. Place protection boom along the riprap for the oil to accumulate on.

Access: Excellent. Parking area right by the seawall.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #13

Relative Location: Northeast end of the bridge across the large channel to the north of Tierra Verda (Route 679; Pinellas Byway S.).

Latitude: 27°41' 45.065" N    Longitude: 82°43' 0.045" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Seawall.

Access: Excellent. You can park right by the seawall.



## Collection Point Description

Inlet: **North Channel/Pass-A-Grille Channel, Pinellas County, Florida**

Site Name: Collection Point #14

Relative Location: East end of the Pinellas Bayway Rd. Bridge (Route 682) to Isla del Sol.

Latitude: 27°42' 34.834" N    Longitude: 82°43' 22.879" W

Currents: Possibly up to 2 knots or so.

Shoreline Description: Seawall.

Access: There is a parking spot near the seawall.



# INLET SUMMARY SHEET

SITE: **Bunces Pass, Pinellas County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 31 May 1995; 1630  
[High @ 1337 (+2.20); Pass-a-Grille Beach; Boca Ciega Bay; Tampa Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves and scattered salt marshes. Manatees present. Shorebirds, including the Snowy plover and Wilson's plover; wading birds, including the Great blue heron, Great egret, and White ibis; and seabirds, including the Least tern, Black skimmer, Double-crested cormorant, Laughing gull, and Brown pelican. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Mullet Key Bayou and Tampa Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels of the large, well-developed ebb-tidal delta to two collection points on the sand beach to the south of the main inlet channel on Mullet Key (CPs 1 and 2) and to one collection point north of the main inlet channel on Shell Key (CP6). Extend a long line of deflection boom across the main inlet channel from the spit at the south end of Shell Key to a small basin surrounded by seawalls on the north shore of Mullet Key in Fort de Soto County Park (CP3). Extend a line of protection boom from CP3 to the southeast end of the arrowhead spit on the south beach. From the end of the south spit on Shell Key, place two limbs of deflection boom out into the main inlet channel to deflect oil away from the channel on the east side of the spit. Next, extend a long line of deflection boom along the north shore of the main inlet channel to divert oil to the sand beach near the north end of the Route 679 Bridge across the main inlet channel (CP4). From CP3, extend a line of deflection boom along the south shore of the main inlet channel to a large boat ramp/parking area about 150 yards southwest of the south end of the Route 679 Bridge (CP5). Place the lead anchor point of a Christmas tree configuration of deflection boom about 600 yards west of the Route 679 Bridge.

# INLET SUMMARY SHEET

SITE: **Bunces Pass, Pinellas County, Florida (continued)**

## PRELIMINARY PROTECTION STRATEGY (CONTINUED):

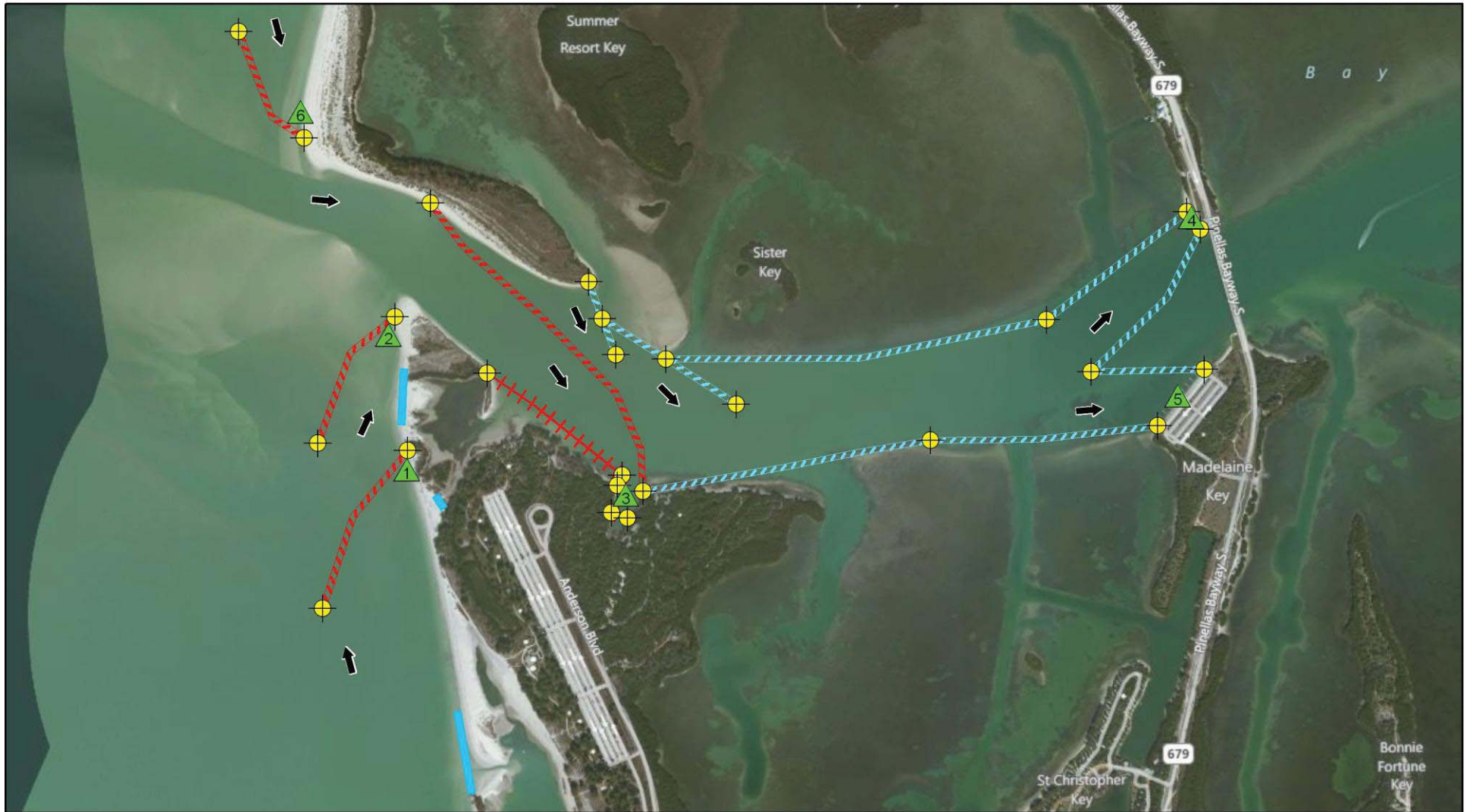
The north limb of this C. tree would divert oil to the sand beach at CP4 and the south limb would divert oil to the boat ramp complex at CP5. In addition to this boom, we also recommend that sand dikes along washover fans, etc. be built at three locations: 1) In between CP1 and CP2 (about 260 yards long); 2) Just south of CP1 (about 100 yards long); and 3) To close off the presently open shallow inlet on the outer beach opposite the south end of the large parking area on Mullet Key (about 300 yards long).

## OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in Bunces Pass to be 1.0 knots at maximum flood and 1.0 knots at maximum ebb.



# Bunces Pass



© Bing Imagery



0 600 1,200 2,400 3,600 4,800 Feet

## Legend

	USCG Station		Open Water Collection		Deflection, Primary		Protection, Primary
	Collection Point		Anchor Point		Deflection, Secondary		Protection, Secondary
	Skimmer		Path of Oil		Deflection, Tertiary		Protection, Tertiary
					Dike		

## Collection Point Description

Inlet: **Bunces Pass, Pinellas County, Florida**

Site Name: Collection Point #1

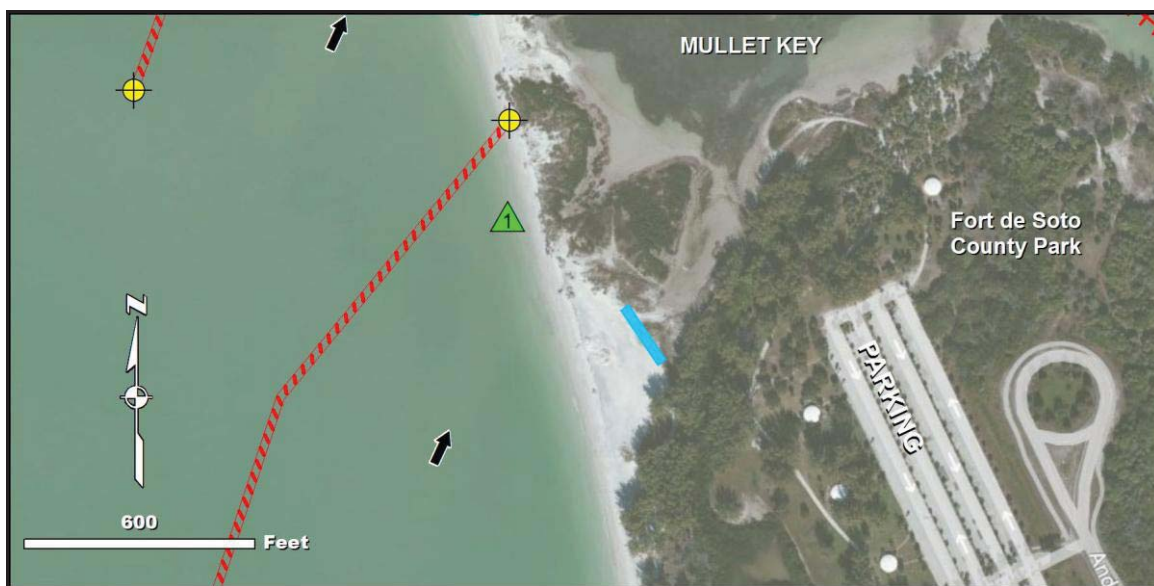
Relative Location: On the outer beach about 500 yards south of the main inlet channel in Fort de Soto County Park.

Latitude: 27°38' 39.024" N    Longitude: 82°44' 36.182" W

Currents: 1-3 knots along shore to the north during rising tide. Boom is stretched across the south marginal flood channel of a well-developed ebb-tidal delta.

Shoreline Description: Sand beach.

Access: Might be able drive along the beach, but the first access point is about a half mile to the south. It would probably be better to use watercraft, which could be brought to the landward side of the beach through a shallow bay east of the beach (during high tides).



## Collection Point Description

Inlet: **Bunces Pass, Pinellas County, Florida**

Site Name: Collection Point #2

Relative Location: On the outer beach just to the south of the main inlet channel in Fort de Soto County Park.

Latitude: 27°38' 53.489" N    Longitude: 82°44' 38.248" W

Currents: 1-3 knots along shore to the north during rising tides. Boom is stretched across the south marginal flood channel of a well-developed ebb-tidal delta.

Shoreline Description: Sand beach.

Access: Might be able drive along the beach, but the first access point is about three quarters of a mile to the south. It would probably be better to use watercraft, which could be brought to the landward side of the beach through a shallow bay east of the beach (during high tides).



## Collection Point Description

Inlet: **Bunces Pass, Pinellas County, Florida**

Site Name: Collection Point #3

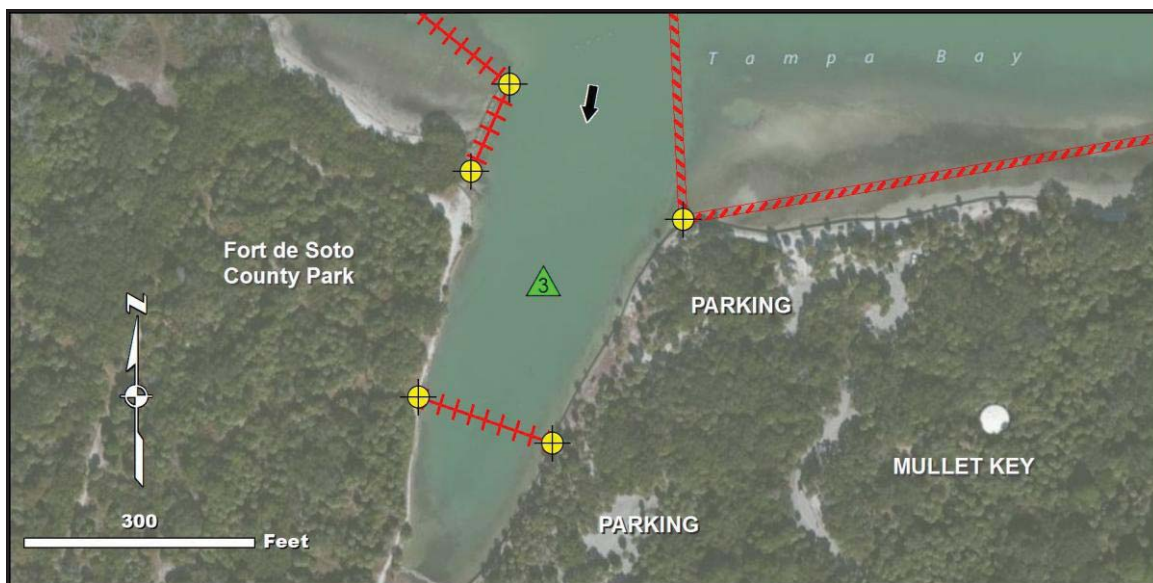
Relative Location: On the south side of the main inlet channel on the north end of Mullet Key in Fort de Soto County Park.

Latitude: 27°38' 36.069" N    Longitude: 82°44' 9.711" W

Currents: Possibly as much as 2-3 knots.

Shoreline Description: A basin surrounded by seawalls. Place protection boom across the basin about half the way in.

Access: You can drive close to it. There is a large parking area nearby.





## Collection Point Description

Inlet: **Bunces Pass, Pinellas County, Florida**

Site Name: Collection Point #4

Relative Location: West side of the north end of the Route 679 Bridge (Pinellas Bayway S.).

Latitude: 27°39' 5.245" N     Longitude: 82°43' 0.901" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach.

Access: Parking area right beside the beach.





## Collection Point Description

Inlet: **Bunces Pass, Pinellas County, Florida**

Site Name: Collection Point #5

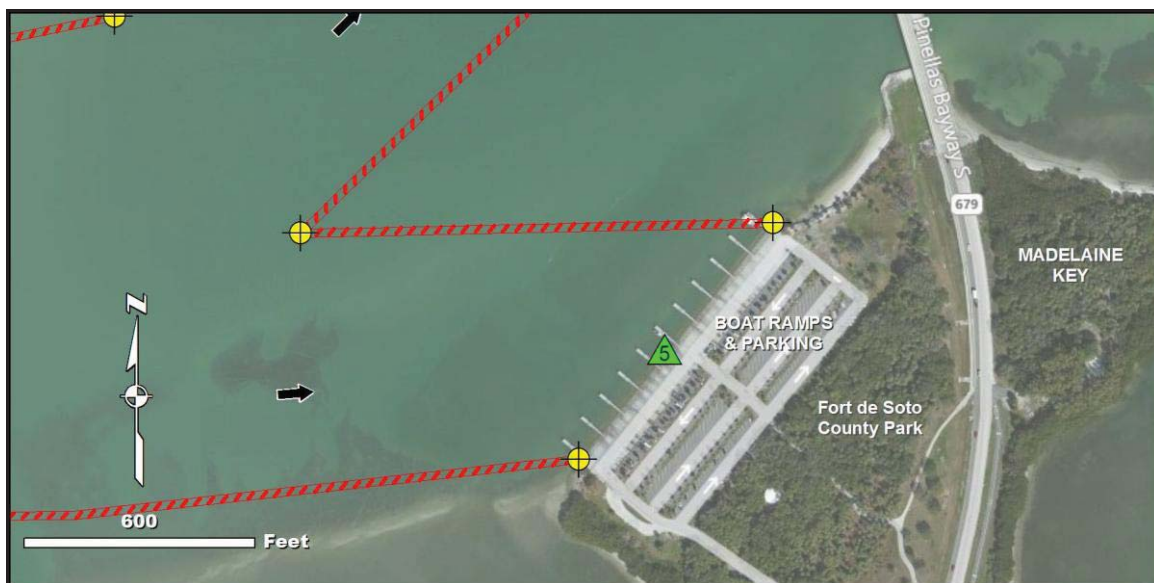
Relative Location: At a huge boat ramp/parking area on the south side of the main inlet channel on Madelaine Key (in Fort de Soto County Park) about 150 yards southwest of the south end of the Route 679 Bridge.

Latitude: 27°38' 46.104" N    Longitude: 82°43' 2.758" W

Currents: Possibly up to 2 knots.

Shoreline Description: Paved boat ramp.

Access: Excellent. Beside a massive parking area in the County Park.



## Collection Point Description

Inlet: **Bunces Pass, Pinellas County, Florida**

Site Name: Collection Point #6

Relative Location: Just north of the north side of the main inlet channel at Shell Key Point.

Latitude: 27°39' 17.494" N    Longitude: 82°44' 48.626" W

Currents: 1-3 knots along shore to the south during rising tide; the limb of boom projects out into the northern marginal flood channel of the very well-developed ebb-tidal delta.

Shoreline Description: Sand beach.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: Egmont and Southwest Channels, Hillsborough County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 29 May 1995; (overflight)

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

A.

PRINCIPAL RESOURCES AT RISK:

Mangroves and scattered salt marshes. Manatees present. Atlantic loggerhead turtles nest on the outer beach of Egmont Key. Shorebirds, including the Snowy plover and Wilson's plover; wading birds; seabirds, including the Least tern and Black skimmer; and waterfowl. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Tampa Bay and associated rivers and waterways. For further information refer to the recent ESI map and data and the GRP.

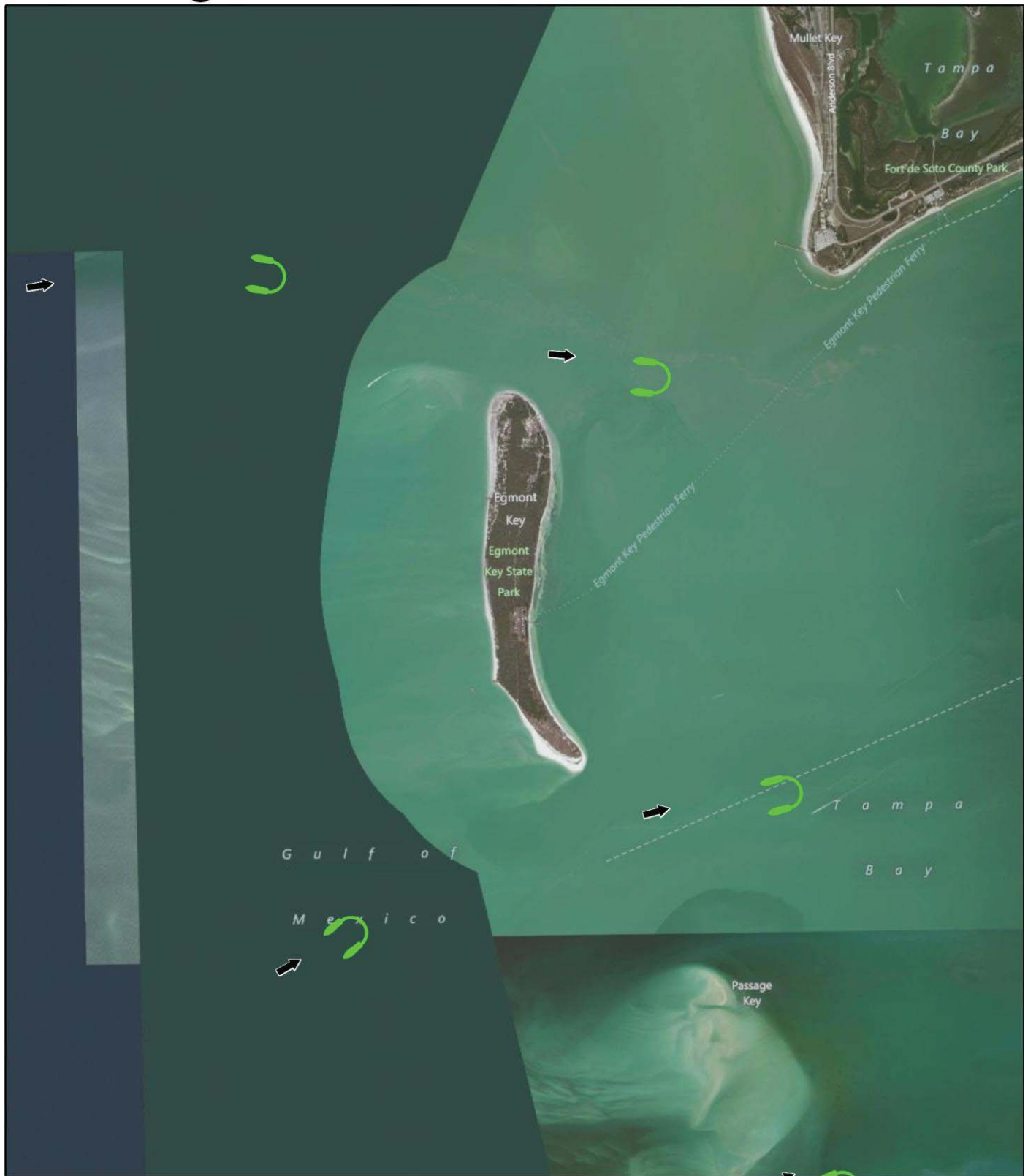
PRELIMINARY PROTECTION STRATEGY:

Open water collection offshore and inside of the bay.

OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in Egmont Channel to be 1.3 knots at maximum flood and 1.3 knots at maximum ebb, and currents in Southwest Channel to be 0.8 knots at maximum flood and 1.2 knots at maximum ebb.

# Egmont and Southwest Channel



© Bing Imagery



1:45,000

0 1400 2800 5600 8400 Feet



# INLET SUMMARY SHEET

SITE: **Passage Key Inlet, Manatee County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 31 May 1995; 1830  
[Low @ 2033 (-0.04); Anna Maria; Tampa Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

A.

PRINCIPAL RESOURCES AT RISK:

Mangroves and scattered salt marshes. Manatees present. Shorebirds, including the Snowy plover and Wilson's plover; wading birds; seabirds, including the Least tern and Black skimmer; and waterfowl. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Tampa Bay and Sarasota Pass. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the southern marginal flood channel (of the giant ebb-tidal delta) to the outer sand beach on the south side of the main inlet channel (CP1). In the main inlet channel, divert oil to two sand beaches on the landward side of Anna Maria Island (CPs 2 and 3). Open water collection should be used inside the inlet. [NOTE. During the original survey, Passage Key was an island containing mangroves. Now, it is a complex of intertidal sand flats.]

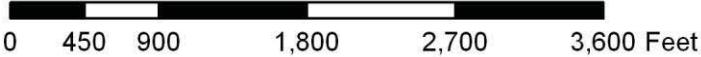


# Passage Key Inlet

97



© Bing Imagery



Legend			
	USCG Station		Open Water Collection
	Collection Point		Anchor Point
	Skimmer		Path of Oil
	Deflection, Primary		Protection, Primary
	Deflection, Secondary		Protection, Secondary
	Deflection, Tertiary		Protection, Tertiary
	Dike		

## Collection Point Description

Inlet: **Passage Key Inlet, Manatee County, Florida**

Site Name: Collection Point #1

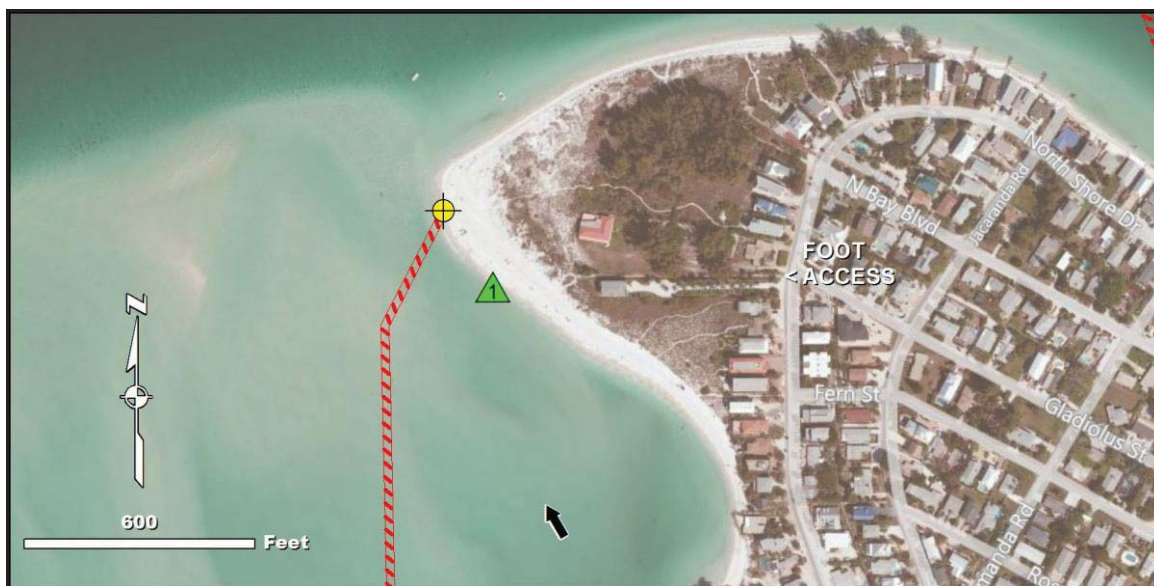
Relative Location: Outer beach on the north end of Anna Maria Island.

Latitude: 27°32' 11.055" N    Longitude: 82°44' 44.827" W

Currents: 1-3 knots along shore to the north during rising tide; the boom projects out into the southern marginal flood channel of this large ebb-tidal delta.

Shoreline Description: Sand beach.

Access: Looks like a tricky beach to drive on. No immediate access from land. Probably should use watercraft. Beach could be reached pretty easily from the main inlet channel, assuming the waves are not too big.



## Collection Point Description

Inlet: **Passage Key Inlet, Manatee County, Florida**

Site Name: Collection Point #2

Relative Location: Just northwest of the Rod & Reel Pier at the end of Alamanda Road about 400 yards south of the north end of Anna Maria Island (east side).

Latitude: 27°32' 16.453" N    Longitude: 82°44' 23.819" W

Currents: Possibly up to 2-4 knots.

Shoreline Description: Sand beach in front of a seawall (with some riprap at its base).

Access: Excellent. Parking area right by the end of the pier.





## Collection Point Description

Inlet: **Passage Key Inlet, Manatee County, Florida**

Site Name: Collection Point #3

Relative Location: In Anna Maria Bayfront Park about 0.7 miles south of the north end of Anna Maria Island (east side).

Latitude: 27°32' 2.741" N      Longitude: 82°44' 0.294" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach; two small riprap jetties to the southeast of the collection point.

Access: You can drive along close to the beach (within the park).



# INLET SUMMARY SHEET

SITE: Longboat Pass, Manatee County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 1 June 1995; 0815

[Low @ 0802 (+1.11); Sarasota, Sarasota Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Shorebirds; wading birds, including the Great blue heron, Great egret, Snowy egret, and White Ibis; and seabirds, including the Double-crested cormorant and the Brown pelican. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Sarasota Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels to collection points along the outer beaches (CPs 1 and 2). Erect a Christmas tree configuration of deflection boom with the lead anchor point being in the main inlet channel parallel with the outer beach shoreline. The north limb of this C. tree would divert oil to the sand beach on the south end of Anna Maria Island (CP3), and the south limb would divert oil to the sand beach on the north end of Longboat Key (just west of where the Route 789 Bridge across Longboat Pass meets the shore; CP8). Position the lead anchor point of another Christmas tree of deflection boom at the Route 789 Bridge that is designed to prevent oil from reaching the large and well-defined flood-tidal delta and the mangroves on Jewfish Key. The north limb of this C. tree would divert oil to a sand beach on the west shore of Anna Maria Island (CP4), and the south limb would divert oil to another sand beach on the northeast end of Longboat Key (CP6). About 400 yards north of CP4, extend a line of deflection boom out into the channel that would divert oil to the sand beach at CP5. About 300 yards south of CP6, extend a line of deflection boom all the way across the channel to Jewfish Key that would divert oil to the sand beach at CP7. Place a line of protection boom around the north end of Longboat Key east of CP8 in order to keep oil out of that zone of tidal flats and mangroves (in a side channel). Also place protection boom all the way around Jewfish Key to keep oil out of the abundant mangroves on that island.



# INLET SUMMARY SHEET

SITE: Longboat Pass, Manatee County, Florida (continued)

## OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in Longboat Pass to be 1.8 knots at maximum flood and 1.6 knots at maximum ebb.

# Longboat Pass



© Bing Imagery



1:10,500

0 330 660 1320 1980 Feet



## Collection Point Description

Inlet: Longboat Pass, Manatee County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the north end of Longboat Key.

Latitude: 27°26' 25.313" N    Longitude: 82°41' 25.557" W

Currents: 1-3 knots along shore to the north during rising tide.

Shoreline Description: Sand beach; eroding with some fallen down trees in the surf; Boom extends offshore into a shallow marginal flood channel (almost into the main ebb channel) of the ebb-tidal delta which is offset markedly to the south.

Access: By watercraft.





## Collection Point Description

Inlet: Longboat Pass, Manatee County, Florida

Site Name: Collection Point #2

Relative Location: South end of Anna Maria Island just north of the north jetty (in Coquina Bay Walk Park).

Latitude: 27°26' 40.996" N    Longitude: 82°41' 27.945" W

Currents: 1-3 knots along shore to the south during rising tide. Boom stretches out into the northern marginal flood channel of the ebb-tidal delta.

Shoreline Description: Wide sand beach.

Access: There is a parking area right by this collection point.



## Collection Point Description

Inlet: Longboat Pass, Manatee County, Florida

Site Name: Collection Point #3

Relative Location: South end of Anna Maria Island just west of the north end of the Route 789 Bridge across Longboat Key (in Coquina Bay Walk Park).

Latitude: 27°26' 40.379" N    Longitude: 82°41' 20.101" W

Currents: 2-3 knots (at least).

Shoreline Description: Wide sand beach.

Access: There is a parking area right by this collection point.





## Collection Point Description

Inlet: Longboat Pass, Manatee County, Florida

Site Name: Collection Point #4

Relative Location: On the east side of Anna Maria Island about 350 yards north of the northwest end of the Route 789 Bridge over Longboat Pass (in Coquina Bay Walk Park).

Latitude: 27°26' 50.756" N    Longitude: 82°41' 18.915" W

Currents: Probably up to 2 knots.

Shoreline Description: Sand beach.

Access: There is a parking area right by the beach.



## Collection Point Description

Inlet: Longboat Pass, Manatee County, Florida

Site Name: Collection Point #5

Relative Location: On the east side of Anna Maria Island about 0.4 miles north of the northwest end of the Route 789 Bridge over Longboat Pass (in Coquina Bay Walk Park).

Latitude: 27°27' 2.288" N      Longitude: 82°41' 23.013" W

Currents: Probably about 1 knot.

Shoreline Description: Sand beach.

Access: It doesn't appear to be possible to drive to it, although there are parking areas about 60-70 yards away. Possibly would have to use watercraft.



## Collection Point Description

Inlet: Longboat Pass, Manatee County, Florida

Site Name: Collection Point #6

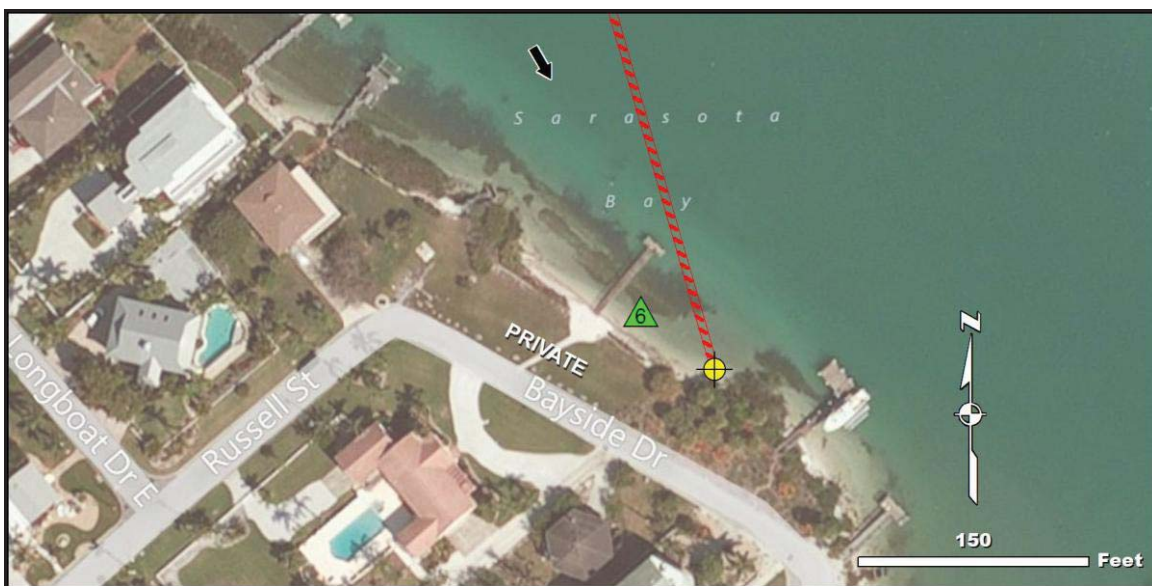
Relative Location: Northeast end of Longboat Key on the bay side opposite Jewfish Key, about 500 yards (as the crow flies) southeast of the south end of the Route 789 Bridge across Longboat Pass (beside Bayside Dr.)

Latitude: 27°26' 22.202" N    Longitude: 82°40' 51.995" W

Currents: Probably up to 2 knots.

Shoreline Description: Sand beach, but there is some riprap and seawall material nearby.

Access: You could drive right across a grassy field, and you could park along the road. If private property issues arise, then use watercraft.



## Collection Point Description

Inlet: Longboat Pass, Manatee County, Florida

Site Name: Collection Point #7

Relative Location: Northeast end of Longboat Key on the bay side opposite Jewfish Key, about 700 yards (as the crow flies) southeast of the south end of the Route 789 Bridge across Longboat Pass. Where Linley Street intersects Bayside Dr.

Latitude: 27°26' 13.561" N    Longitude: 82°40' 52.271" W

Currents: Maybe a little over 1 knot.

Shoreline Description: Sand beach.

Access: The road is right beside the beach with room for parking nearby.





## Collection Point Description

Inlet: Longboat Pass, Manatee County, Florida

Site Name: Collection Point #8

Relative Location: At the north end of Longboat Key just to the west of the south end the Route 789 Bridge over Longboat Pass.

Latitude: 27°26' 30.756" N    Longitude: 82°41' 14.437" W

Currents: 2-3 knots (at least).

Shoreline Description: Sand beach (a little steep).

Access: By watercraft.





# INLET SUMMARY SHEET

SITE: New Pass, Sarasota County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 1 June 1995; 0920

[Low @ 0802 (+1.11); Sarasota, Sarasota Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Shorebirds; wading birds, including the Great blue heron; and seabirds, including the Double-crested cormorant and the Brown pelican; and waterfowl. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Sarasota Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the north marginal flood channel of the ebb-tidal delta to the outer sand beach north of the inlet (CP2). Expect strong currents at CP1 on the outer sand beach south of the inlet because the boom is positioned across the main ebb channel of the ebb-tidal delta. Place an anchor point on the north shore the main inlet channel about 120 yards inside the inlet from which a long line of deflection boom should be extended obliquely across the main inlet channel to the south end of the Route 789 Bridge. This boom would divert oil in the main inlet channel to a seawall at the south end of the bridge (CP3). Place a line of protection boom along the riprap shoreline on the south end of Longboat Key. From the end of that boom, extend a line of deflection boom across the embayment to the north that is designed to divert oil to a sand beach near the north end of the Route 789 Bridge (CP4). Anchor a Christmas tree configuration of deflection boom seaward of the Route 789 bridge, the north limb of which would divert oil to CP4, and the south limb of which would divert oil to a sand beach located beyond the south end of the bridge (CP5). Another line of deflection boom should be extended from the middle of the bridge to a sand beach to the east of the north end of the bridge (CP6). Project another line of deflection boom out into the main inlet channel to divert oil to the seawall in Ken Thomson Park (CP7). Place protection boom across the entrance to the marina just west of the park.

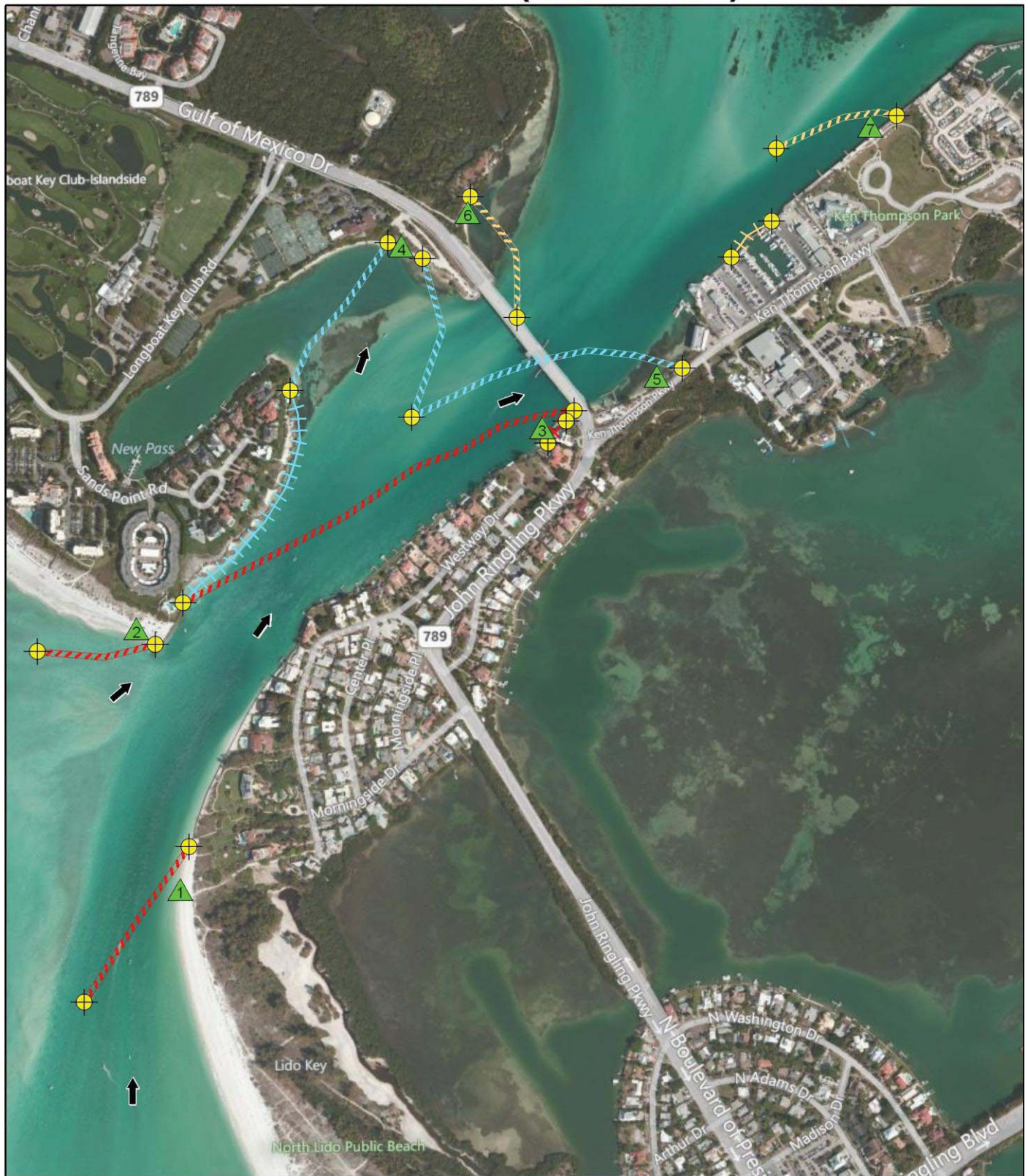
# INLET SUMMARY SHEET

SITE: New Pass, Sarasota County, Florida (continued)

## OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in New Pass to be 1.6 knots at maximum flood and 1.0 knots at maximum ebb.

# New Pass (Sarasota)



© Bing Imagery



1:10,000

0 315 630 1260 1890 Feet





## Collection Point Description

Inlet: New Pass, Sarasota County, Florida

Site Name: Collection Point #1

Relative Location: Northwest end of Lido Key on the side of the main ebb channel of the ebb-tidal delta, which is deflected markedly to the south at this location.

Latitude: 27°19' 27.892" N    Longitude: 82°35' 18.694" W

Currents: Probably up to 2-3 knots.

Shoreline Description: Sand beach; steep.

Access: Looks like you could drive to the beach on some sand tracks to the North Lido Public Beach; however, this track appears to be through private property. There is a heavily used sand track that leads to the beach about 300 yards to the south. If all of this does not work out, you may have to use watercraft, but that would be difficult if the waves are big on that day.



## Collection Point Description

Inlet: New Pass, Sarasota County, Florida

Site Name: Collection Point #2

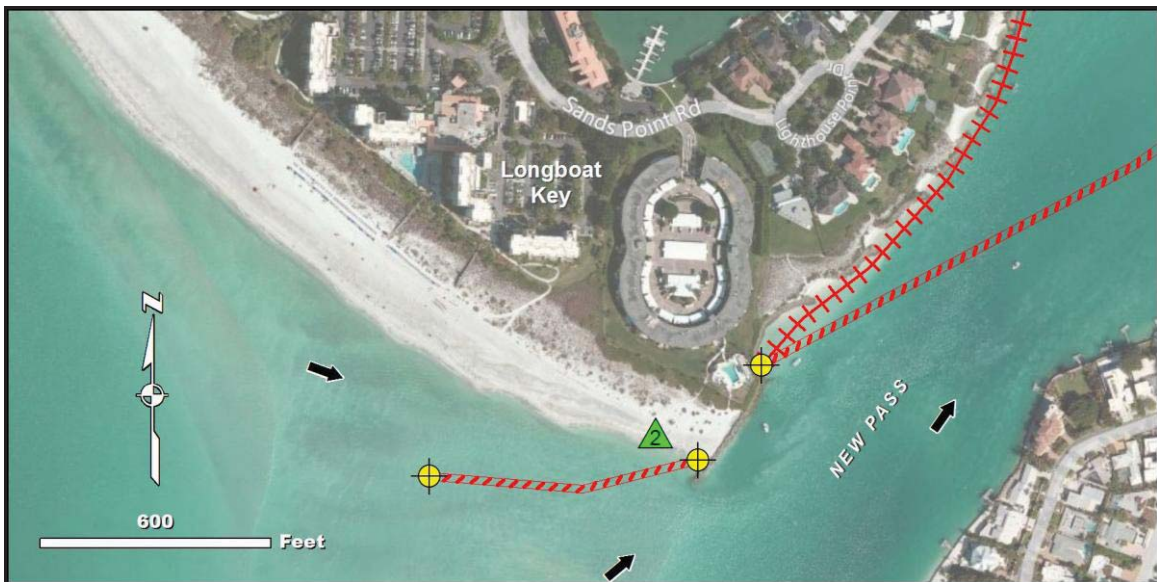
Relative Location: Outer beach on the south end of Longboat Key.

Latitude: 27°19' 43.189" N    Longitude: 82°35' 21.408" W

Currents: 1-3 knots along shore from the north during rising tide.

Shoreline Description: Sand beach.

Access: It would be possible to drive to this beach, but you would have to go through private property (condos). If that doesn't work, use watercraft.





## Collection Point Description

Inlet: New Pass, Sarasota County, Florida

Site Name: Collection Point #3

Relative Location: South side of the main inlet channel just west of the southeast end of the John Ringling Parkway Bridge (Route 789).

Latitude: 27°19' 55.692" N    Longitude: 82°34' 52.922" W

Currents: Possibly up to 2-4 knots.

Shoreline Description: A high seawall.

Access: You can park right by the seawall.



## Collection Point Description

Inlet: New Pass, Sarasota County, Florida

Site Name: Collection Point #4

Relative Location: North side of the main inlet channel just west of the north end of the John Ringling Parkway Bridge (Route 789).

Latitude: 27°20' 5.440" N      Longitude: 82°35' 3.652" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach.

Access: Excellent. There is a parking area right beside the beach.



## Collection Point Description

Inlet: New Pass, Sarasota County, Florida

Site Name: Collection Point #5

Relative Location: South side of the main inlet channel a hundred yards or so east of the southeast end of the John Ringling Parkway Bridge (Route 789), along the side of the Ken Thompson Parkway.

Latitude: 27°19' 57.879" N    Longitude: 82°34' 46.298" W

Currents: Possibly up to 2-4 knots.

Shoreline Description: Sand beach.

Access: There is a parking area right by the beach.



## Collection Point Description

Inlet: New Pass, Sarasota County, Florida

Site Name: Collection Point #6

Relative Location: North side of the main inlet channel just east of the north end of the John Ringling Parkway Bridge (Route 789).

Latitude: 27°20' 7.388" N     Longitude: 82°34' 59.239" W

Currents: Possibly up to 2-4 knots.

Shoreline Description: Sand beach; turns to riprap close to the bridge.

Access: There is a footpath to the beach that you may be able to drive smaller types of equipment on. There is a large parking area on the west side of the bridge. Workers could walk under the bridge to the collection point.





## Collection Point Description

Inlet: New Pass, Sarasota County, Florida

Site Name: Collection Point #7

Relative Location: In the south side of the main inlet channel in Ken Thompson Park about 700 yards northeast of the Route 789 Bridge.

Latitude: 27°20' 12.534" N    Longitude: 82°34' 31.942" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Seawall.

Access: There is a parking area about 40 yards from the seawall (in the park).

Additional Comments: Water intakes for the Mote Marine Aquarium located southwest of CP7.  
Notify vice president of facility at (941) 371-1807.





# INLET SUMMARY SHEET

SITE: **Big Sarasota Pass, Sarasota County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 1 June 1995; 1015

[Low @ 0802 (+1.11); Sarasota, Sarasota Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

A.

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Shorebirds; wading birds, including the Great blue heron, Great egret, Snowy egret, and Cattle egret; seabirds; and waterfowl. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Sarasota Bay and Roberts Bay. For further information refer to the recent ESI map and data and the GRP.

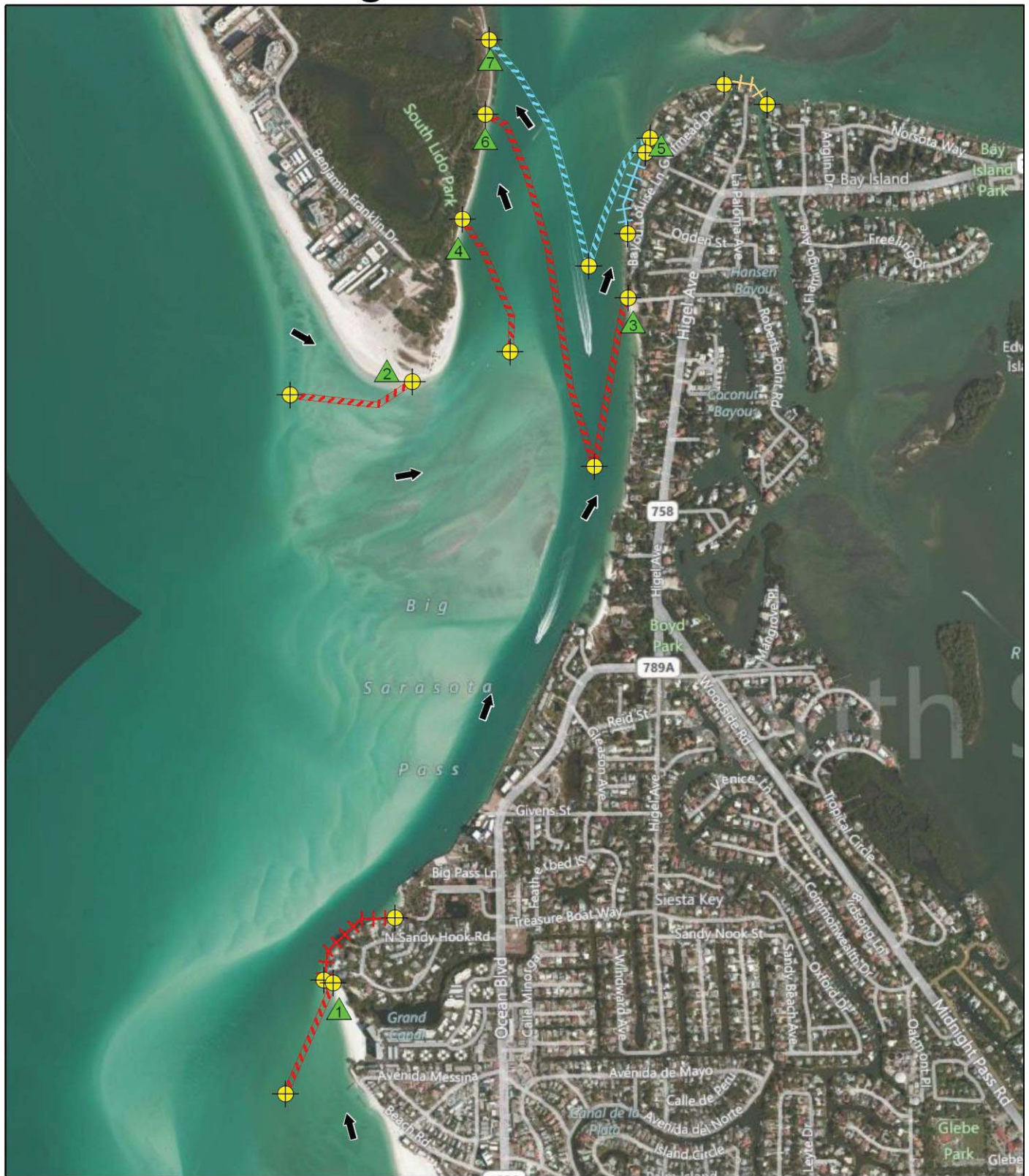
PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels to collection points along the outer sand beaches (CPs 1 and 2). Place a line of deflection boom out into the north side of the main inlet channel to divert oil to a sand beach along the south shore of South Lido Park (CP4). In the main inlet channel, anchor two Christmas tree configurations of deflection boom, the west limbs of which would divert oil to two sand beaches in South Lido Park (CPs 6 and 7), and the east limbs of which would divert oil to two sand beaches on the far northwest shore of Siesta Key (CPs 3 and 5). Place protection boom along two zones of riprap: 1) North of CP1; and 2) South of CP5. Also place protection boom across the entrances to two man-made channels on the north end of Siesta Key.

OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in Big Sarasota Pass to be 1.5 knots at maximum flood and 1.0 knots at maximum ebb.

# Big Sarasota Pass



© Bing Imagery



1:18,000

0 550 1100 2200 3300 Feet



## Collection Point Description

Inlet: **Big Sarasota Pass, Sarasota County, Florida**

Site Name: Collection Point #1

Relative Location: The most westerly protuberance of the shore of Siesta Key, about 1.9 miles south of the north end of the Key.

Latitude: 27°16' 41.890" N    Longitude: 82°34' 10.725" W

Currents: 1-3 knots along shore to the north during rising tide. Boom extends out into the southern marginal flood channel of the ebb-tidal delta, which is markedly deflected to the south.

Shoreline Description: Sand beach.

Access: There is a massive development of condos, etc. back of the beach here (e.g., Whispering Sands Condos); however, there are parking areas and road endings near the beach. You probably can get permission (from the property owners) to get to the beach. If not, use watercraft, which could be difficult if the waves are big that day.





## Collection Point Description

Inlet: **Big Sarasota Pass, Sarasota County, Florida**

Site Name: Collection Point #2

Relative Location: Outer beach at the south end of Lido Key in South Lido Park. The boom extends across the north marginal flood channel of the ebb-tidal delta.

Latitude: 27°17' 48.194" N    Longitude: 82°34' 4.197" W

Currents: 1-3 knots along shore from the north during rising tide.

Shoreline Description: Sand Beach.

Access: It is in a park and there is a large parking area a ways behind the beach. You should be able to drive right up to the beach.



## Collection Point Description

Inlet: **Big Sarasota Pass, Sarasota County, Florida**

Site Name: Collection Point #3

Relative Location: On the east shore of Siesta Key about 750 yards south of the north end of the Key. At the end of North Shell Road.

Latitude: 27°17' 54.812" N    Longitude: 82°33' 35.041" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach.

Access: Excellent. It is at the end of North Shell Road. Parking area close by.





## Collection Point Description

Inlet: **Big Sarasota Pass, Sarasota County, Florida**

Site Name: Collection Point #4

Relative Location: On the beach on the west side of the main inlet channel in South Lido Park, about 450 yards north of the south end of Lido Key.

Latitude: 27°18' 1.063" N     Longitude: 82°33' 55.575" W

Currents: Possibly 1-2 knots.

Shoreline Description: Sand beach.

Access: Good. Parking area nearby (in South Lido Park). Should be able to drive right to the beach.



## Collection Point Description

Inlet: **Big Sarasota Pass, Sarasota County, Florida**

Site Name: Collection Point #5

Relative Location: On the east shore of Siesta Key about 200 yards south of the north end of the key. Near the intersection between Gulf Mead Drive and Siesta Drive.

Latitude: 27°18' 12.101" N    Longitude: 82°33' 32.835" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach.

Access: Presently the beach is backed by a vacant lot; hence the access is probably good. If lot has been developed, you may have to use watercraft.



## Collection Point Description

Inlet: **Big Sarasota Pass, Sarasota County, Florida**

Site Name: Collection Point #6

Relative Location: On the beach on the west side of the main inlet channel in South Lido Park, about 0.5 miles north of the south end of Lido Key.

Latitude: 27°18' 13.675" N    Longitude: 82°33' 52.207" W

Currents: Possibly 1-2 knots.

Shoreline Description: Sand beach.

Access: There is a sand track behind the beach that you should be able to drive on. In fact, you could probably drive right up to the beach in a couple of places.



## Collection Point Description

Inlet: **Big Sarasota Pass, Sarasota County, Florida**

Site Name: Collection Point #7

Relative Location: On the beach on the west side of the main inlet channel in South Lido Park, about 0.7 miles north of the south end of Lido Key.

Latitude: 27°18' 22.003" N    Longitude: 82°33' 51.469" W

Currents: Possibly 1-2 knots.

Shoreline Description: Sand beach.

Access: There is a sand track behind the beach you should be able to drive on. In fact, you probably could drive right up to the beach in a couple of places.



# INLET SUMMARY SHEET

SITE: **Midnight Pass, Sarasota County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 29 May 1995; 1015(overflight)  
[High @ 1203 (+2.27); Venice Inlet (inside)]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**D.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches to the south of the former inlet. Shorebirds; wading birds, including the Great blue heron; seabirds, including the Brown pelican; and waterfowl. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Little Sarasota Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

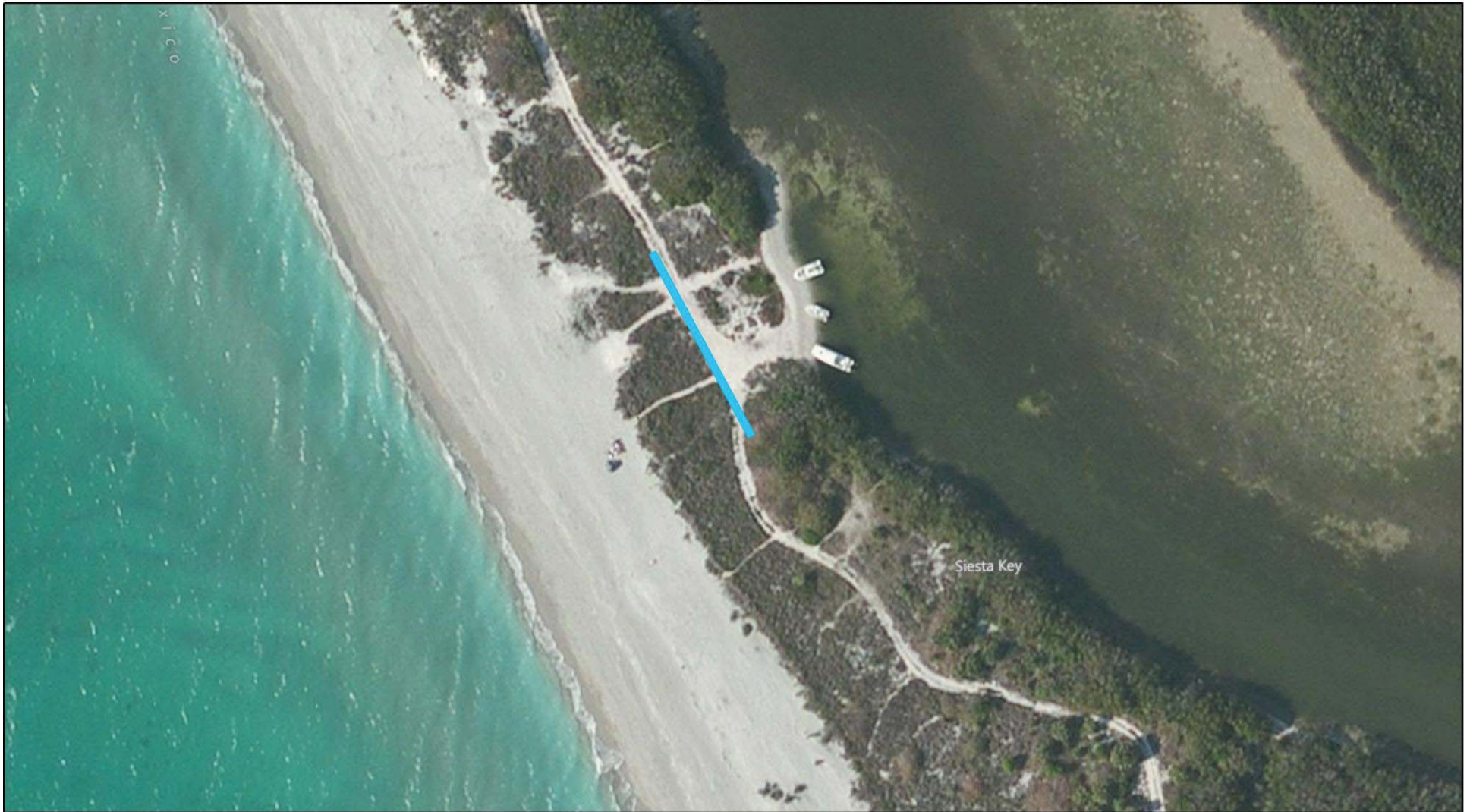
During the original survey in 1995, this inlet was closed. It was also closed during the later survey. Our recommendation is to build a sediment dike about 40 yards long on top of the washover terrace to prevent overwash that may occur during high spring tides that coincide with adverse conditions (strong winds and large waves).

OTHER COMMENTS:

During the survey, the washover terrace was vegetated. When this inlet was open, NOAA Tidal Current Tables reported currents to be 1.8 knots at maximum flood and 1.4 knots at maximum ebb.



# Midnight Pass



© Bing Imagery



0 37.5 75 150 225 300 Feet

## Legend

	USCG Station		Open Water Collection		Deflection, Primary		Protection, Primary
	Collection Point		Anchor Point		Deflection, Secondary		Protection, Secondary
	Skimmer		Path of Oil		Deflection, Tertiary		Protection, Tertiary
					Dike		

# INLET SUMMARY SHEET

SITE: Venice Inlet, Sarasota County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 1 June 1995; 1145  
[High @ 1203 (+2.27); Venice Inlet (inside)]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, wading birds, seabirds, and waterfowl. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Lyons, Dona, and Roberts Bays. For further information refer to the ESI map and GRP.

PRELIMINARY PROTECTION STRATEGY:

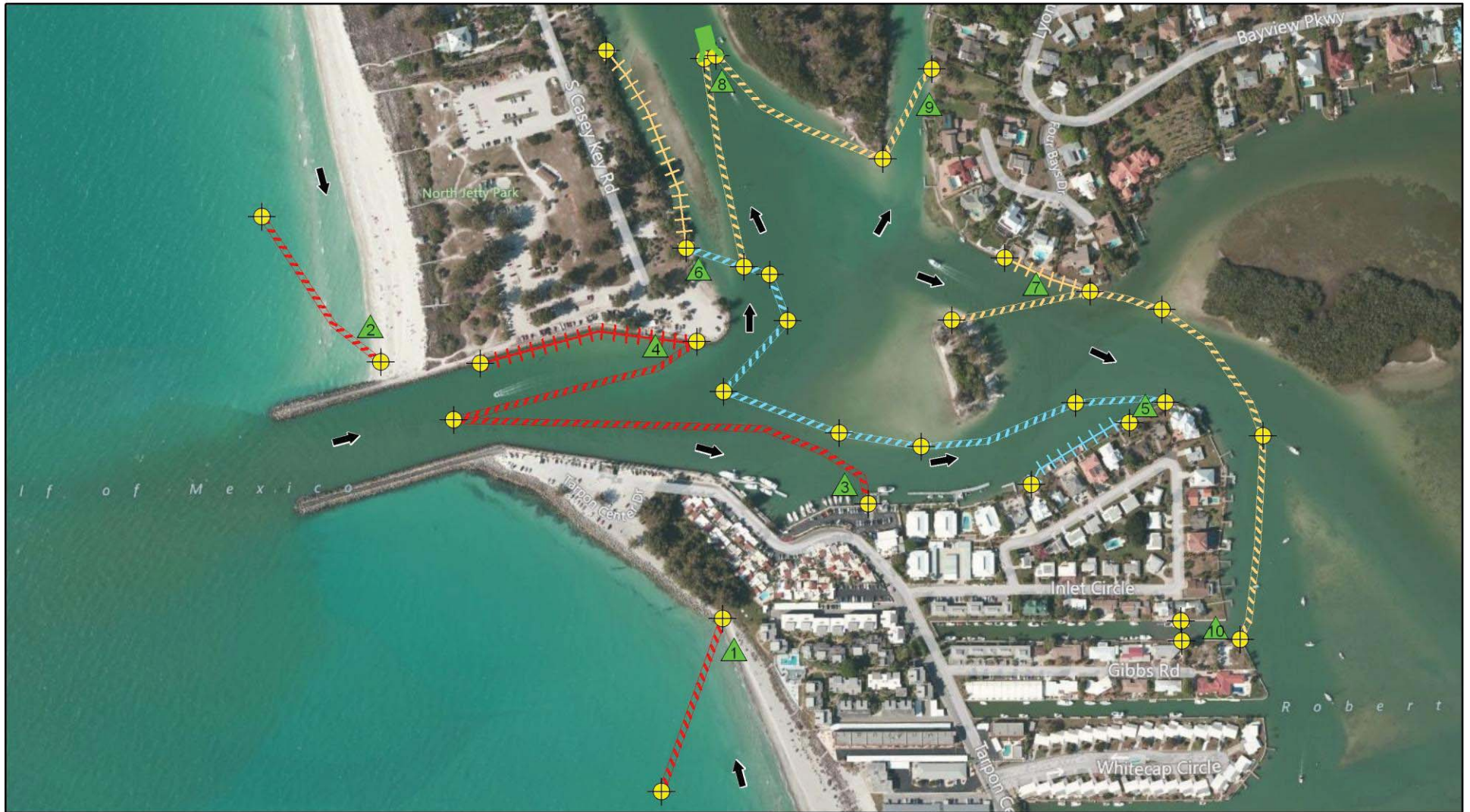
Divert oil entering the inlet through the marginal flood channels to collection points along the outer sand beaches (CPs 1 and 2). In the main inlet channel, anchor two Christmas tree configurations of deflection boom and divert oil to a collection point against the riprap on the northern inlet shoreline (CP4), to a sand collection point on the backside of Casey Key (CP6), and against the seawalls along the southern shoreline of the main inlet channel (CPs 3 and 5). Establish an open water skimmer in the middle of the ICW about 280 yards north of the southeast corner of North Jetty Park (CP8). Protect vegetated portion of the Intracoastal Waterway shoreline north of CP6 with boom. Divert oil entering Long Bay and Dona Bay to collection points along the mainland shoreline (CPs 7 and 9). CP10 is a back-up for CPs 3 and 5.

OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in Venice Inlet to be 1.1 knots at maximum flood and 0.9 knots at maximum ebb. A 1.5-2.0 knot flood current was measured using a float during the 1995 field survey. A strong wind was blowing onshore at the time that may have augmented the flood current.



# Venice Inlet



© Bing Imagery



0 175 350 700 1,050 1,400 Feet

## Legend

	USCG Station		Open Water Collection		Deflection, Primary		Protection, Primary
	Collection Point		Anchor Point		Deflection, Secondary		Protection, Secondary
	Skimmer		Path of Oil		Deflection, Tertiary		Protection, Tertiary
					Dike		

## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #1

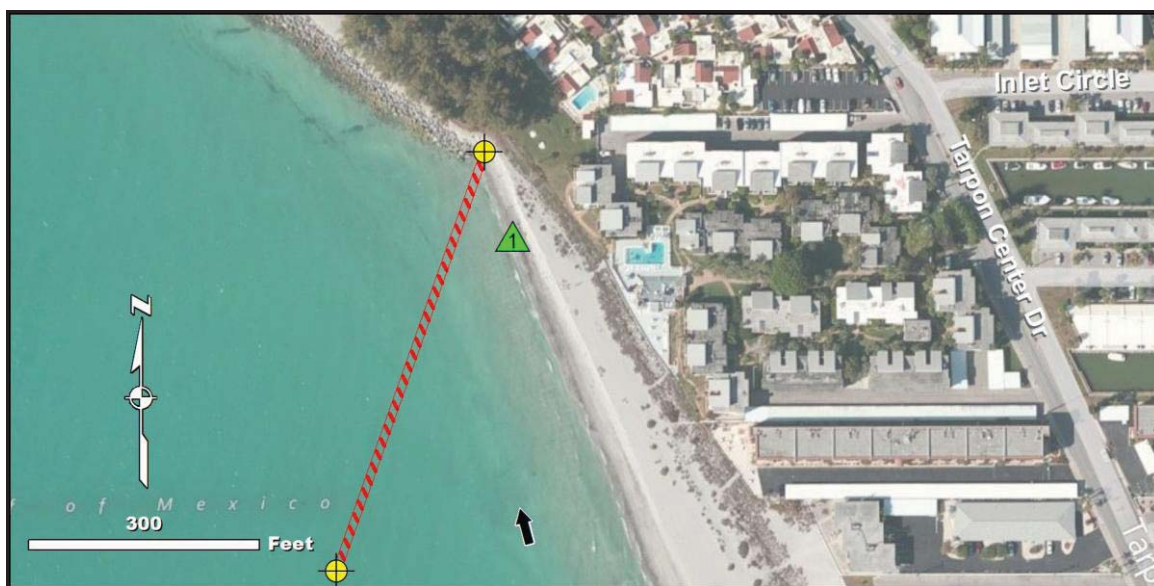
Relative Location: Outer beach about 300 yards south of the south jetty.

Latitude: 27°6' 38.837" N      Longitude: 82°27' 55.642" W

Currents: 1-3 knots along shore to the north during rising tide.

Shoreline Description: Sand beach with riprap at the high-tide line.

Access: There is a parking area about 100 yards to the north. There may be other places to get on the beach as well. Access points appear to be usable.





## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #2

Relative Location: Just north of the north jetty.

Latitude: 27°6' 49.014" N     Longitude: 82°28' 8.173" W

Currents: 1-3 knots along shore to the south during rising tide.

Shoreline Description: Sand beach.

Access: Good. This collection point is in North Jetty Park, which has lots of parking near the beach.





## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #3

Relative Location: South side of the main inlet channel about 300 yards east of the east end of the south jetty.

Latitude: 27°6' 43.535" N      Longitude: 82°27' 51.230" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Seawall.

Access: There is a large parking area right by the seawall. You may have to move some boats.



## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #4

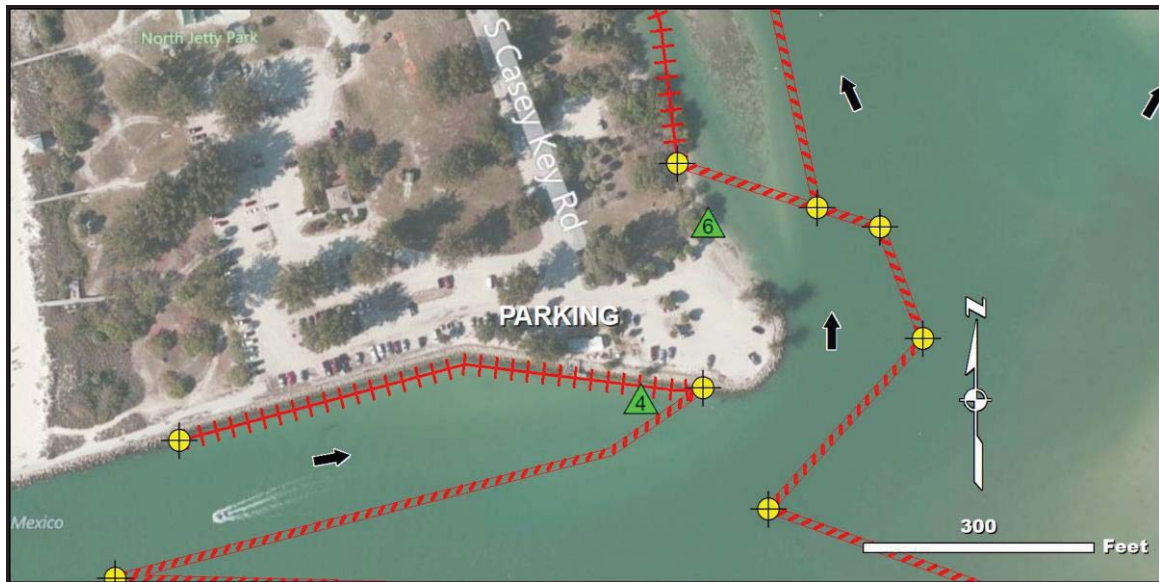
Relative Location: On the north shore of the main inlet channel in the southeast corner of North Jetty Park.

Latitude: 27°6' 48.409" N     Longitude: 82°27' 57.714" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Riprap; place protection boom along the riprap for the oil to accumulate on.

Access: This is in North Jetty Park. There is parking right by the riprap.



## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #5

Relative Location: On the corner of the highly developed shoreline along the south shore of the main inlet channel near the ICW.

Latitude: 27°6' 46.259" N      Longitude: 82°27' 41.192" W

Currents: Probably between 1-2 knots.

Shoreline Description: Seawall.

Access: Because it is so highly developed, it would probably be best to use watercraft.



## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #6

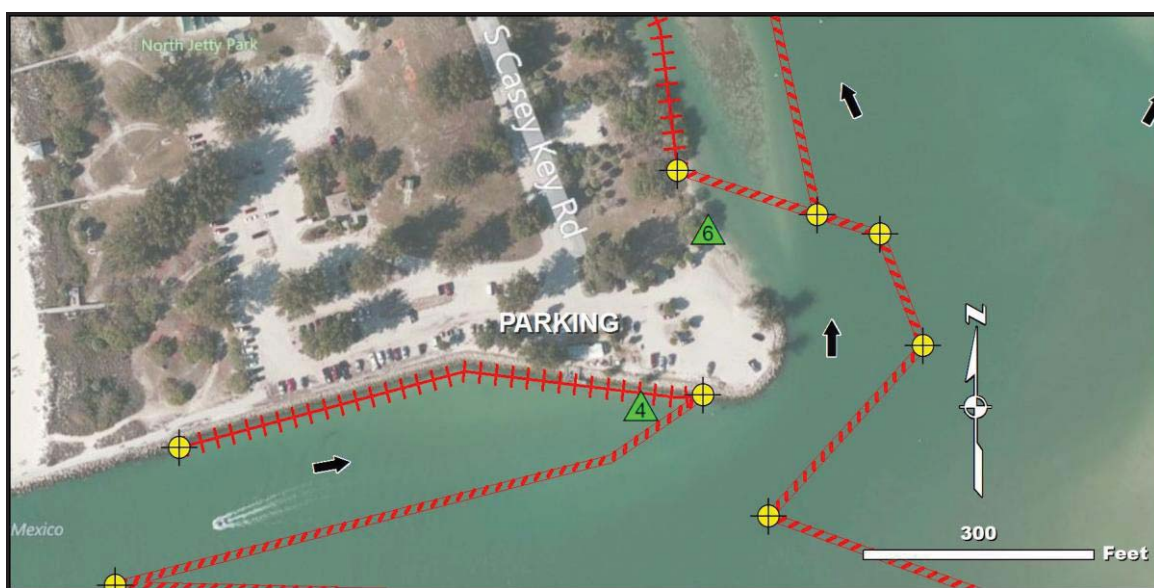
Relative Location: Southeast corner of North Jetty Park; east facing shoreline, about 80 yards north of the extreme southeast corner of the park

Latitude: 27°6' 50.666" N      Longitude: 82°27' 56.711" W

Currents: Probably between 1-2 knots.

Shoreline Description: Sand beach.

Access: Good. Inside the park with abundant parking spaces nearby.





## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #7

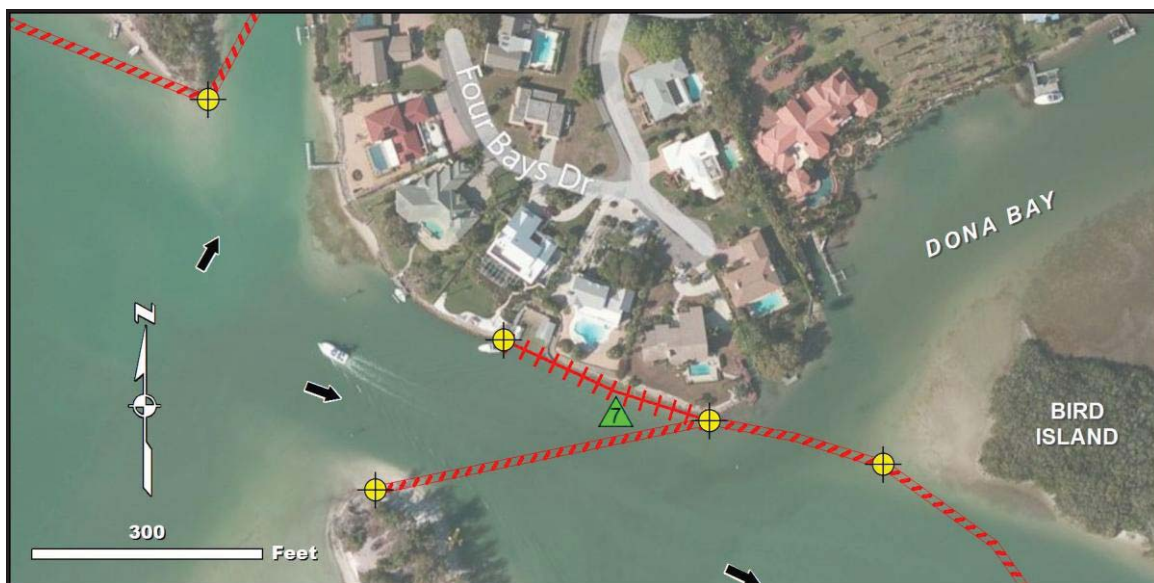
Relative Location: On the south shore of the highly developed peninsula north of Snake Island (on the north shore of the ICW)

Latitude: 27°6' 50.054" N     Longitude: 82°27' 43.886" W

Currents: Possibly 1-2 knots.

Shoreline Description: Riprap shoreline; Place a line of protection boom along the riprap for the oil to accumulate on.

Access: By watercraft.





## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #8; open water skimmer

Relative Location: In the middle of the ICW about 280 yards north of the southeast corner of North Jetty Park.

Latitude: 27°6' 57.013" N      Longitude: 82°27' 56.005" W

Currents: Possibly 1-2 knots.

Shoreline Description: Open water skimmer.

Access: By watercraft.



## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #9

Relative Location: On the east side of the channel located on the east side of Turner Key. About 100 yards north of the entrance to this channel.

Latitude: 27°6' 56.403" N      Longitude: 82°27' 48.487" W

Currents: <1 knot.

Shoreline Description: Sand beach/tidal flat.

Access: In a developed area. Even though this site is on the edge of a bare lot, it may be best to use watercraft.



## Collection Point Description

Inlet: Venice Inlet, Sarasota County, Florida

Site Name: Collection Point #10

Relative Location: On the highly developed eastern shoreline at the northern end of the peninsula immediately to the south of the Venice inlet. The east entrance of a major canal cut over half way through the peninsula.

Latitude: 27°6' 39.324" N     Longitude: 82°27' 38.822" W

Currents: Probably <1 knot.

Shoreline Description: Entrance to a canal with seawalls along its sides. Place a line of protection boom across the canal a few hundred feet inside it.

Access: Probably best by watercraft.



# INLET SUMMARY SHEET

SITE: **Deertown Gully, Sarasota County, Florida**

DATE AND TIME SURVEYED: New inlet strategy added October 2011.

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**D.**

PRINCIPAL RESOURCES AT RISK:

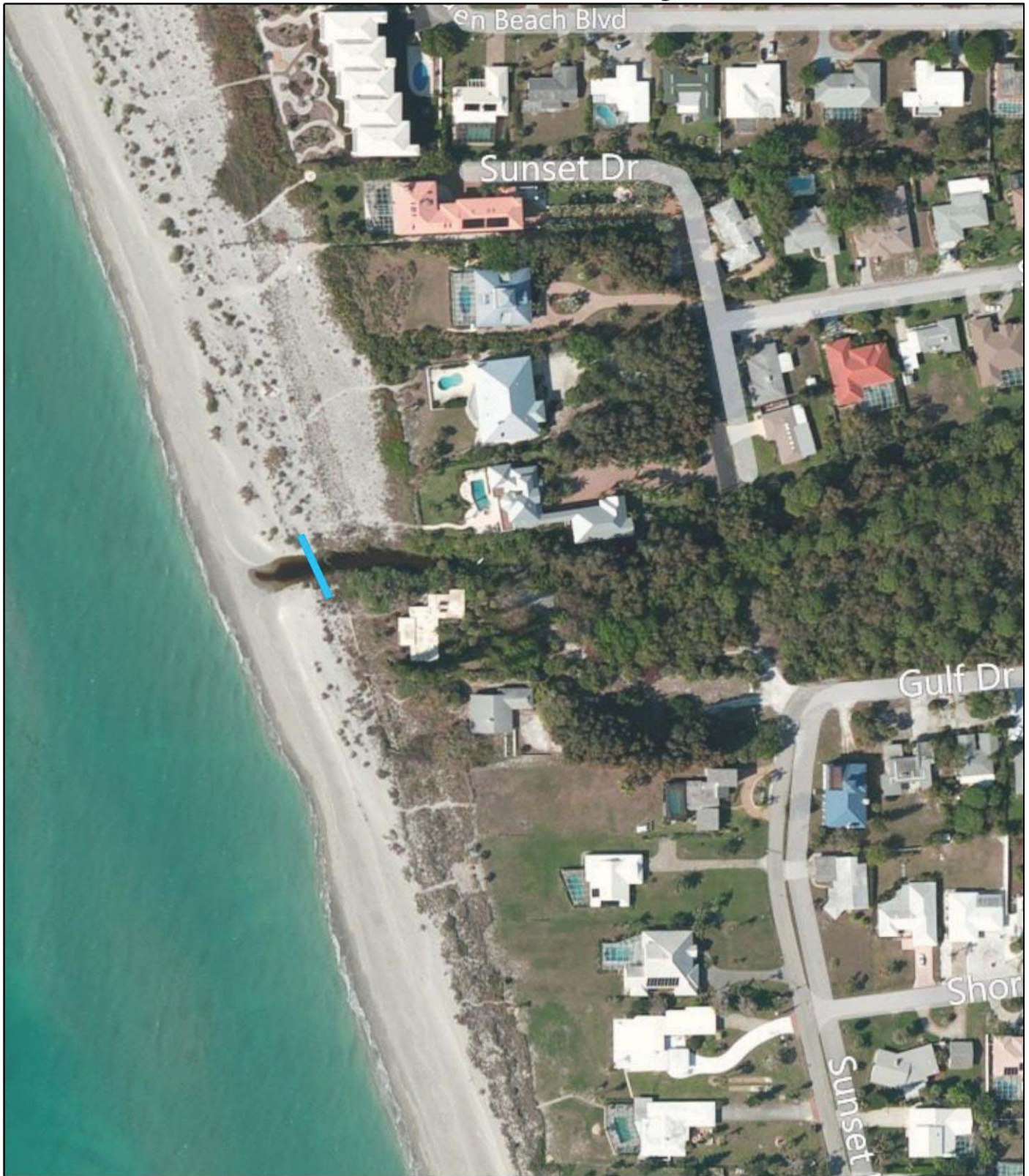
Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, wading birds, seabirds, and waterfowl. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

(NOTE: This small inlet/channel is located in the southern section of Venice near Sunset Drive.)  
Place a sand dike about 90 yards long across the entrance to the channel.



# Deertown Gully



© Bing Imagery



1:2,000

0 62.5 125 250 375 Feet





# INLET SUMMARY SHEET

SITE: Stump Pass, Charlotte County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 29 May 1995; (overflight)

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

C.

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, wading birds, seabirds, and waterfowl. Mounds of the Eastern oyster occur on some of the tidal flats. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Lemon Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through marginal flood channels (and a dredged channel) associated with the very complex ebb-tidal delta to collection points along the outer sand beaches (CPs 1, 2, and 3). Just inside the main inlet channel, anchor a Christmas tree configuration of deflection boom that would divert oil to sand beach collection points on the northwest and northeast sides of the channel (CPs 4 and 5). Establish an open water skimmer (CP6) in the channel that runs along the far northeast end of Thornton Key (about 450 yards east of the main inlet channel). Next, place two long lines of deflection boom along both sides of the main inlet channel and beyond to a seawall in Grove City (CP7). The northwest limb of this set of boom extends away from CP4, and the southeast limb extends away from the west end of north limb of deflection boom that leads to the open water skimmer at CP6.

# Stump Pass



© Bing Imagery



1:14,000

0 437.5 875 1750 2625 Feet



## Collection Point Description

Inlet: **Stump Pass, Charlotte County, Florida**

Site Name: Collection Point #1

Relative Location: Near northwest end of Thornton Key/Don Pedro Island, about 700 yards south of the main inlet channel.

Latitude: 26°53' 28.329" N    Longitude: 82°20' 23.853" W

Currents: Possibly up to 2-3 knots. Boom extends across what appears to be a dredged channel that probably also functions as the southern marginal flood channel of the complex ebb-tidal delta.

Shoreline Description: Sand beach.

Access: By watercraft.





## Collection Point Description

Inlet: **Stump Pass, Charlotte County, Florida**

Site Name: Collection Point #2

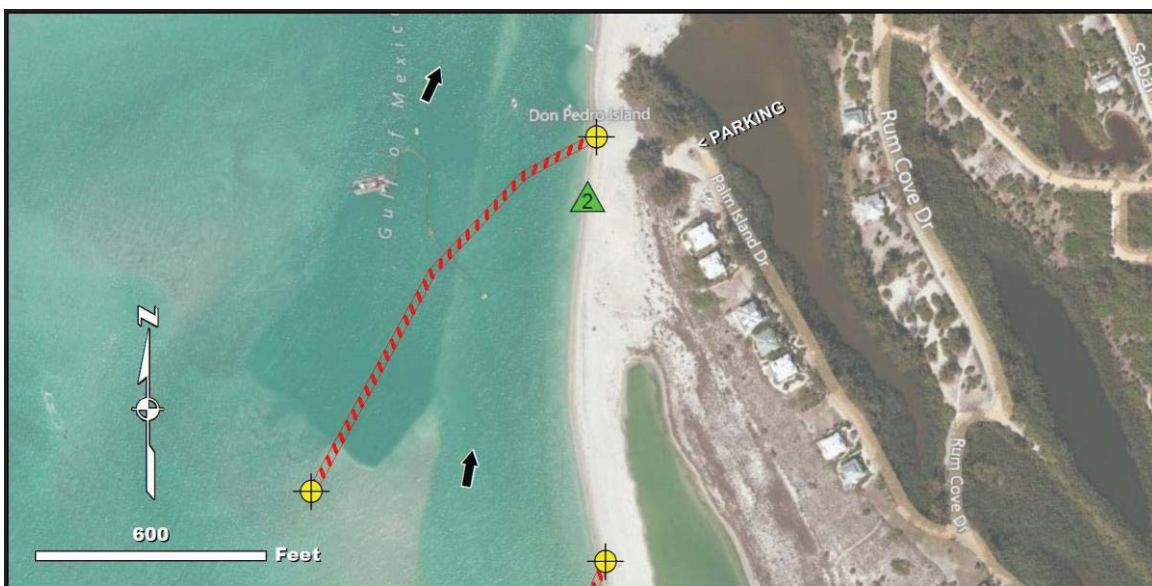
Relative Location: On the northwest end of Thornton Key/Don Pedro Island, on the east side of the entrance to the main inlet channel.

Latitude: 26°53' 39.929" N    Longitude: 82°20' 24.648" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach. Boom extends across what appears to be a dredged channel that probably also functions as the southern marginal flood channel of the complex ebb-tidal delta.

Access: There is parking space just behind the beach at the end of Palm Island Drive.





## Collection Point Description

Inlet: Stump Pass, Charlotte County, Florida

Site Name: Collection Point #3

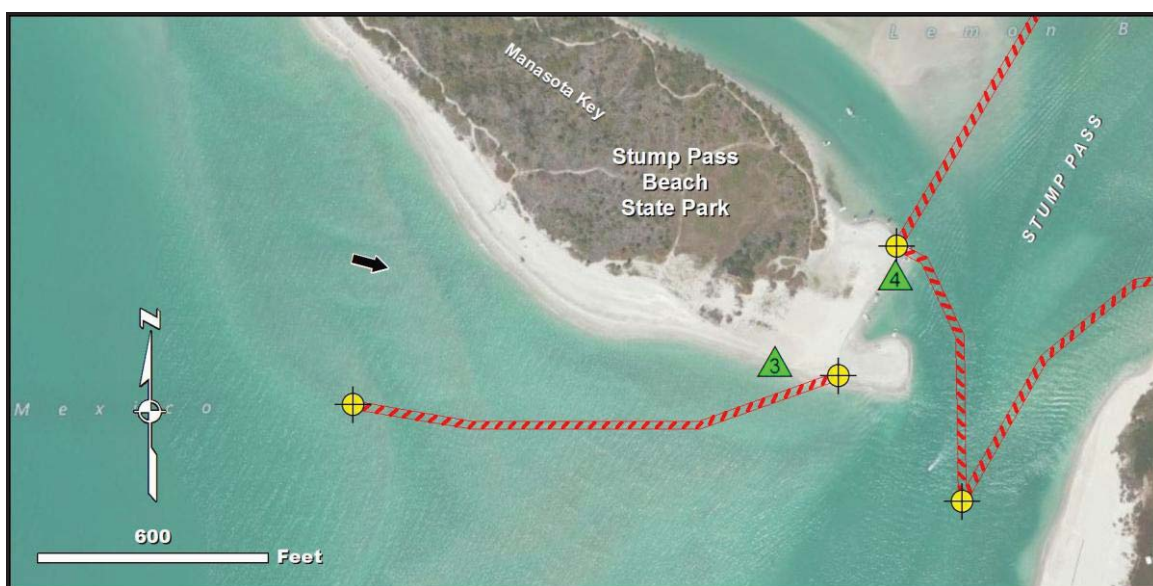
Relative Location: South end of Manasota Key in Stump Pass Beach State Park.

Latitude: 26°53' 52.765" N    Longitude: 82°20' 30.804" W

Currents: 1-3 knots along shore from the north during rising tide.

Shoreline Description: Sand beach. The boom extends across the northern marginal flood channel of the complex ebb-tidal delta.

Access: By watercraft.



## Collection Point Description

Inlet: Stump Pass, Charlotte County, Florida

Site Name: Collection Point #4

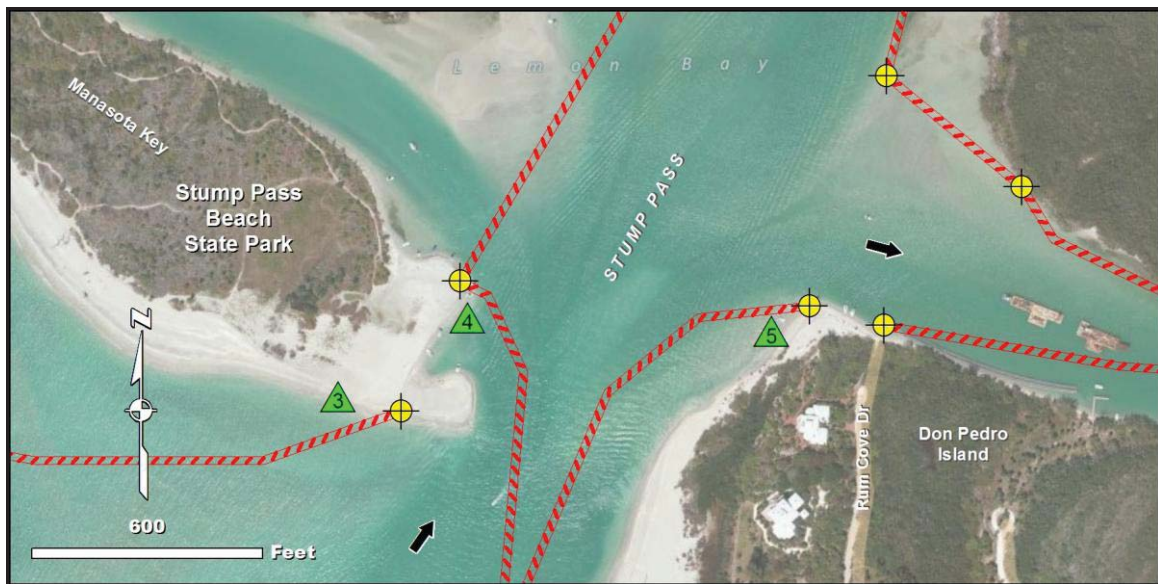
Relative Location: South end of Manasota Key in Stump Pass Beach State Park.

Latitude: 26°53' 54.953" N    Longitude: 82°20' 27.310" W

Currents: Possibly up to 2-4 knots.

Shoreline Description: Sand beach. The boom extends out into the main inlet channel.

Access: By watercraft.



## Collection Point Description

Inlet: **Stump Pass, Charlotte County, Florida**

Site Name: Collection Point #5

Relative Location: Extreme northern end of Thornton Key/Don Pedro Island, on the south side of the main inlet channel.

Latitude: 26°53' 53.997" N    Longitude: 82°20' 17.887" W

Currents: Possibly up to 2-4 knots.

Shoreline Description: Sand beach. The boom extends out into the main inlet channel.

Access: By watercraft.



## Collection Point Description

Inlet: **Stump Pass, Charlotte County, Florida**

Site Name: Collection Point #6; open water skimmer.

Relative Location: In the channel that runs along the far northeast end of Thornton Key/Don Pedro Island (about 450 yards east of the main inlet channel).

Latitude: 26°53' 53.303" N    Longitude: 82°20' 3.390" W

Currents: Possibly up to 1.5-2 knots.

Shoreline Description: Open water skimmer.

Access: By watercraft.





## Collection Point Description

Inlet: Stump Pass, Charlotte County, Florida

Site Name: Collection Point #7

Relative Location: In Grove City at the west end of Pennsylvania Avenue.

Latitude: 26°54' 47.292" N    Longitude: 82°20' 2.038" W

Currents: Probably <1 knot.

Shoreline Description: Seawall.

Access: It is just past the end of Pennsylvania Avenue. The seawall is adjacent to a big grassy, empty lot. You could drive right up to the seawall. If/when the lot is developed, you may have to use watercraft.



# INLET SUMMARY SHEET

SITE: Gasparilla Pass, Charlotte County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 1 June 1995; 1550  
[High @ 1422 (+1.75); Placida, Gasparilla Sound]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Loggerhead turtles nest on outer beaches. Shorebirds; wading birds, including the Great blue heron, Great egret, Snowy egret, and Tricolor heron; seabirds, including the White pelican; and waterfowl. Mounds of the Eastern oyster occur on some of the tidal flats. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Placida Harbor and Gasparilla Sound. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels of the ebb-tidal delta to collection points along the outer sand beaches (CPs 1 and 2). Inside the inlet, establish three Christmas tree configurations of deflection boom. The northern limb of the southern C. tree extends across the south lobe of the flood-delta to a sand beach on the west side of the Boca Grande Causeway (CP7), and the south limb extends to a sand beach on the northeast end of Gasparilla Island (CP3). The south limb of the central C. tree also extends to the sand beach at CP7, and the north limb extends along the southeast side of the north branch of the main inlet channel, finally crossing it to a seawall at the north end of the Boca Grande Causeway Bridge (CP8). The northern C. tree is designed to divert oil from impacting the sand flat on the north lobe of the flood-tidal delta, with its easterly limb extending to the seawall at CP8, and the west limb, which spits into two branches, extending to two small basins on the east shore of Little Gasparilla Island (CPs 4 and 5). Attach two lines of deflection to the east side of the Boca Grande Bridge over the south branch of the Main inlet channel. These lines of boom extend to a sand beach along the old railroad bridge (CP6). Also attach two lines of deflection to the east side of the Boca Grande Bridge across the north branch of the main inlet channel, which lead to

# INLET SUMMARY SHEET

SITE: **Gasparilla Pass, Charlotte County, Florida (continued)**

PRELIMINARY PROTECTION STRATEGY (CONTINUED):

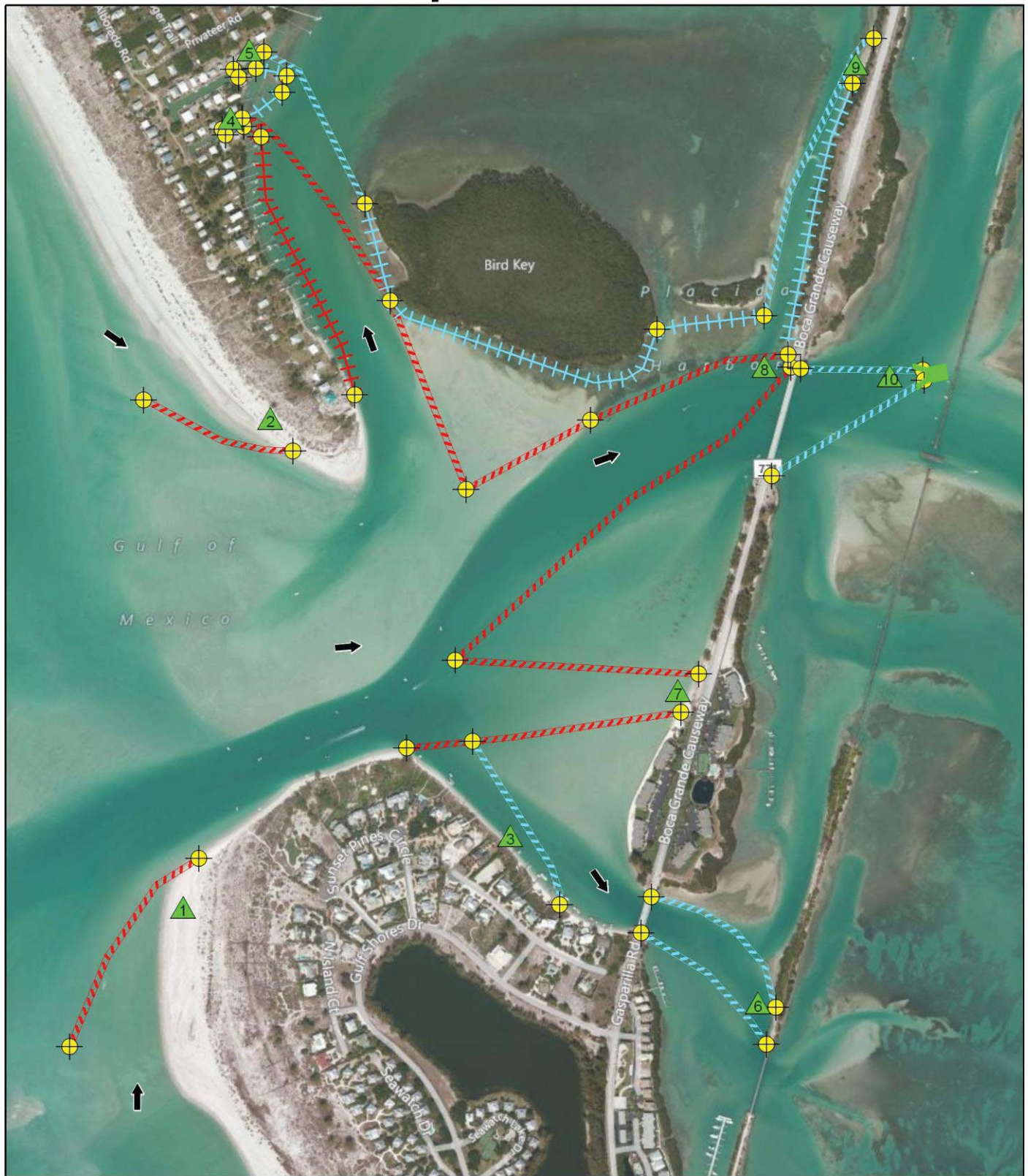
an open water skimmer about 270 yards to the east of the bridge (CP10). Stretch another long line of deflection boom along the west side of a channel that parallels the Boca Grande Causeway to a sand beach/tidal flat on the west side of the Causeway about 0.4 miles north of the middle of the north branch of the main inlet channel. Place protection boom along the south side of the mangroves on Bird Key and the adjacent small island as well as along the side of the Boca Grande Causeway between CP8 and CP9.

OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in Gasparilla Pass to be 1.0 knots at maximum flood and 1.1 knots at maximum ebb.



# Gasparilla Pass



© Bing Imagery



1:10,000

0 315 630 1260 1890 Feet





## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the northwest end of Gasparilla Island.

Latitude: 26°48' 30.923" N    Longitude: 82°17' 4.564"

Currents: 1-3 knots along shore to the north during rising tide.

Shoreline Description: Sand beach. The boom reaches across the southern marginal flood channel of the ebb-tidal delta.

Access: There is a sand track to the beach, but this is private property. Without permission to access this track, you would have to use watercraft.



## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #2

Relative Location: Outer sand beach on the southern end of Little Gasparilla Island.

Latitude: 26°48' 59.519" N    Longitude: 82°16' 58.417" W

Currents: 1-3 knots along shore from the north during rising tide.

Shoreline Description: Sand beach. The boom reaches across the northern marginal flood channel of the ebb-tidal delta.

Access: By watercraft.



## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #3

Relative Location: On the shore of the far northeast end of Gasparilla Island, about 200 yards northwest of the Boca Grande Causeway Bridge.

Latitude: 26°48' 34.851" N    Longitude: 82°16' 43.041" W

Currents: Possibly up to 1-2 knots.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #4

Relative Location: East shoreline of Little Gasparilla Island about 0.4 miles north of the extreme southern end of the island.

Latitude: 26°49' 16.916" N    Longitude: 82°17' 0.313" W

Currents: Possibly up to 1-2 knots.

Shoreline Description: Small basin entrance surrounded by seawall. Place protection boom across the basin a ways inside it.

Access: By watercraft.





## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #5

Relative Location: East shoreline of Little Gasparilla Island a little less than 0.5 miles north of the extreme southern end of the island.

Latitude: 26°49' 20.585" N    Longitude: 82°16' 59.032" W

Currents: Possibly up to 1 knot.

Shoreline Description: Small basin entrance surrounded by seawall. Place protection across the basin a ways inside it. You may have to put protection boom along the platform on the north shore of the basin.

Access: By watercraft.



## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #6

Relative Location: On side of an old railroad track about 330 yards to the southeast of the Boca Grande Causeway Bridge.

Latitude: 26°48' 23.987" N    Longitude: 82°16' 26.336" W

Currents: Probably less than 1 knot.

Shoreline Description: A sand beach/sand flat with some scattered debris and an old platform.

Access: By watercraft.



## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #7

Relative Location: By the Boca Grande Causeway directly across from the main inlet channel.

Latitude: 26° 48' 43.197" N   Longitude: 82° 16' 31.222" W

Currents: Probably 1-2 knots.

Shoreline Description: Sand beach with a seawall to the south and some riprap.

Access: This beach is right beside the Boca Grande Causeway. You should be able to pull off on the side of the road, but there are no major parking areas available.



## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #8

Relative Location: Just west of the north end of the Boca Grande Causeway Bridge over the north branch of the main inlet channel.

Latitude: 26°49' 2.520" N     Longitude: 82°16' 24.550" W

Currents: Possibly up to 1-2 knots.

Shoreline Description: Seawall.

Access: It looks as if you can drive right up to it off the Causeway (on the west side). If heavy traffic or passageway to the seawall from the road become a problem, use watercraft.





## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #9

Relative Location: On the west side of the Boca Grande Causeway about 0.4 miles north of the middle of the north branch of the main inlet channel.

Latitude: 26°49' 19.812" N    Longitude: 82°16' 19.654" W

Currents: Probably <1 knot.

Shoreline Description: Sand beach/sand flat.

Access: It is beside the Boca Grande Causeway. There appears to be room to park all along the side of the road.



## Collection Point Description

Inlet: Gasparilla Pass, Charlotte County, Florida

Site Name: Collection Point #10; open water skimmer.

Relative Location: In the north branch of the main inlet channel about 270 yards east of the Boca Grande Causeway Bridge.

Latitude: 26°49' 1.489" N     Longitude: 82°16' 17.696" W

Currents: Possibly up to 1-2 knots.

Shoreline Description: Open water skimmer.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: **Boca Grande Inlet, Lee County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 1 June 1995; 1730

[Low @ 2145 (0.00); Port Boca Grande, Charlotte Harbor]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

A.

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Shorebirds; wading birds, including the Great blue heron, Great egret, Snowy egret, Cattle egret, Tricolor heron, and the White ibis; seabirds, including the Double-crested cormorant, Brown pelican, White pelican, Laughing gull, Royal tern, and Caspian tern; waterfowl; and raptors, including the Osprey and Southern bald eagle. Mounds of the Eastern oyster occur on some of the tidal flats. The American alligator. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Charlotte Harbor and associated waterways. Marine turtle nesting on barrier island beaches May through October, small tooth sawfish critical habitat, seagrass often present in submerged beds to water depths of six feet. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

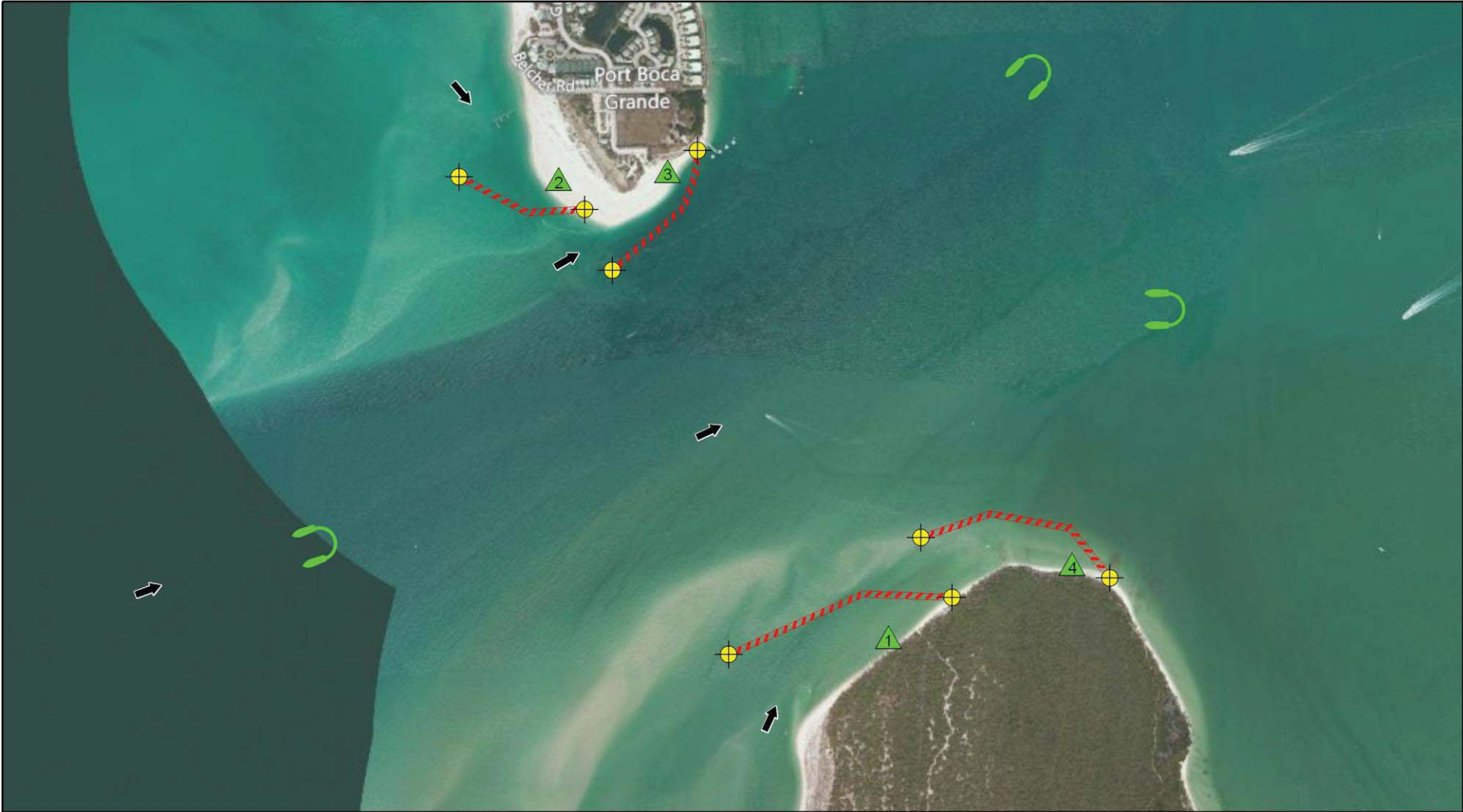
Divert oil entering the inlet through the marginal flood channels of the huge ebb-tidal delta to collection points on the outer sand beaches (CPs 1 and 2) and along the shoreline of the main inlet channel (CPs 3 and 4). Open water collection offshore and inside Charlotte Harbor.

OTHER COMMENTS:

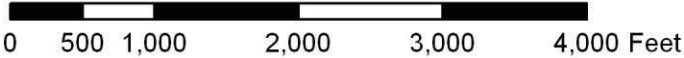
The 1995 NOAA Tidal Current Tables reported currents in Boca Grande Inlet to be 2.2 knots at maximum flood and 1.8 knots at maximum ebb. Also note that because of the age of the bridge, the weight limitations to Boca Grande are strictly enforced at the Boca Grande Causeway entrance near Placida off CR771. Limits as of 2011 are: 2 axles – 17 tons; 3 or more axles 20 tons.

# Boca Grande Inlet

170



© Bing Imagery



Legend			
	USCG Station		Open Water Collection
	Collection Point		Anchor Point
	Skimmer		Path of Oil
	Deflection, Primary		Protection, Primary
	Deflection, Secondary		Protection, Secondary
	Deflection, Tertiary		Protection, Tertiary
	Dike		



## Collection Point Description

Inlet: Boca Grande Inlet, Lee County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the north end of the Cayo Costa Island in the Cayo Costa State Park.

Latitude: 26°42' 20.509" N    Longitude: 82°15' 13.860" W

Currents: 1-3 knots to the north during rising tide. The boom reaches across the southern marginal flood channel of the massive ebb-tidal delta.

Shoreline Description: Sand beach. Patchy, exposed worm reef in nearshore zone.

Access: By watercraft.



## Collection Point Description

Inlet: **Boca Grande Inlet, Lee County, Florida**

Site Name: Collection Point #2

Relative Location: On the outer beach on the southern end of Gasparilla Island, just north of the north jetty, in the park that houses the Boca Grande Lighthouse.

Latitude: 26°43' 2.261" N      Longitude: 82°15' 46.465" W

Currents: 1-3 knots to the south during rising tide. The boom reaches across the northern marginal flood channel of the massive ebb-tidal delta.

Shoreline Description: Sand beach.

Access: There is a large parking area nearby.



## Collection Point Description

Inlet: Boca Grande Inlet, Lee County, Florida

Site Name: Collection Point #3

Relative Location: At the southern end of Gasparilla Island on the north shore of the main inlet channel, in the park that houses the Boca Grande Lighthouse.

Latitude: 26°43' 2.836" N     Longitude: 82°15' 35.500" W

Currents: Possibly up to 2-4 knots.

Shoreline Description: Sand beach.

Access: There is a parking area nearby.



## Collection Point Description

Inlet: Boca Grande Inlet, Lee County, Florida

Site Name: Collection Point #4

Relative Location: On the north end of the Cayo Costa Island in the Cayo Costa State Park, south side of the main inlet channel.

Latitude: 26°42' 26.866" N    Longitude: 82°14' 55.235" W

Currents: Possibly 2-4 knots.

Shoreline Description: Steep sand beach. Exposed worm reef in nearshore zone.

Access: By watercraft.





# INLET SUMMARY SHEET

SITE: Captiva Pass, Lee County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 29 May 1995; (overflight)

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

A.

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds, including the Great blue heron, Little blue heron, Great egret, Snowy egret, Black-crowned night heron, Tricolor heron, and Reddish egret; seabirds, including the Double-crested cormorant, Magnificent frigatebird, and Brown pelican; waterfowl; and raptors, including the Osprey and Southern bald eagle. Mounds of the Eastern oyster occur on some of the tidal flats. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Pine Island Sound. Marine turtle nesting on barrier island beaches May through October, small tooth sawfish critical habitat, seagrass often present in submerged beds to water depths of six feet. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil moving along the shores of North Captiva and Cayo Costa Islands and oil entering the inlet through the marginal flood channels to collection points along the outer sand beaches (CPs 1, 4, and 5). In the main inlet channel, anchor a Christmas tree configuration of deflection boom (lead anchor in the main ebb channel of the ebb-tidal delta) and divert oil to collection points on the sand beaches on the north end of North Captiva Island (CP2) and on the east side of Cayo Costa island (CP6). Inside the inlet, divert oil to a sand beach on the backside of North Captiva Island (CP3). The entrance to Safety Harbor at the north end of North Captiva Island should be boomed off to prevent the mangroves and private property inside the harbor from being oiled. This line of protection boom can be extended to the south to protect the wide mangrove forests in that area. Because of the large size of the main inlet channel and its strong tidal currents, at least two open water collection systems should be established inside the bay as a backup to the initial lines of defense.

# INLET SUMMARY SHEET

SITE: Captiva Pass, Lee County, Florida (continued)

OTHER COMMENTS:

The 1995 NOAA Tidal Current Tables reported currents in Captiva Pass to be 1.8 knots at maximum flood and 1.9 knots at maximum ebb. Also, other than a private grass landing strip on North Captiva Island, access is limited to watercraft only.

# Captiva Pass



© Bing Imagery



1:15,500

0 487.5 975 1950 2925 Feet



## Collection Point Description

Inlet: Captiva Pass, Lee County, Florida

Site Name: Collection Point #1

Relative Location: On the outer beach near the north end of North Captiva Island, about 675 yards south of the extreme north end of the island. The boom reaches across the south marginal flood channel of the strongly southerly deflected ebb-tidal delta.

Latitude: 26°36' 8.731" N      Longitude: 82°13' 26.289" W

Currents: 1-3 knots along shore to the north during rising tide.

Shoreline Description: Sand beach.

Access: It is right at the end of a road called Hidden Lane. This is private property but there appears to be a vacant lot just south of the anchor point. May have to use watercraft which could be a problem if the waves are big.





## Collection Point Description

Inlet: Captiva Pass, Lee County, Florida

Site Name: Collection Point #2

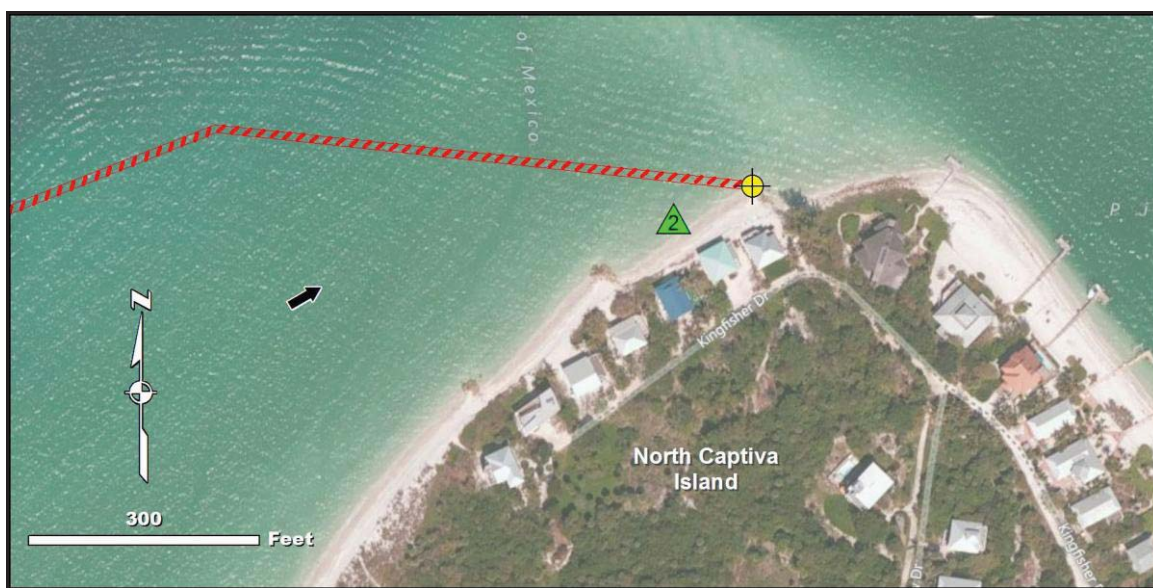
Relative Location: Near the extreme north end of North Captiva Island.

Latitude: 26°36' 23.562" N    Longitude: 82°13' 17.370" W

Currents: Possibly 2-4 knots.

Shoreline Description: Sand beach.

Access: Densely crowded private houses. It would probably be best to use watercraft.



## Collection Point Description

Inlet: Captiva Pass, Lee County, Florida

Site Name: Collection Point #3

Relative Location: On the east side of the extreme north end of North Captiva Island, about 350 yards southeast of the end.

Latitude: 26°36' 20.900" N    Longitude: 82°13' 6.083" W

Currents: Possibly 2-4 knots.

Shoreline Description: Sand beach.

Access: Crowded with houses. It would probably be best to use watercraft.



## Collection Point Description

Inlet: Captiva Pass, Lee County, Florida

Site Name: Collection Point #4

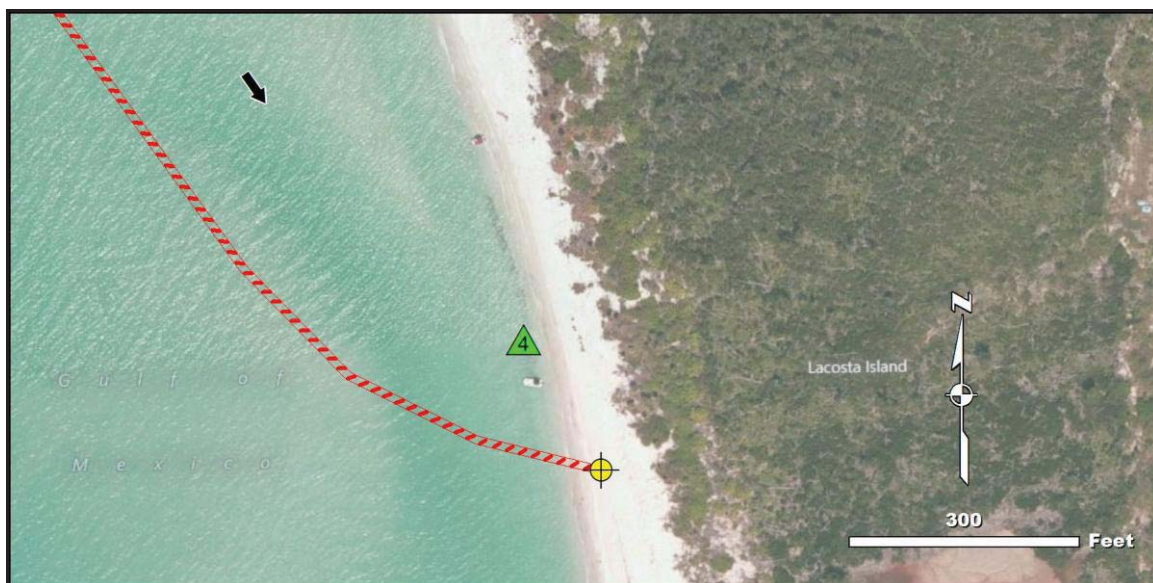
Relative Location: On the outer beach about 400 yards north of the southern end of Cayo Costa Island. The boom reaches across the north marginal flood channel of the strongly southerly deflected ebb-tidal delta. In Cayo Costa State Park.

Latitude: 26°36' 57.917" N    Longitude: 82°13' 28.398" W

Currents: 1-3 knots along shore to the south during rising tide.

Shoreline Description: Sand beach.

Access: By watercraft.





## Collection Point Description

Inlet: Captiva Pass, Lee County, Florida

Site Name: Collection Point #5

Relative Location: On the outer beach close to the southern end of Cayo Costa Island. The boom reaches across the north marginal flood channel of the strongly southerly deflected ebb-tidal delta. In Cayo Costa State Park.

Latitude: 26°36' 52.095" N    Longitude: 82°13' 26.485" W

Currents: 1-3 knots along shore to the south during rising tide.

Shoreline Description: Sand beach.

Access: By watercraft.





## Collection Point Description

Inlet: Captiva Pass, Lee County, Florida

Site Name: Collection Point #6

Relative Location: The beach on the east side of Cayo Costa Island, about 300 yards north of the extreme southern end. In Cayo Costa State Park.

Latitude: 26°36' 56.302" N    Longitude: 82°13' 17.116" W

Currents: Possibly 2-4 knots.

Shoreline Description: Sand beach.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: Charley Pass, Lee County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: n/a

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY):

**D.**

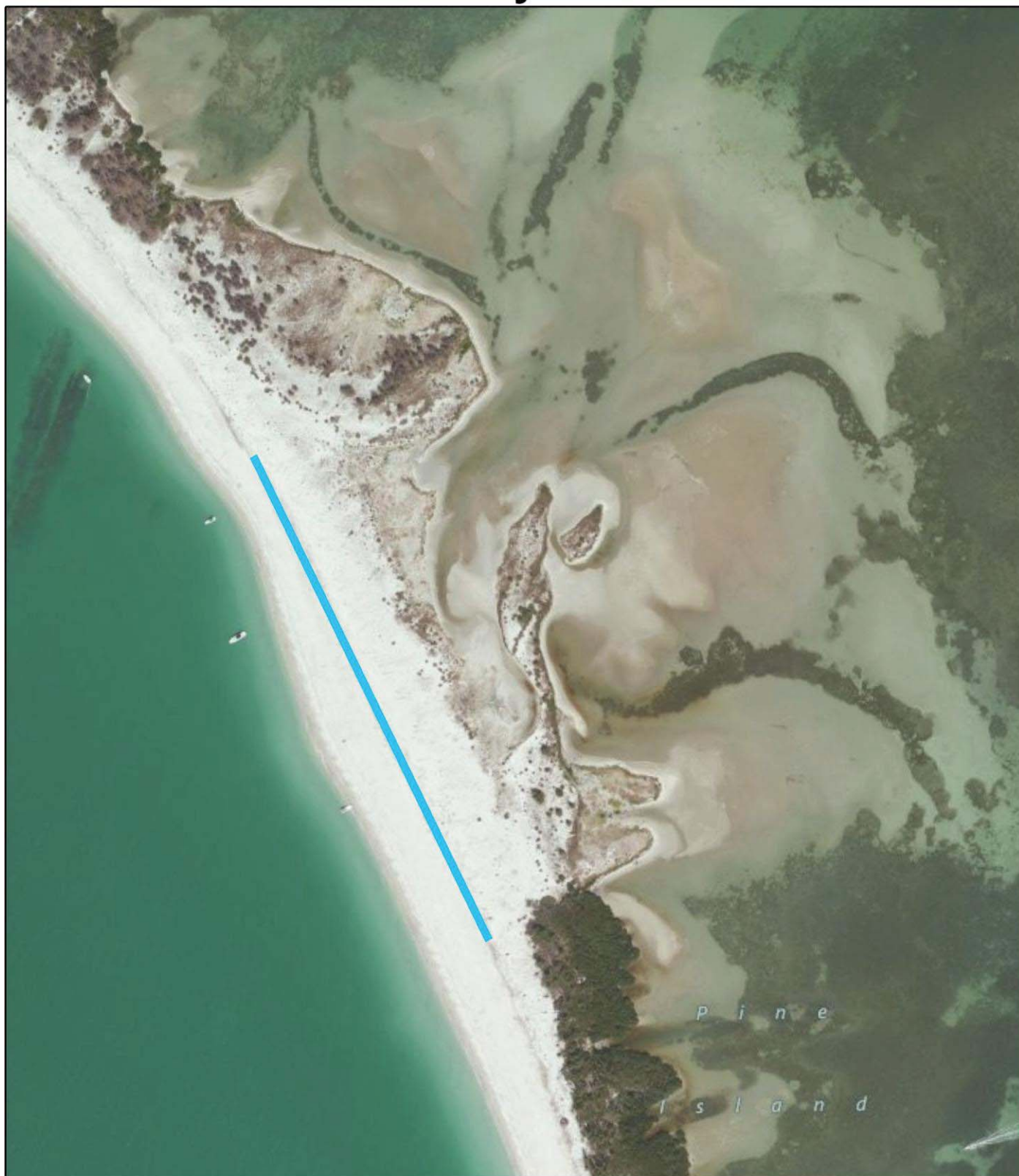
PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds, including the Great blue heron, Little blue heron, Great egret, Snowy egret, Black-crowned night heron, Tricolor heron, and Reddish egret; seabirds, including the Double-crested cormorant, Magnificent frigatebird, and Brown pelican; waterfowl; and raptors, including the Osprey and Southern bald eagle. Mounds of the Eastern oyster occur on some of the tidal flats. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Pine Island Sound. Marine turtle nesting on barrier island beaches May through October, small tooth sawfish critical habitat, seagrass often present in submerged beds to water depths of six feet. For further information refer to the recent ESI map and data and GRP.

PRELIMINARY PROTECTION STRATEGY:

This is a new inlet that was not here when the 1995 survey was carried out. As best we can tell, it was created by Hurricane *Charley* on 13-14 August 2004. It is located on North Captiva Island about one mile north of Redfish Pass, and it is presently completely closed off by a low beach ridge. Our strategy for this inlet, in the event of a major oil spill, is to build a sediment dike across the former entrance to the inlet that would be about 425 yards long.

# Charley Pass



© Bing Imagery



1:4,000

0 125 250 500 750 Feet

## Legend



USCG Station



Collection Point



Skimmer



Open Water Collection



Anchor Point



Path of Oil

Deflection, Primary

Deflection, Secondary

Deflection, Tertiary

Dike

Protection, Primary

Protection, Secondary

Protection, Tertiary

# INLET SUMMARY SHEET

SITE: **Redfish Pass, Lee County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 2 June 1995; 1013  
[Low @ 0836 (+1.14); Redfish Pass, Captiva Island (north end)]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

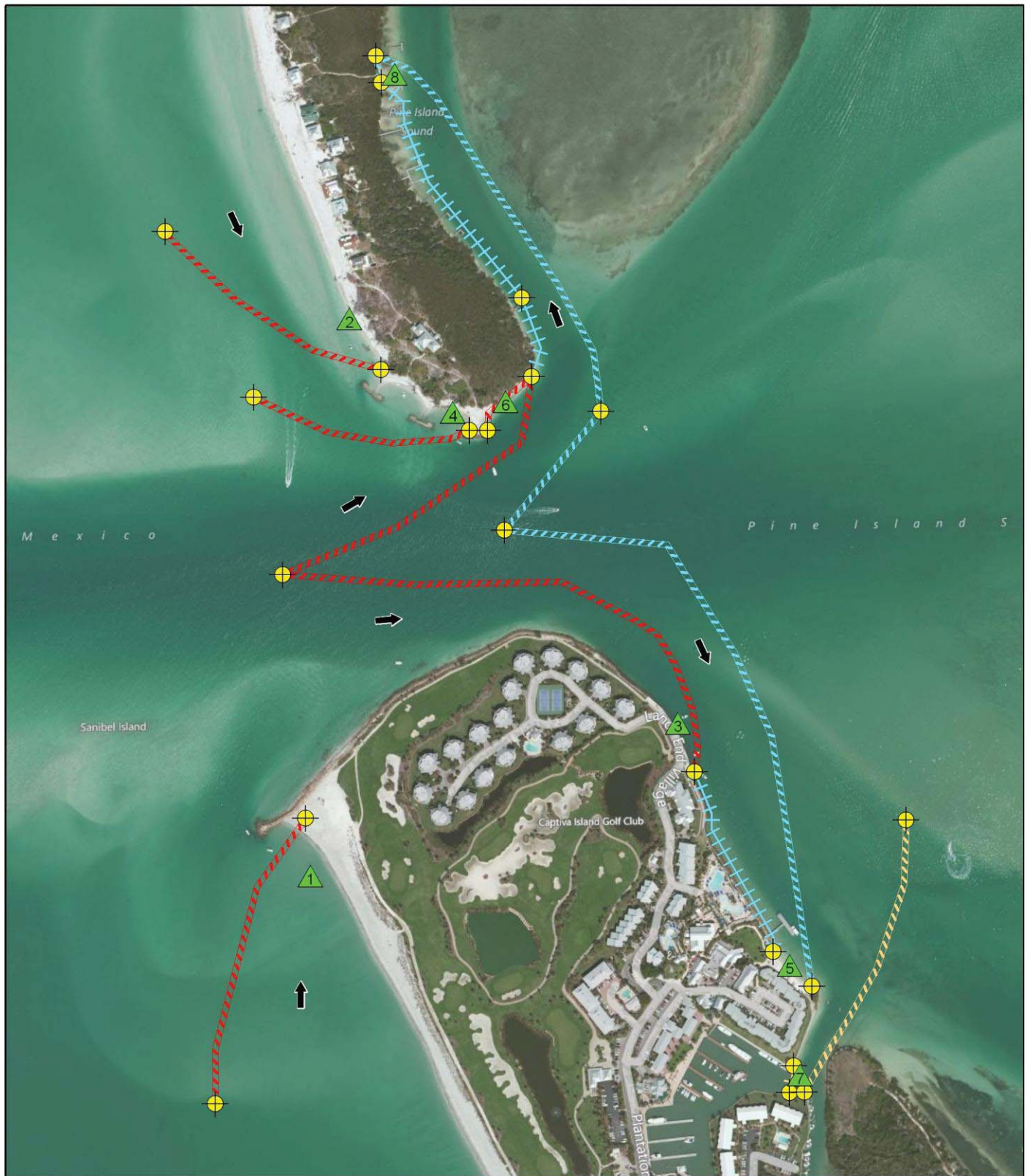
Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds, including the Great blue heron, Little blue heron, Great egret, Snowy egret, Black-crowned night heron, Tricolor heron, and Reddish egret; seabirds, including the Double-crested cormorant, Magnificent frigatebird, and Brown pelican; waterfowl; and raptors, including the Osprey and Southern bald eagle. Mounds of the Eastern oyster occur on some of the tidal flats. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Pine Island Sound. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels of the ebb-tidal delta to collection points along the outer sand beaches (CPs 1, 2 and 4). In the main inlet channel, anchor two Christmas tree configurations of deflection boom. The north limb of the most seaward C tree diverts oil to a sand beach on the extreme southeast end of North Captiva Island (CP6), and the south limb diverts oil to a seawall on the northeast end of Captiva Island (CP3). The north limb of the most landward C tree extends for a long way along the east side of a channel called Pine island Sound, and then across this channel to a sand beach/sand flat on the east side of North Captiva island (CP8). The south limb of the most landward C tree diverts oil to a sand beach on the bay side of Captiva Island about 550 yards south of the northeast end of the island (CP5). Further south of CP5, extend a line of deflection boom across the channel on the west side of the flood-tidal delta that is designed to divert oil to a man-made basin surrounded by seawalls (CP7). Extend lines of protection boom along side of the riprap between CP3 and CP5, and by the docks and mangroves between CP6 and CP8.



# Redfish Pass



© Bing Imagery



1:6,500

0 205 410 820 1230 Feet



## Collection Point Description

Inlet: **Redfish Pass, Lee County, Florida**

Site Name: Collection Point #1

Relative Location: The outer sand beach on the extreme north end of Captiva Island, just south of the south jetty of the inlet.

Latitude: 26°33' 2.170" N      Longitude: 82°12' 5.426" W

Currents: 1-3 knots along shore from the south during rising tide.

Shoreline Description: Sand beach.

Access: It is beside a large golf course, which has a golf-buggy track just back of the beach.



## Collection Point Description

Inlet: **Redfish Pass, Lee County, Florida**

Site Name: Collection Point #2

Relative Location: On the outer beach bout 170 yards north of the extreme south end of North Captiva Island. The boom extends across the northern marginal flood channel of the ebb-tidal delta.

Latitude: 26°33' 23.376" N    Longitude: 82°12' 3.418" W

Currents: 1-3 knots along shore from the north during rising tide.

Shoreline Description: Sand beach just north of a small breakwater.

Access: Private area with large houses. There are no roads along the length of the island and the beach to the north contains a lot of fallen trees. By watercraft seems to be the only choice.





## Collection Point Description

Inlet: **Redfish Pass, Lee County, Florida**

Site Name: Collection Point #3

Relative Location: On the bay side of the north end of Captiva Island, about 250 yards southeast of the extreme north end.

Latitude: 26°33' 7.779" N     Longitude: 82°11' 49.696" W

Currents: Possibly up to 2-4 knots.

Shoreline Description: Seawall.

Access: The seawall is along side of a paved road. You can probably drive right up to the seawall. Parking space is available.





## Collection Point Description

Inlet: **Redfish Pass, Lee County, Florida**

Site Name: Collection Point #4

Relative Location: South end of Captiva Island just north of the southernmost breakwater; The boom extends across the northern marginal flood channel of the ebb-tidal delta.

Latitude: 26°33' 19.746" N    Longitude: 82°11' 59.079" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach with riprap to the south.

Access: By watercraft.



## Collection Point Description

Inlet: **Redfish Pass, Lee County, Florida**

Site Name: Collection Point #5

Relative Location: On the bay side of the northwest end of Captiva Island, about 550 yards southeast of the extreme northern end (as the crow flies).

Latitude: 26°32' 58.494" N    Longitude: 82°11' 45.072" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach.

Access: It is beside Harbourside Village and you could drive up close to the beach with available parking space. If private property issues become a problem, use watercraft.



## Collection Point Description

Inlet: **Redfish Pass, Lee County, Florida**

Site Name: Collection Point #6

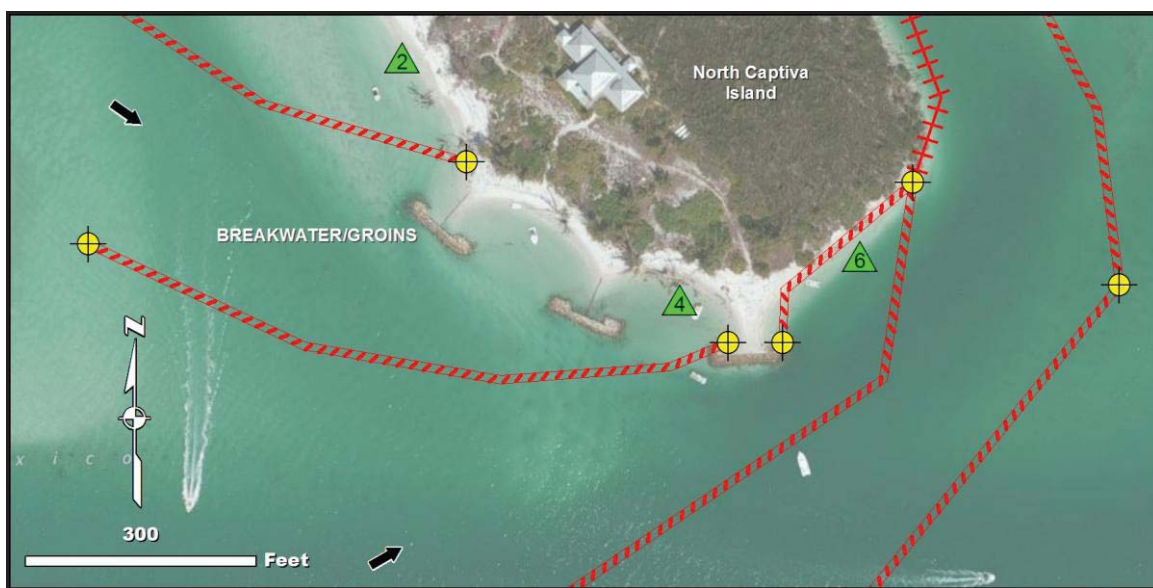
Relative Location: Extreme southeast end of North Captiva Island.

Latitude: 26°33' 20.126" N    Longitude: 82°11' 56.824" W

Currents: Probably 2-3 knots.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: **Redfish Pass, Lee County, Florida**

Site Name: Collection Point #7

Relative Location: In a man-made canal on the bay side of the northeast end of Captiva Island, about 700 yards southeast of the extreme north end of the island (as the crow flies).

Latitude: 26°32' 53.954" N    Longitude: 82°11' 44.830" W

Currents: Probably about 1 knot.

Shoreline Description: Man-made canal with seawalls along its side. Place protection boom across the entrance to the harbor to the west.

Access: By watercraft.





## Collection Point Description

Inlet: **Redfish Pass, Lee County, Florida**

Site Name: Collection Point #8

Relative Location: On the bay side of the southern end of North Captiva Island, about 450 yards northwest of the extreme south end (as the crow flies).

Latitude: 26°33' 32.783" N    Longitude: 82°12' 1.726" W

Currents: Probably 1-2 knots.

Shoreline Description: Sand beach/sand flat.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: **Blind Pass, Lee County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 2 June 1995; 1057

[Low @ 0722 (+1.41); Captiva Island (outside)]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**C/D.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Shorebirds; wading birds; seabirds; waterfowl; and raptors, including the Osprey and Southern bald eagle. The American alligator. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Pine Island Sound. Marine turtle nesting on barrier island beaches May through October, small tooth sawfish critical habitat, seagrass often present in submerged beds to water depths of six feet. For further information, refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

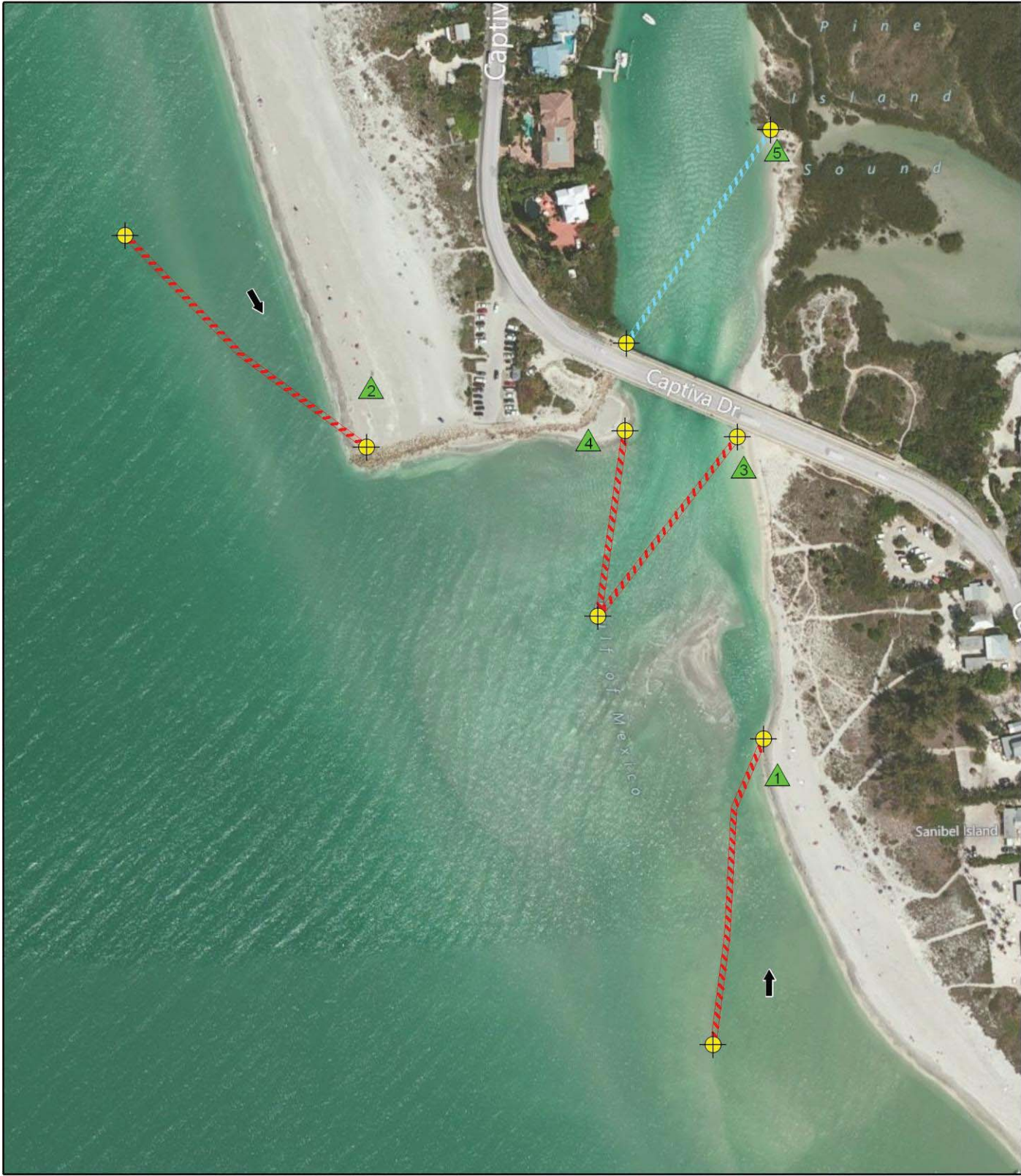
Divert oil entering the inlet through the marginal flood channels of the ebb-tidal delta to collection points along the outer sand beaches (CPs 1 and 2). In the main inlet channel (assuming the waves are not too big), establish a Christmas tree configuration of deflection boom, the west limb of which would divert oil to the sand beach at the south end of Captiva Island (CP4), and the east limb of which would divert oil to the sand beach at the north end of Sanibel Island (CP3). Landward of the Captiva Drive Bridge, extend a single line of deflection boom across the main inlet channel to divert oil to a sand beach on the north end of Sanibel Island about 135 yards north of the Captiva Drive Bridge (CP5).

OTHER COMMENTS:

This inlet was closed between 2002 and 2008, so it may be closed or nearly closed again in the future. Under those conditions, a sand dike would be the appropriate strategy, making this a class D inlet.

The 1995 NOAA Tidal Current Tables reported currents in Blind Pass to be 0.6 knots at maximum flood and 0.4 knots at maximum ebb. During the original field survey in 1995, a strong wind was blowing out of the southwest, large waves were breaking on the north jetty, and a strong flood current was observed.

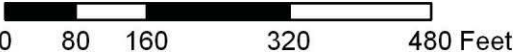
# Blind Pass (Lee)



© Bing Imagery



1:2,600





## Collection Point Description

Inlet: **Blind Pass, Lee County, Florida**

Site Name: Collection Point #1

Relative Location: Outer sand beach near the northern end of Sanibel Island, about 190 yards south of the Captiva Drive Bridge. The boom extends across the south marginal flood channel of the ebb-tidal delta.

Latitude: 26°28' 52.198" N    Longitude: 82°10' 55.771" W

Currents: 1-3 knots along shore to the north during rising tides.

Shoreline Description: Sand beach.

Access: There are some beach cottages here but there is a public parking beach about 100 yards to the north. There is also access to the south, so land access seems probable.





## Collection Point Description

Inlet: **Blind Pass, Lee County, Florida**

Site Name: Collection Point #2

Relative Location: Just north of the north jetty on the southern end of Captiva Island.

Latitude: 26°28' 58.192" N    Longitude: 82°11' 2.589" W

Currents: 1-3 knots along shore from the north during rising tides.

Shoreline Description: Sand beach.

Access: There is a large public parking area right by the beach.



## Collection Point Description

Inlet: **Blind Pass, Lee County, Florida**

Site Name: Collection Point #3

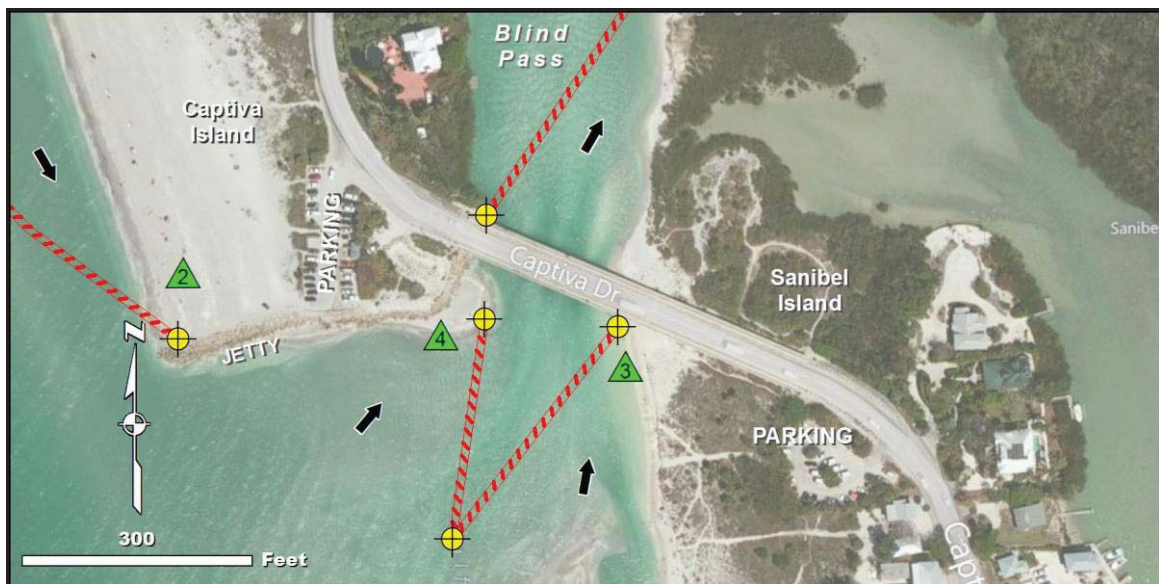
Relative Location: Outer beach at the extreme northern end of Sanibel Island, just south of the Captiva Drive Bridge.

Latitude: 26°28' 56.899" N    Longitude: 82°10' 56.269" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach.

Access: There is a public parking area just back of the beach.



## Collection Point Description

Inlet: **Blind Pass, Lee County, Florida**

Site Name: Collection Point #4

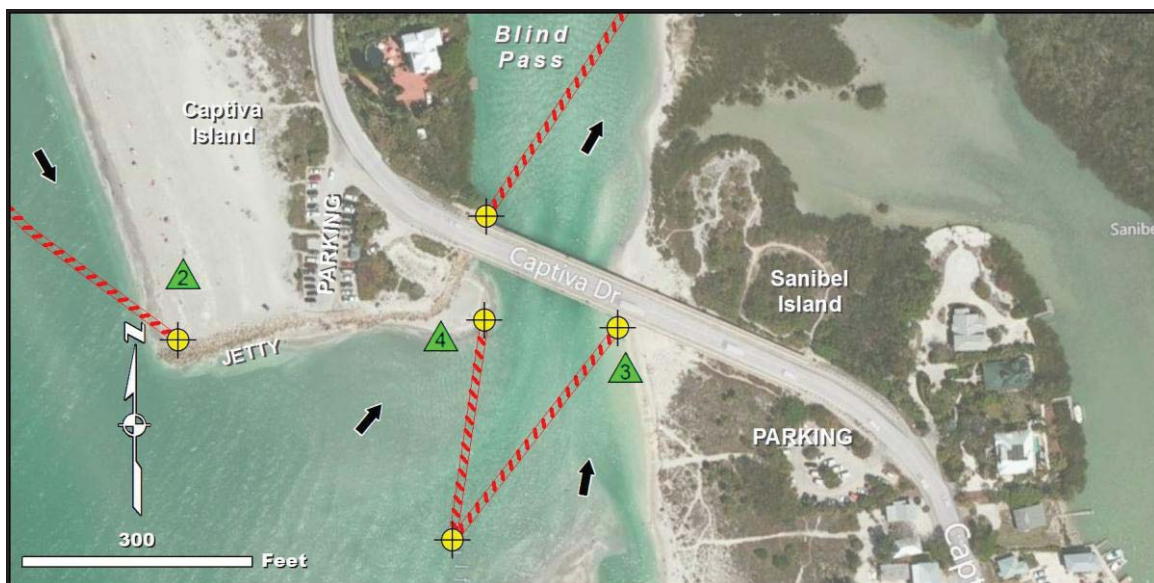
Relative Location: On the extreme southern end of Captiva Island, just south of the Captiva Drive Bridge.

Latitude: 26°28' 57.345" N    Longitude: 82°10' 58.904" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach with riprap at the high-tide line.

Access: There is a large parking area just behind the beach. However, the riprap may cause some difficulties with the cleanup. If so, use watercraft.



## Collection Point Description

Inlet: **Blind Pass, Lee County, Florida**

Site Name: Collection Point #5

Relative Location: On the north end of Sanibel Island, about 135 yards north of the Captiva Drive Bridge.

Latitude: 26°29' 1.726" N     Longitude: 82°10' 55.623" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach.

Access: By watercraft.





# INLET SUMMARY SHEET

SITE: San Carlos Bay Entrance, Lee County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 2 June 1995; 1230  
[High @ 1442 (+2.92); Point Ybel, San Carlos Bay entrance]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

A.

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds, including the Great blue heron, Snowy egret, Tricolor heron, and Green heron; seabirds, including the Double-crested cormorant, Brown pelican, and Magnificent frigatebird; and raptors, including the Osprey and Southern bald eagle. Mounds of the Eastern oyster occur on some of the tidal flats. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of San Carlos Bay. Marine turtle nesting on barrier island beaches May through October, small tooth sawfish critical habitat, seagrass often present in submerged beds to water depths of six feet. For further information, refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil to sand collection points along the outer beach (CP1) and the backside of Sanibel Island (CP2). Three channels pass beneath Route 867 and connect San Carlos Bay with the Gulf of Mexico. Anchor Christmas tree configurations of deflection boom in each of the three channels on the east side of the causeway. The south limb of the southern C. tree is designed to divert oil to a seawall on the shore of Sanibel Island about 400 yards east of the Causeway Blvd. (Route 867) Bridge (CP3). Place a line of protection boom across the entrance to the canal system just east of CP3. Project a short line of deflection boom out into the southern channel to divert oil to the sand beach/boat ramp just east of the southern end of the Causeway Blvd. Bridge (CP4). The north limb of the southern C. tree would divert oil to a sand beach on the south end of the southern fill area along the Causeway Blvd. Bridge (CP5). The south limb of the central C. tree would divert oil to the sand beach at the north end of the same fill area (CP6), and the north limb would divert oil to a sand beach at the south end of the central fill area (CP7). The south limb of the third (most northerly) C. tree would divert oil to the sand beach at the north end of

# INLET SUMMARY SHEET

SITE: **San Carlos Bay Entrance, Lee County, Florida (continued)**

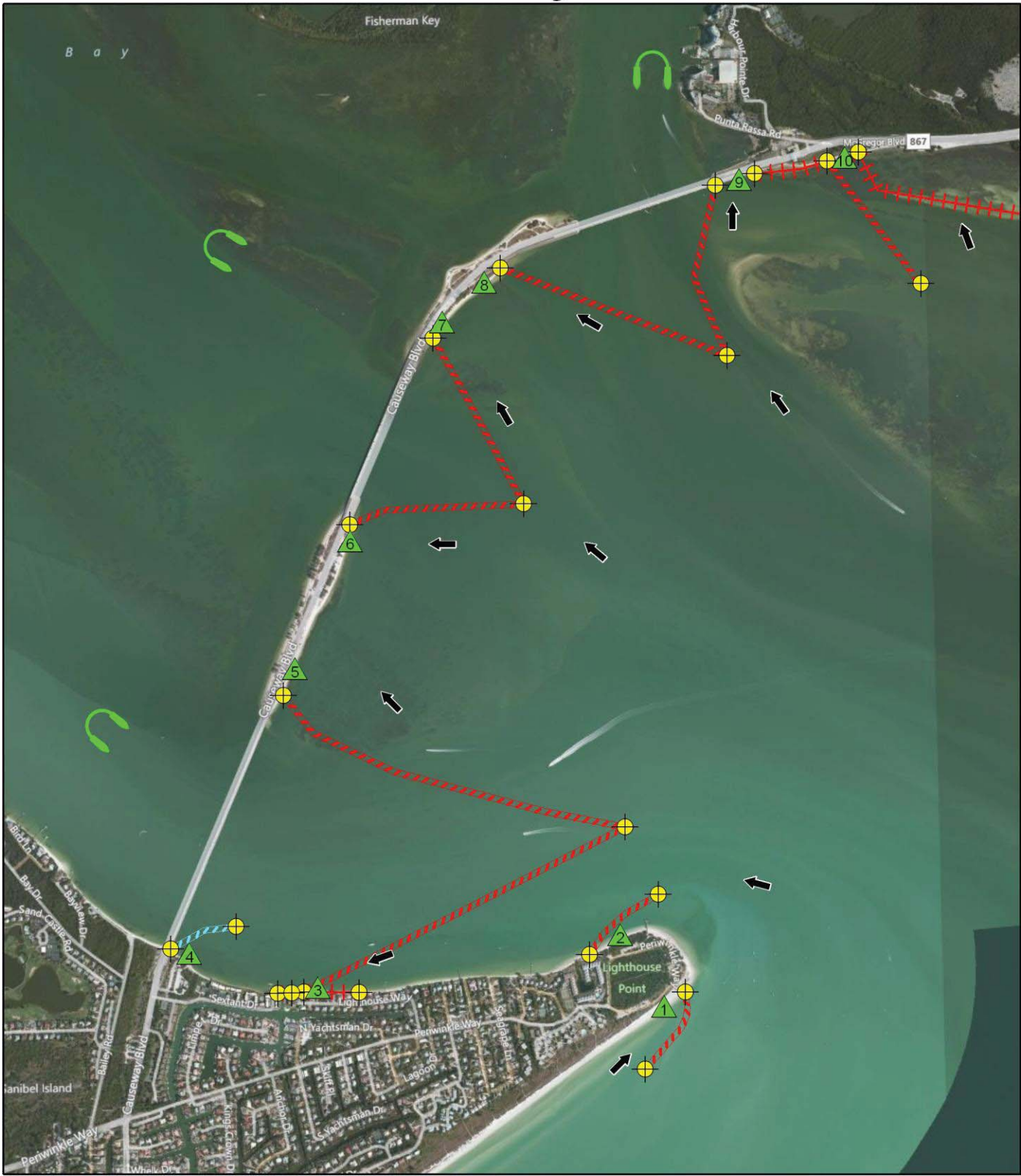
PRELIMINARY PROTECTION STRATEGY (CONTINUED):

the central fill area (CP8), and the north limb would divert oil to the seawall along the abutment at the northeast end of the Causeway Blvd. Bridge (CP9). A line of deflection boom extending away from the south side of McGregor Blvd. (Route 867) about 450 yards east of the toll gate for the Causeway Blvd. Bridge would divert oil to a sand beach (CP10). Place protection boom as needed between CP9 and CP10 to keep oil out of the riprap. Inside the bay, use open water collection skimmers to recover oil that entrains the initial lines of defense.

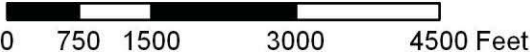
OTHER COMMENTS:

Waves in the bay could pose a problem for response operations.

# San Carlos Bay Entrance



© Bing Imagery



## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach at Lighthouse Point on the south end of Sanibel Island (south side of the island).

Latitude: 26°27' 4.769" N      Longitude: 82°0' 53.286" W

Currents: 1-3 knots along shore from the southwest during rising tides.

Shoreline Description: Sand beach.

Access: There is a large parking area right behind the beach.





## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #2

Relative Location: Lighthouse Point on the south end of Sanibel Island (north side of the island).

Latitude: 26°27' 14.256" N    Longitude: 82°1' 1.623" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach.

Access: There is a large public parking area right behind the beach.



## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #3

Relative Location: The shore of Sanibel Island about 400 yards east of the Causeway Blvd (Route 867) Bridge.

Latitude: 26° 27' 8.186" N    Longitude: 82° 1' 47.677" W

Currents: Possibly 2-3 knots.

Shoreline Description: Seawall.

Access: By watercraft.



## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #4

Relative Location: Sanibel Island just east of the southwest end of the Causeway Blvd. (Route 867) Bridge.

Latitude: 26°27' 13.870" N    Longitude: 82°2' 10.060" W

Currents: Possibly 2-3 knots.

Shoreline Description: Sand beach and boat ramp.

Access: There is a big parking area for the boat ramp and you can drive real close to the beach.



## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #5

Relative Location: East side of the south end of the most southerly fill area along the Causeway Blvd. (Route 867) Bridge.

Latitude: 26°27' 53.169" N    Longitude: 82°1' 50.484" W

Currents: Possibly 2-3 knots.

Shoreline Description: Sand beach.

Access: You can park right by the beach.





## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #6

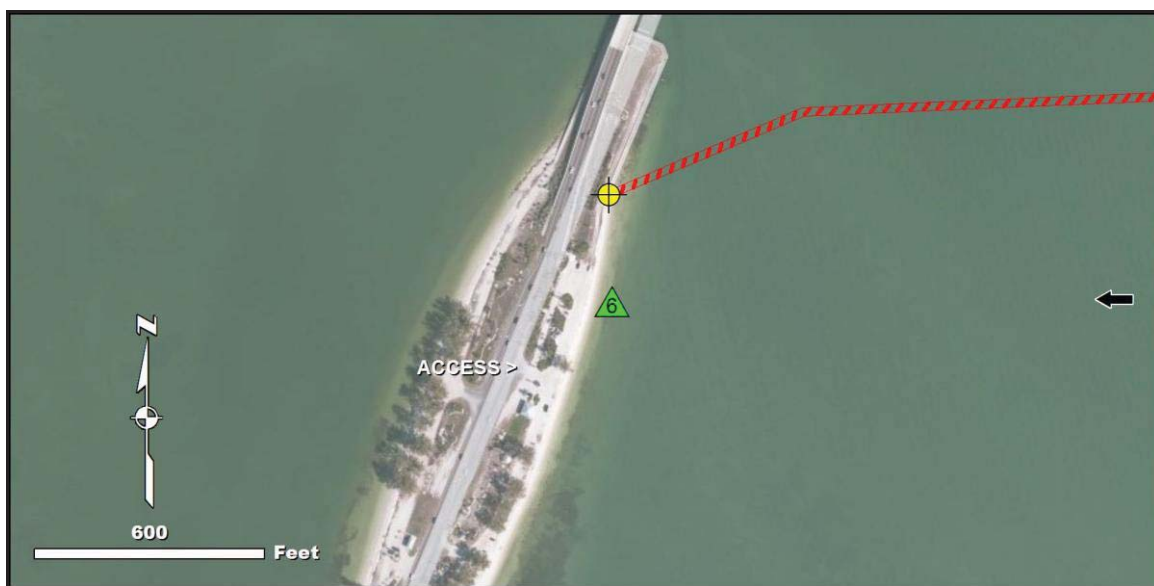
Relative Location: East side of the north end of the most southerly fill area along the Causeway Blvd. (Route 867) Bridge.

Latitude: 26°28' 11.080" N    Longitude: 82°1' 41.457" W

Currents: Possibly 2-3 knots.

Shoreline Description: Sand beach.

Access: You can park right beside the beach.



## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #7

Relative Location: East side of the southeast end of the central fill area along the Causeway Blvd. (Route 867) Bridge.

Latitude: 26°28' 41.707" N    Longitude: 82°1' 26.467" W

Currents: Possibly 2-3 knots.

Shoreline Description: Sand beach.

Access: You can park right by the beach.



## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #8

Relative Location: East side of the northeast end of the central fill area along the Causeway Blvd. (Route 867) Bridge.

Latitude: 26°28' 48.840" N    Longitude: 82°1' 17.862" W

Currents: Possibly 2-3 knots.

Shoreline Description: Sand beach.

Access: You can park right by the beach.



## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #9

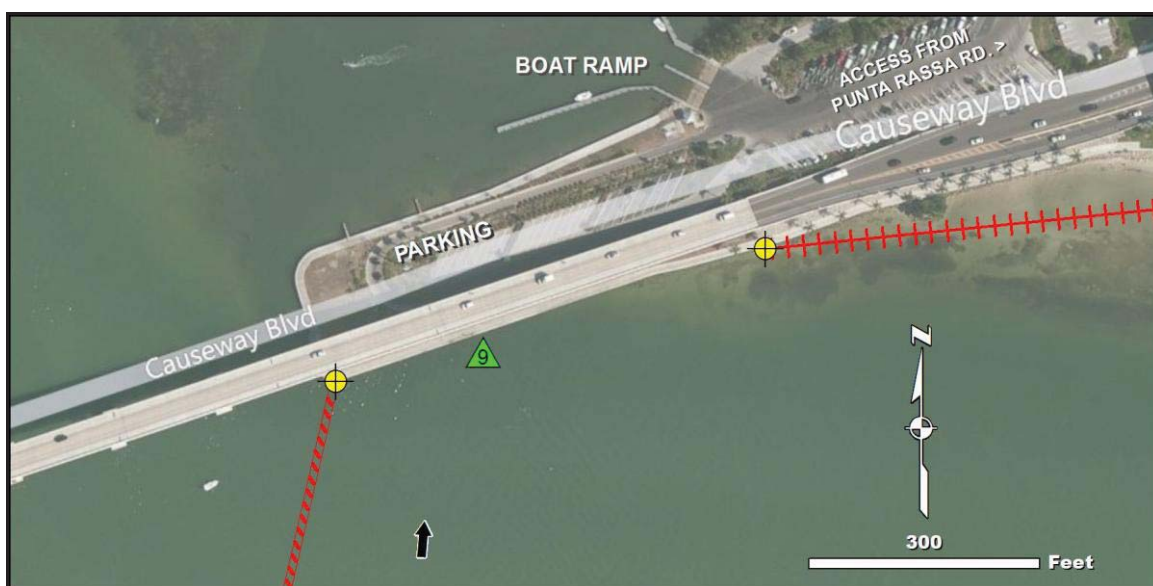
Relative Location: Northeast end of the Causeway Blvd. (Route 867) Bridge (bridge abutment).

Latitude: 26°29' 1.159" N     Longitude: 82°0' 41.049" W

Currents: Possibly 2-3 knots.

Shoreline Description: Seawall.

Access: There is a large parking area and boat ramp on the north side of the bridge. It looks as if you can drive under the bridge to get to the seawall.





## Collection Point Description

Inlet: San Carlos Bay Entrance, Lee County, Florida

Site Name: Collection Point #10

Relative Location: On the side of McGregor Blvd. (Route 867) about 450 yards east of the toll gate for the Causeway Blvd. Bridge.

Latitude: 26° 29' 4.362" N    Longitude: 82° 0' 23.963" W

Currents: Possibly up to 1 knot.

Shoreline Description: Sand beach.

Access: You can park right beside the beach.



# INLET SUMMARY SHEET

SITE: **Estero/Matanzas Pass, Lee County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 2 June 1995; 1412

[High @ 1522 (+2.94); Matanzas Pass (fixed bridge), Estero Island]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds, including the Great blue heron, Great egret, and Tricolor heron; seabirds, including the Brown pelican; waterfowl; and raptors, including the Osprey and Southern bald eagle. Mounds of the Eastern oyster occur on some of the tidal flats. The American alligator. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Hurricane Pass and Matanzas Pass. Marine turtle nesting on barrier island beaches May through October, small tooth sawfish critical habitat, seagrass often present in submerged beds to water depths of six feet. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the southern marginal flood channel of the poorly defined ebb-tidal delta to a collection point on the outer sand beach of Estero Island in the Bodwitch Point Regional Park (CP1). Place a short limb of deflection boom out into the main inlet channel to divert oil to the northeast tip of Estero Island (CP2). Anchor a Christmas tree configuration of deflection boom at the entrance of the pass, the north limb of which would divert oil to a sand beach along the mainland shoreline (CP6) and the south limb of which would divert oil entering Pelican Bay to the seawall along the northwest shoreline of San Carlos Island (CP5). Inside the inlet, establish another Christmas tree configuration of deflection boom, the south limb of which would divert oil to a small man-made canal on the landward side of Fort Myers Beach (CP3), and the north limb of which would divert oil to CP5. Further east of CP3, place a limb of deflection boom out into the channel to divert oil to another man-made basin (CP4). Another limb of deflection boom should be established along the south side of the delta/sand flat west of CP6 to divert oil to the sand beach at CP6. Extend a line of protection boom from the outer end

# INLET SUMMARY SHEET

SITE: **Estero/Matanzas Pass, Lee County, Florida (continued)**

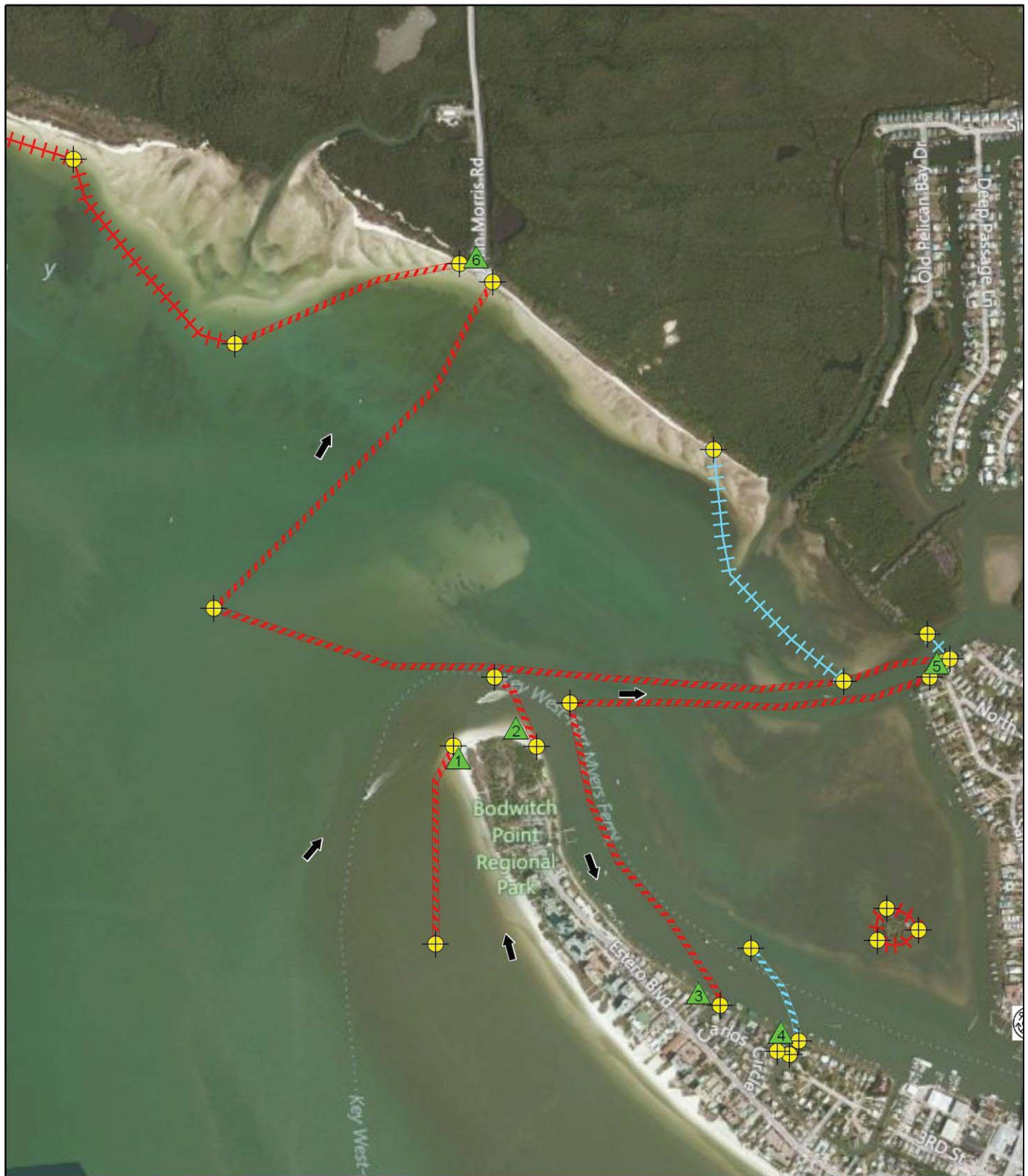
PRELIMINARY PROTECTION STRATEGY (CONTINUED):

of that deflection boom that would extend around the western edge of the delta/sand flat. Also place protection boom across the channel beyond CP5, as well as outside the tidal flats, channels and mangroves to the northwest of CP5.

OTHER COMMENTS:

The outer bay and pass are extremely shallow and there are extensive tidal flats exposed at low tide. Also, there may be wave action causing problems at CP6 from time to time.

# Estero and Matanzas Pass



© Bing Imagery



1:14,000

0 437.5 875 1750 2625 Feet





## Collection Point Description

Inlet: Estero/Matanzas Pass, Lee County, Florida

Site Name: Collection Point #1

Relative Location: The north end of the island upon which Fort Meyers Beach is located (Estero Island; northwest tip) in Bodwitch Point Regional Park.

Latitude: 26°27' 53.511" N    Longitude: 81°58' 5.556" W

Currents: 1-3 knots along shore to the north during rising tides.

Shoreline Description: Sand beach.

Access: There is a well-defined sand track that runs along behind the beach. Good access for 4WD vehicles.



## Collection Point Description

Inlet: **Estero/Matanzas Pass, Lee County, Florida**

Site Name: Collection Point #2

Relative Location: The north end of the island upon which Fort Meyers Beach is located (Estero Island; northeast tip) in Bodwitch Point Regional Park.

Latitude: 26°27' 55.882" N    Longitude: 81°58' 0.247" W

Currents: Possibly 1-2 knots.

Shoreline Description: Sand beach.

Access: There are some sand tracks in the area. You may be able to reach the beach with 4WD vehicles. If not, use watercraft.



## Collection Point Description

Inlet: **Estero/Matanzas Pass, Lee County, Florida**

Site Name: Collection Point #3

Relative Location: On the northeast shore of Estero Island about 0.5 miles from the end of the island; in Fort Meyers Beach.

Latitude: 26°27' 33.009" N    Longitude: 81°57' 42.724" W

Currents: Possibly up to 1-1.5 knots.

Shoreline Description: A small man-made basin surrounded by seawalls.

Access: By watercraft.



## Collection Point Description

Inlet: **Estero/Matanzas Pass, Lee County, Florida**

Site Name: Collection Point #4

Relative Location: On the northeast shore of Estero Island about 0.7 miles from the end of the island; in Fort Meyers Beach.

Latitude: 26°27' 29.902" N    Longitude: 81°57' 35.633" W

Currents: Possibly 1-1.5 knots.

Shoreline Description: A man-made basin surrounded by seawalls. Place protection boom across the basin a ways inside it.

Access: By watercraft.





## Collection Point Description

Inlet: **Estero/Matanzas Pass, Lee County, Florida**

Site Name: Collection Point #5

Relative Location: On the northwest tip of San Carlos Island at the end of San Carlos Drive.

Latitude: 26°28' 0.642" N     Longitude: 81°57' 21.585" W

Currents: Probably <1 knot.

Shoreline Description: Seawall.

Access: By watercraft.



## Collection Point Description

Inlet: **Estero/Matanzas Pass, Lee County, Florida**

Site Name: Collection Point #6

Relative Location: South of Iona on the northwest shore of San Carlos Bay at the end of John Morris Road.

Latitude: 26°28' 33.324" N    Longitude: 81°58' 2.713" W

Currents: Possibly 1-1.5 knots.

Shoreline Description: Sand beach.

Access: Excellent. It is at the end of a paved road with lots of parking space available.



# INLET SUMMARY SHEET

SITE: **Big Carlos Pass, Lee County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 2 June 1995; 1540

[High @ 1524 (+2.82); Carlos Point; Estero Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds, including the Great blue heron, Great egret, and Tricolor heron; seabirds, including the Brown pelican; waterfowl; and raptors, including the Osprey and Southern bald eagle. Mounds of the Eastern oyster occur on some of the tidal flats. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Estero Bay. Marine turtle nesting on barrier island beaches May through October, small tooth sawfish critical habitat, seagrass often present in submerged beds to water depths of six feet. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Close off the small channel breaching a prograding beach ridge system along the shore 0.9 miles north of the entrance to the main inlet channel with a sediment dike. Divert oil entering the inlet through the marginal flood channels of the ebb-tidal delta to collection points along the outer sand beaches (CPs 1 and 2). Project two limbs of deflection boom out into the main inlet channel to divert oil to a sand beach on its north side (CP4) as well as to a sand beach on its south side (CP3). Another line of deflection boom extending from the Estero Blvd. Bridge is designed to divert oil to a sand beach on the south side of the main inlet channel located about 100 yards north of the bridge (CP5). A similar arrangement on the north side of the main inlet channel would divert oil to a sand beach on the north shore just beyond (north of) the bridge (CP6). Attach a Christmas tree configuration of deflection boom to the landward side of the middle of the bridge, the west limb of which would divert oil to a seawall/sand beach near the end of Estero Island (CP8), and the south limb of which would divert oil to a sand beach on the northwest end of Black Island (CP7). Place a line of protection boom across the entrance channel

# INLET SUMMARY SHEET

SITE: **Big Carlos Pass, Lee County, Florida (continued)**

PRELIMINARY PROTECTION STRATEGY (CONTINUED):

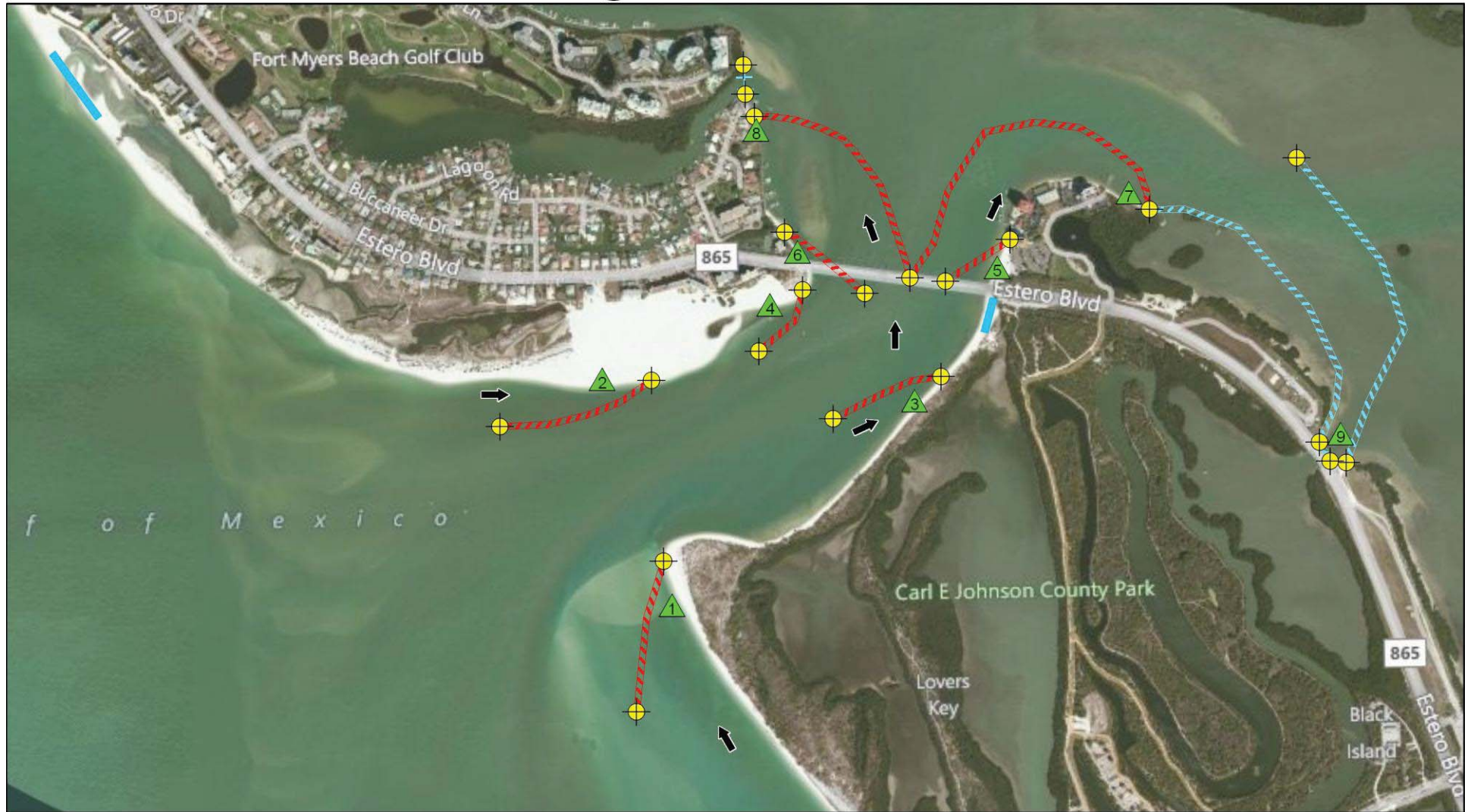
to a bay located just north of CP8 to protect a major growth of mangroves in that area Extend a line of deflection boom beyond CP7 to protect a zone of mangroves as well as to divert oil to the seawall at CP9. A long line of deflection boom should be extended across the channel along the northeast side of Black Island that would also divert oil to CP9.

OTHER COMMENTS:

Florida Sea Grant Report Number 37 (Jones, 1980) reported currents in Big Carlos Pass to be 1.5 knots at maximum flood and 1.6 knots at maximum ebb.



# Big Carlos Pass



© Bing Imagery



0 445 890 1,780 2,670 3,560 Feet

## Legend

	USCG Station		Open Water Collection		Deflection, Primary		Protection, Primary
	Collection Point		Anchor Point		Deflection, Secondary		Protection, Secondary
	Skimmer		Path of Oil		Deflection, Tertiary		Protection, Tertiary
					Dike		

## Collection Point Description

Inlet: **Big Carlos Pass, Lee County, Florida**

Site Name: Collection Point #1

Relative Location: Extreme northwest end of Black Island in Lovers Key State Park.

Latitude: 26°23' 49.534" N    Longitude: 81°53' 10.382" W

Currents: 1-3 knots along shore to the north during rising tides. Boom extends across the south marginal flood channel of the well-defined ebb-tidal delta.

Shoreline Description: Sand beach.

Access: By watercraft. Also, a highway rated bridge exists from the Park entrance area to the beach and may be useful for access to CP by all terrain vehicles.



## Collection Point Description

Inlet: **Big Carlos Pass, Lee County, Florida**

Site Name: Collection Point #2

Relative Location: On the north side of the main inlet channel at the south end of Estero Island.

Latitude: 26°24' 7.502" N     Longitude: 81°53' 16.199" W

Currents: Probably 2-3 knots and possibly up to 4 knots.

Shoreline Description: Very wide sand beach.

Access: You should be able to drive out onto the beach with 4WD vehicles. If private property issues become a problem, use watercraft.





## Collection Point Description

Inlet: **Big Carlos Pass, Lee County, Florida**

Site Name: Collection Point #3

Relative Location: On the southeast side of the main inlet channel 250 yards south of the Estero Blvd. (Route 865) Bridge.

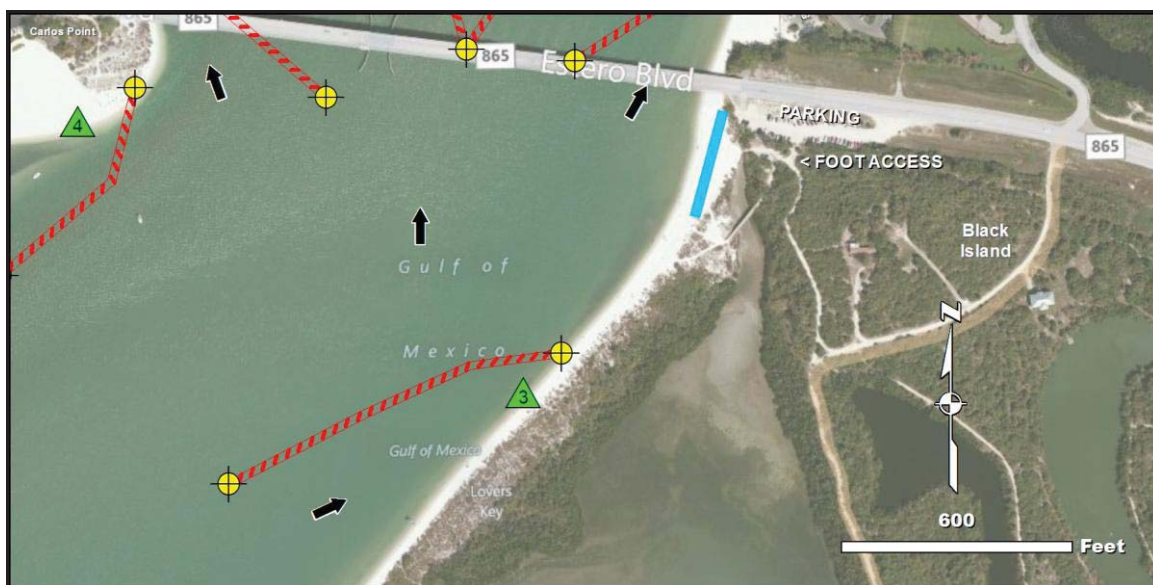
Latitude: 26°24' 6.280" N      Longitude: 81°52' 47.344" W

Currents: Probably 2-3 knots and possibly up to 4 knots.

Shoreline Description: Sand beach.

Access: There is a big parking area just south of the bridge. Land access would probably work. If this is a problem, the CP could be moved closer to the bridge.

NOTE: In June, 1995, there was an open channel between this site and the bridge, so this could happen again.





## Collection Point Description

Inlet: **Big Carlos Pass, Lee County, Florida**

Site Name: Collection Point #4

Relative Location: At the south end of Estero Island on the north side of the main inlet channel 50 yards or so south of the Estero Blvd. Bridge.

Latitude: 26°24' 13.732" N    Longitude: 81°53' 0.101" W

Currents: Probably 2-3 knots and possibly up to 4 knots.

Shoreline Description: Sand beach.

Access: You may be able to drive right out onto the beach. If private property issues are a problem, use watercraft.



## Collection Point Description

Inlet: **Big Carlos Pass, Lee County, Florida**

Site Name: Collection Point #5

Relative Location: On the southeast side of the main inlet channel about 100 yards north of the Estero Blvd. (Route 865) Bridge.

Latitude: 26°24' 16.925" N    Longitude: 81°52' 40.758" W

Currents: Probably 2-3 knots and possibly up to 4 knots.

Shoreline Description: Sand beach.

Access: There is a large parking area right behind the beach.



## Collection Point Description

Inlet: **Big Carlos Pass, Lee County, Florida**

Site Name: Collection Point #6

Relative Location: Southeast end of Estero Island just north of the Estero Blvd. (Route 865) Bridge.

Latitude: 26°24' 18.140" N    Longitude: 81°52' 59.258" W

Currents: Possibly 1-2 knots.

Shoreline Description: Sand beach.

Access: There are some big parking areas nearby, but if private property ownership issues become a problem, use watercraft.



## Collection Point Description

Inlet: **Big Carlos Pass, Lee County, Florida**

Site Name: Collection Point #7

Relative Location: On the extreme northeast end of Black Island by the Lovers Key Resort.

Latitude: 26°24' 21.552" N    Longitude: 81°52' 29.531" W

Currents: Probably 1-3 knots.

Shoreline Description: Sand beach.

Access: By watercraft.





## Collection Point Description

Inlet: **Big Carlos Pass, Lee County, Florida**

Site Name: Collection Point #8

Relative Location: Southeast end of Estero Island near the end of Estrellita Drive.

Latitude: 26°24' 27.610" N    Longitude: 81°53' 2.235" W

Currents: Possibly 1-2 knots.

Shoreline Description: Combination of seawall and sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: **Big Carlos Pass, Lee County, Florida**

Site Name: Collection Point #9

Relative Location: On the northeast side of Black Island in Lovers Key State Park. South side of the Estero Blvd. Bridge across Little Carlos Pass.

Latitude: 26° 24' 0.206" N    Longitude: 81° 52' 11.469" W

Currents: Probably 1-2 knots.

Shoreline Description: Seawall

Access: Excellent. You can drive right up to the top of the seawall and there is parking space available.



# INLET SUMMARY SHEET

SITE: New Pass, Lee County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 2 June 1995; 1617

[High @ 1545 (+2.82); Coconut Point; Estero Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

C.

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Shorebirds; wading birds, including the Great egret; seabirds, including the Brown pelican; waterfowl; and raptors, including the Osprey. Mounds of the Eastern oyster occur on some of the tidal flats. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Estero Bay. Marine turtle nesting on barrier island beaches May through October, small tooth sawfish critical habitat, seagrass often present in submerged beds to water depths of six feet. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels of the well-developed ebb-tidal delta to collection points along the outer sand beaches (CPs 1 and 2). Stretch a line of deflection boom obliquely across the main inlet channel in order to divert oil to a sand beach on the extreme northeast shoreline of Big Hickory Island, just north of the Pelican Landing Beach Park Water Taxi Dock (CP3). Extend a line of deflection boom from CP3 across the bay to the concrete seawall at the southeast end of the Estero Blvd. Bridge (CP5). Also extend a long line of deflection boom, plus a length of protection boom, along the north side of the bay to the concrete abutment at the northwest end of the Estero Blvd. Bridge (CP4). Place the lead anchor of a Christmas tree configuration of deflection boom in the main inlet channel about 300 yards west of the Estero Blvd. Bridge. The north limb of this C. tree would divert oil to CP4 and the south limb would divert oil to CP5. Place a sediment dike across the small inlet located about 0.5 miles south of the main inlet channel. This dike should be about 165 yards long.

OTHER COMMENTS:

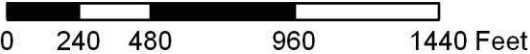
Florida Sea Grant Report Number 37 (Jones, 1980) reported currents in New Pass to be 1.5 knots at maximum flood and 1.3 knots at maximum ebb.



# New Pass (Lee)



© Bing Imagery





## Collection Point Description

Inlet: New Pass, Lee County, Florida

Site Name: Collection Point #1

Relative Location: On the outer beach at the north end of Big Hickory Island. The boom extends across the southern marginal flood channel of the well-developed ebb-tidal delta.

Latitude: 26°22' 41.034" N    Longitude: 81°52' 3.583" W

Currents: 1-3 knots along shore to the north during rising tides.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: New Pass, Lee County, Florida

Site Name: Collection Point #2

Relative Location: On the outer beach at the south end of Black Island (also called Lovers Key) in the Lovers Key State Park. The boom extends across the northern marginal flood channel of the well-developed ebb-tidal delta.

Latitude: 26°22' 45.857" N    Longitude: 81°52' 11.096" W

Currents: 1-3 knots along shore from the north during rising tides.

Shoreline Description: Sand beach.

Access: By watercraft. Also, a highway rated bridge exists from the park entrance area to the beach and may be useful for access to CP by all terrain vehicles.



## Collection Point Description

Inlet: New Pass, Lee County, Florida

Site Name: Collection Point #3

Relative Location: Extreme northeast shoreline of Big Hickory Island, just north of the Pelican Landing Beach Park Water Taxi Dock.

Latitude: 26°22' 41.146" N    Longitude: 81°51' 55.419" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: New Pass, Lee County, Florida

Site Name: Collection Point #4

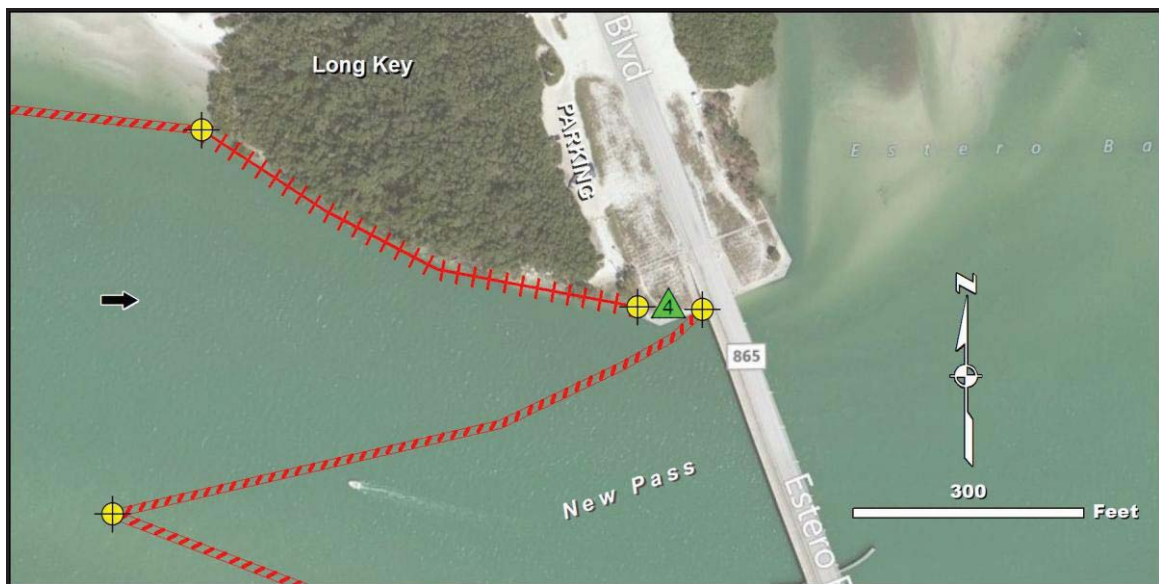
Relative Location: West side of the northwestern end of the Estero Blvd. (Route 865) Bridge.

Latitude: 26°22' 44.536" N    Longitude: 81°51' 42.352" W

Currents: Possibly 2-3 knots.

Shoreline Description: Seawall.

Access: You can drive up close to it with ample parking space nearby. You may have to remove a barrier.





## Collection Point Description

Inlet: New Pass, Lee County, Florida

Site Name: Collection Point #5

Relative Location: West side of the southeastern end of the Estero Blvd. (Route 865) Bridge.

Latitude: 26°22' 36.272" N    Longitude: 81°51' 38.305" W

Currents: Possibly 2-3 knots.

Shoreline Description: Seawall.

Access: You can drive right up to the edge of the seawall, and there is ample parking space nearby.



# INLET SUMMARY SHEET

SITE: **Big Hickory Pass, Lee County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 2 June 1995; 1630

[High @ 1545 (+2.82); Coconut Point; Estero Bay]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds; seabirds, including the Brown pelican; waterfowl; and raptors, including the Osprey and Southern bald eagle. The American alligator. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Broadway Channel and Estero Bay. Marine turtle nesting on barrier island beaches May through October, small tooth sawfish critical habitat, seagrass often present in submerged beds to water depths of six feet. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Close off the washover terrace threatening to breach the spit on the north side of the inlet with a sediment dike (about 250 yards long). Divert oil entering the inlet through the marginal flood channels of the ebb-tidal delta to collection points along the outer sand beaches (CPs 1, 2, and 3). Place a line of protection boom along the entire east shoreline of the main inlet channel from CP2 to the northeast end of the Estero Blvd. (Route 865) Bridge (CP7). Inside the main inlet channel about 170 yards beyond (east of) CP2, extend a line of deflection boom obliquely across the main inlet channel to the sand bar on the northeast end of the Bonita Beach peninsula (CP4). Place another anchor point about 300 yards further along the east shore of the main inlet channel from which a line of deflection boom is extended obliquely across the main inlet channel to a seawall on the west shore (CP5). A short distance beyond CP5, place the lead anchor point of a Christmas tree configuration of deflection boom in the middle of the channel. The north limb of the C. tree leads to a sand beach/seawall combination at the northeast end of the Estero Blvd. Bridge (CP7), and the south limb leads to a seawall on the west shore (CP6). From the seawall at CP7, extend a line of deflection boom obliquely across the main inlet channel to a combination seawall/boat ramp on the west shore east of the southeast end of the Estero Blvd. Bridge (CP8). Finally, the entire western shoreline of the main inlet channel between CP5 and CP8 should be lined with protection boom.

# INLET SUMMARY SHEET

SITE: **Big Hickory Pass, Lee County, Florida (continued)**

OTHER COMMENTS:

Florida Sea Grant Report Number 37 (Jones, 1980) reported currents in Big Hickory Pass range from 1.8-3.0 knots.

# Big Hickory Pass



© Bing Imagery



1:5,600

0 175 350 700 1050 Feet





## Collection Point Description

Inlet: **Big Hickory Pass, Lee County, Florida**

Site Name: Collection Point #1

Relative Location: South of the second groin south of the main inlet channel. The boom stretches across the south marginal flood channel of the ebb-tidal delta.

Latitude: 26°21' 50.261" N    Longitude: 81°51' 47.512" W

Currents: 1-3 knots along shore to the north during rising tides.

Shoreline Description: Sand beach, riprap groin to the north.

Access: There is a huge parking area by the beach associated with the Bonita Beach Club Condominiums with major sand tracks that appear to lead to the beach. Requires crossing over the top of a concrete seawall cap, though.



## Collection Point Description

Inlet: **Big Hickory Pass, Lee County, Florida**

Site Name: Collection Point #2

Relative Location: On the outer sand beach just north of the entrance to the main inlet channel.  
The boom reaches out into the north marginal flood channel of the well-developed ebb-tidal delta.

Latitude: 26°22' 2.482" N     Longitude: 81°51' 45.146" W

Currents: 1-3 knots along shore to the south during rising tides.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: **Big Hickory Pass, Lee County, Florida**

Site Name: Collection Point #3

Relative Location: South of the first groin south of the main inlet channel. The boom stretches across the south marginal flood channel of the ebb-tidal delta.

Latitude: 26°21' 53.232" N    Longitude: 81°51' 47.891" W

Currents: 1-3 knots along shore to the north during rising tides.

Shoreline Description: Sand beach, riprap groin to the north.

Access: There is a huge parking area by the beach associated with the Bonita Beach Club Condominiums with major sand tracks that appear to lead to the beach. Requires crossing over the top of a concrete seawall cap, though.



## Collection Point Description

Inlet: **Big Hickory Pass, Lee County, Florida**

Site Name: Collection Point #4

Relative Location: East end of the sand bar on the south side of the main inlet channel.

Latitude: 26°21' 54.889" N    Longitude: 81°51' 40.293" W

Currents: Probably 2-3 knots but possibly up to 4 knots.

Shoreline Description: Sand beach.

Access: By watercraft.





## Collection Point Description

Inlet: **Big Hickory Pass, Lee County, Florida**

Site Name: Collection Point #5

Relative Location: Bayscape Condominiums on the east shore of the Bonita Beach peninsula about 0.2 miles south of the north end.

Latitude: 26°21' 45.139" N    Longitude: 81°51' 37.091" W

Currents: Probably 2-3 knots.

Shoreline Description: Seawall.

Access: By watercraft.



## Collection Point Description

Inlet: **Big Hickory Pass, Lee County, Florida**

Site Name: Collection Point #6

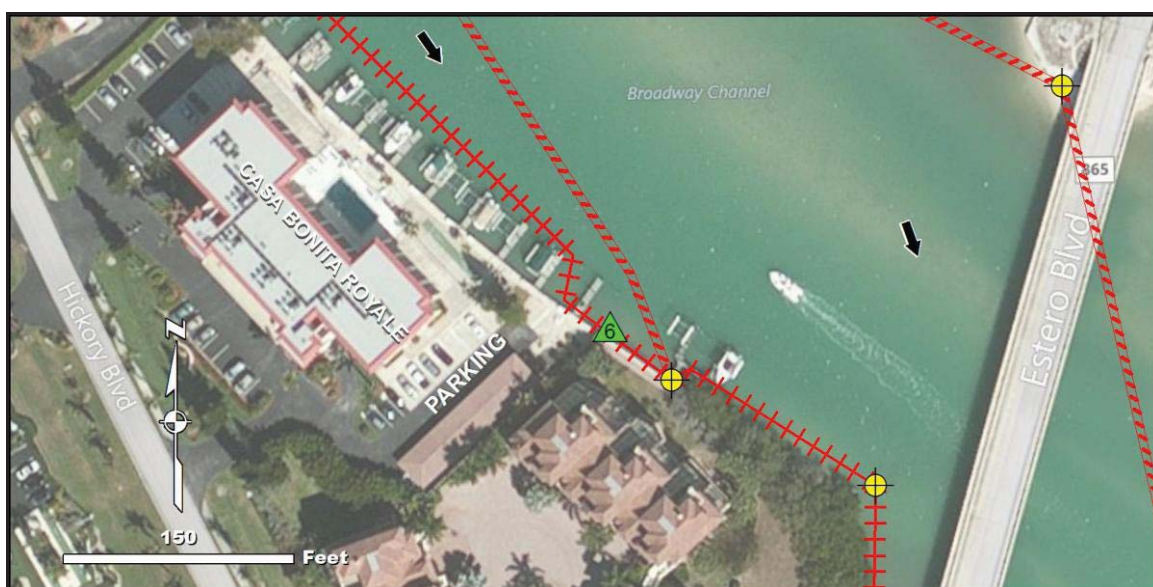
Relative Location: On the east shore of the Bonita Beach peninsula about 70 yards west of the Estero Blvd. Bridge.

Latitude: 26°21' 37.181" N    Longitude: 81°51' 31.521" W

Currents: Possibly 2-3 knots.

Shoreline Description: Seawall. Place a line of protection boom in front of the sea wall for the oil to accumulate on.

Access: There is a paved area right up to the seawall, but this is private property. If you cannot gain access from land, use watercraft.



## Collection Point Description

Inlet: **Big Hickory Pass, Lee County, Florida**

Site Name: Collection Point #7

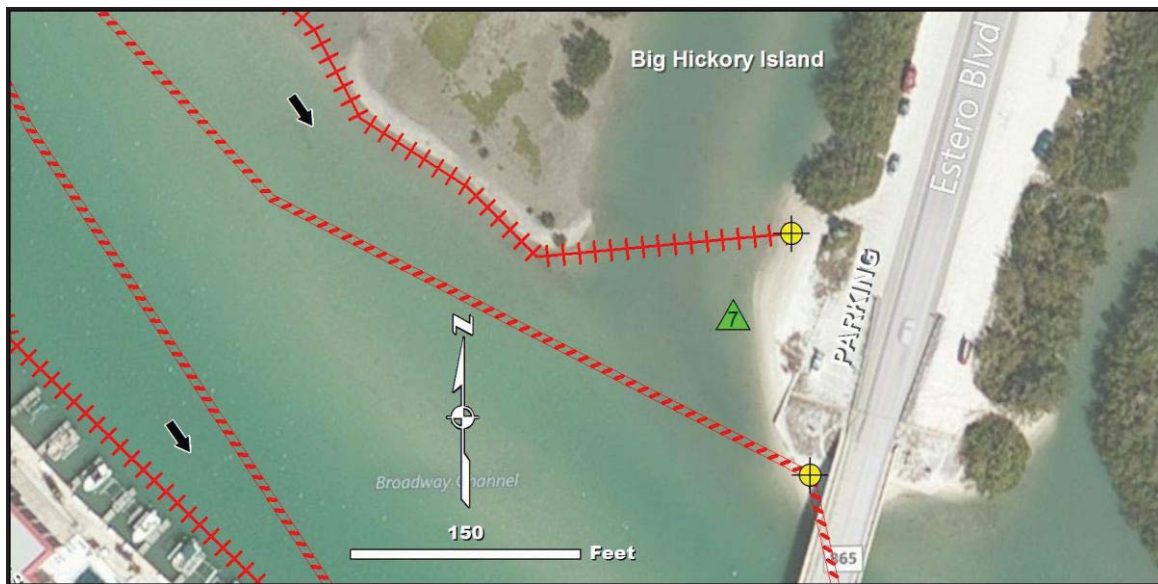
Relative Location: Just west of the north end of the Estero Blvd. (Route 865) Bridge.

Latitude: 26°21' 39.687" N    Longitude: 81°51' 28.909" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach and seawall.

Access: You can drive right up to it.



## Collection Point Description

Inlet: **Big Hickory Pass, Lee County, Florida**

Site Name: Collection Point #8

Relative Location: About 40 yards east of the southwest end of the Estero Blvd. (Route 865) Bridge.

Latitude: 26°21' 33.385" N    Longitude: 81°51' 27.575" W

Currents: Possibly 2-3 knots.

Shoreline Description: Seawall and boat ramp.

Access: You can drive right up to it.





# INLET SUMMARY SHEET

SITE: **Wiggins Pass, Collier County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 3 June 1995; 0850

[Low @ 0939 (+1.26); Naples (outer coast)]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds; seabirds, including Brown pelican; waterfowl; and raptors, including the Osprey and Southern bald eagle. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of the Cocohatchee River, Vanderbilt Channel and Lagoon. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels of the ebb-tidal delta to collection points along the outer sand beaches (CPs 1 and 2). Place the lead anchor of a Christmas tree configuration of deflection boom near the entrance to the main inlet channel, the north limb of which goes to a sand beach on the southern end of Wiggins Island (CP4), and the south limb of which leads to a sand beach on the south side of the main inlet channel (CP3). Place a short limb of deflection along the southwest side of the submerged flood-tidal delta designed to also divert oil to CP3. From CP3, extend a line of deflection boom along the southeast side of the submerged flood-tidal delta to an anchor point on the west side of the Vanderbilt Channel. From that anchor point, extend a line of deflection boom obliquely across Vanderbilt Channel to a sand beach/sand flat on the east side of that channel (CP5). Place protection boom at the high-tide line of CP5, as well as around the mangroves to the northeast of the sand flat. From there, place a line of deflection boom along the south margin of the extension of the main inlet channel and to an open water skimmer located about 250 yards to the east of Vanderbilt Channel (CP6). Continue a line of deflection boom for 150 yards to the east to another open water skimmer (CP7). From CP4, place about 250 yards of protection boom along the north side of the main inlet channel. From there, extend a line of deflection boom all the way

# INLET SUMMARY SHEET

SITE: **Wiggins Pass, Collier County, Florida (continued)**

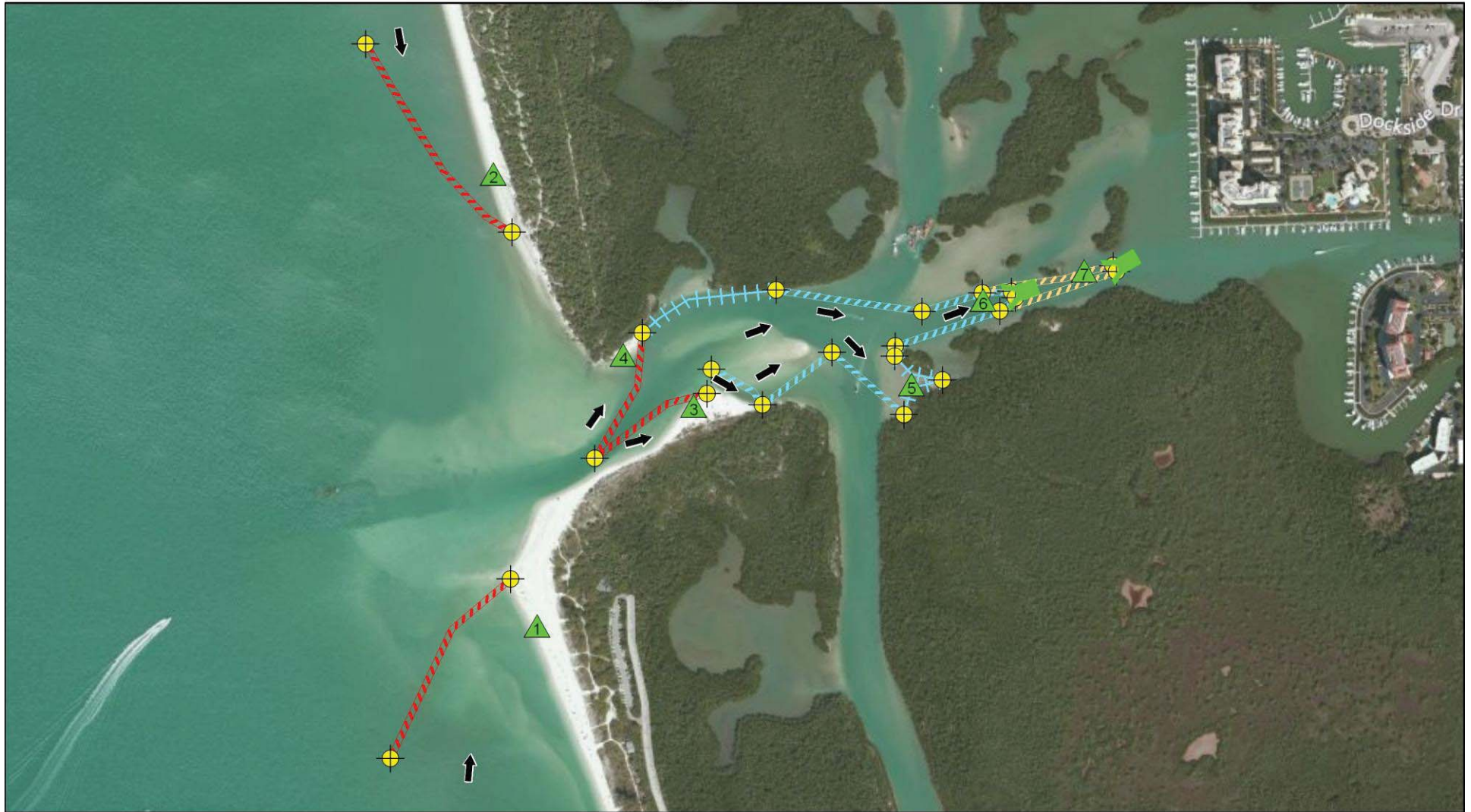
PRELIMINARY PROTECTION STRATEGY (CONTINUED):

to the open water skimmer at CP6, with another line of deflection boom continuing on to the open water skimmer at CP7.

OTHER COMMENTS:

Despite its relatively small size, this inlet is ranked B during adverse conditions, because very strong ebb-tidal currents (3 knots; estimated) were observed in the main inlet channel during the original field survey in 1995.

# Wiggins Pass



© Bing Imagery



0 255 510 1,020 1,530 2,040 Feet

## Legend

	USCG Station		Open Water Collection		Deflection, Primary		Protection, Primary
	Collection Point		Anchor Point		Deflection, Secondary		Protection, Secondary
	Skimmer		Path of Oil		Deflection, Tertiary		Protection, Tertiary
					Dike		

## Collection Point Description

Inlet: **Wiggins Pass, Collier County, Florida**

Site Name: Collection Point #1

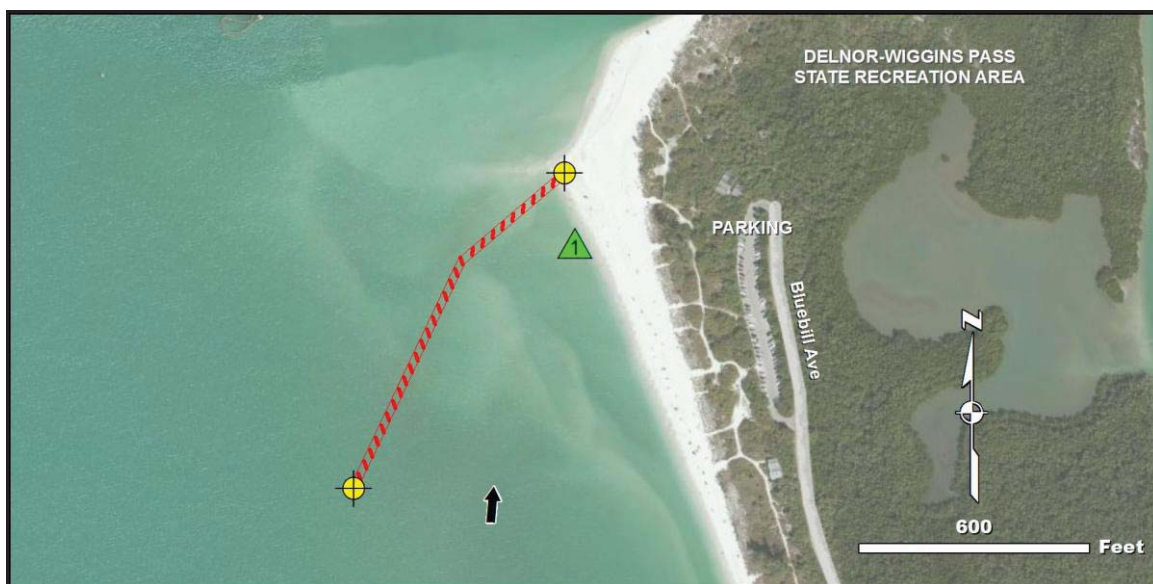
Relative Location: Outer beach just south of the main inlet channel in Delnor-Wiggins Pass State Park.

Latitude: 26°17' 10.567" N    Longitude: 81°49' 56.404" W

Currents: 1-3 knots along shore to the north during rising tides. The boom stretches across the southern marginal channel of the ebb-tidal delta.

Shoreline Description: Sand beach.

Access: There is a large parking area about 75 yards landward of the high-tide line. There are some sand tracks that lead away from the parking area to the beach that you could probably drive across, definitely with 4WD vehicles.





## Collection Point Description

Inlet: **Wiggins Pass, Collier County, Florida**

Site Name: Collection Point #2

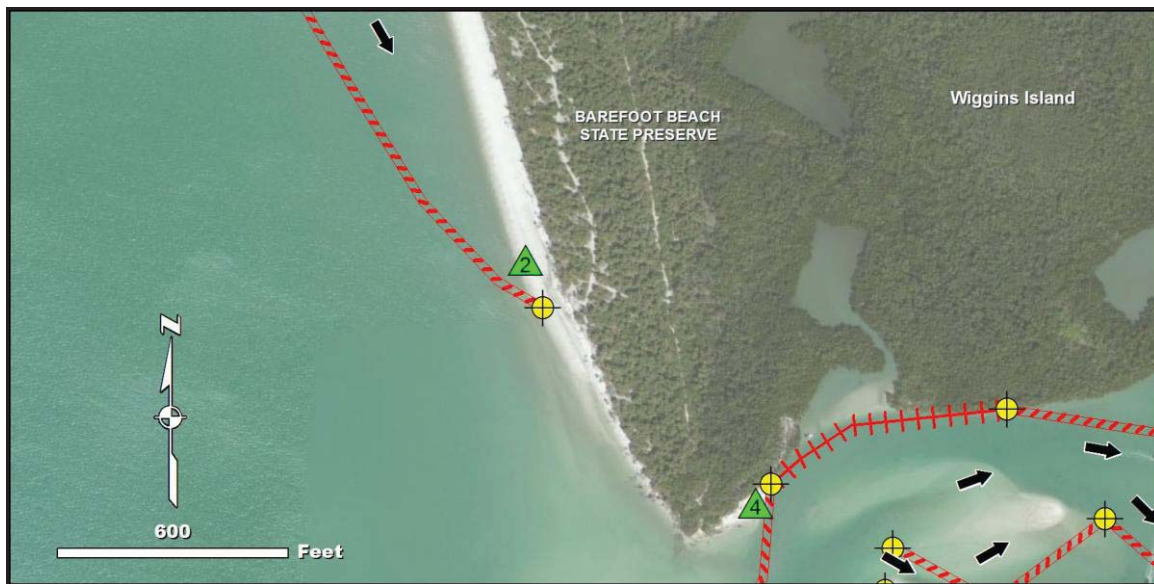
Relative Location: Outer beach about 200 yards north of the main inlet channel near the southern end of Wiggins Island in Barefoot Beach State Preserve.

Latitude: 26°17' 29.872" N    Longitude: 81°49' 55.351" W

Currents: 1-3 knots along shore from the north during rising tides.

Shoreline Description: Sand beach.

Access: There is a major parking area 0.7 miles north of the CP. There is also a sand track behind the beach the whole way. You may be able to drive to the CP with 4WD vehicles. If not, use watercraft, but it is still 200 yards from the main inlet channel and the beach in that area is littered with fallen-down trees (obviously a highly erosional area).



## Collection Point Description

Inlet: **Wiggins Pass, Collier County, Florida**

Site Name: Collection Point #3

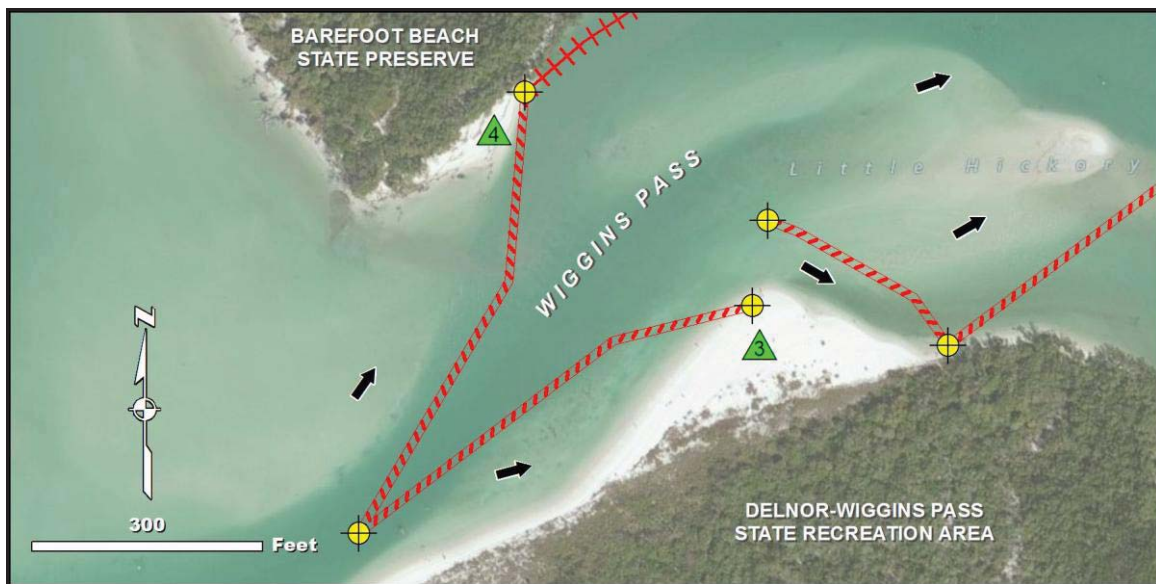
Relative Location: On the south side of the main inlet channel in Delnor-Wiggins Pass State Recreation Area.

Latitude: 26°17' 20.485" N    Longitude: 81°49' 45.921" W

Currents: Probably up to 3 knots.

Shoreline Description: Sand beach (steep).

Access: By watercraft.



## Collection Point Description

Inlet: **Wiggins Pass, Collier County, Florida**

Site Name: Collection Point #4

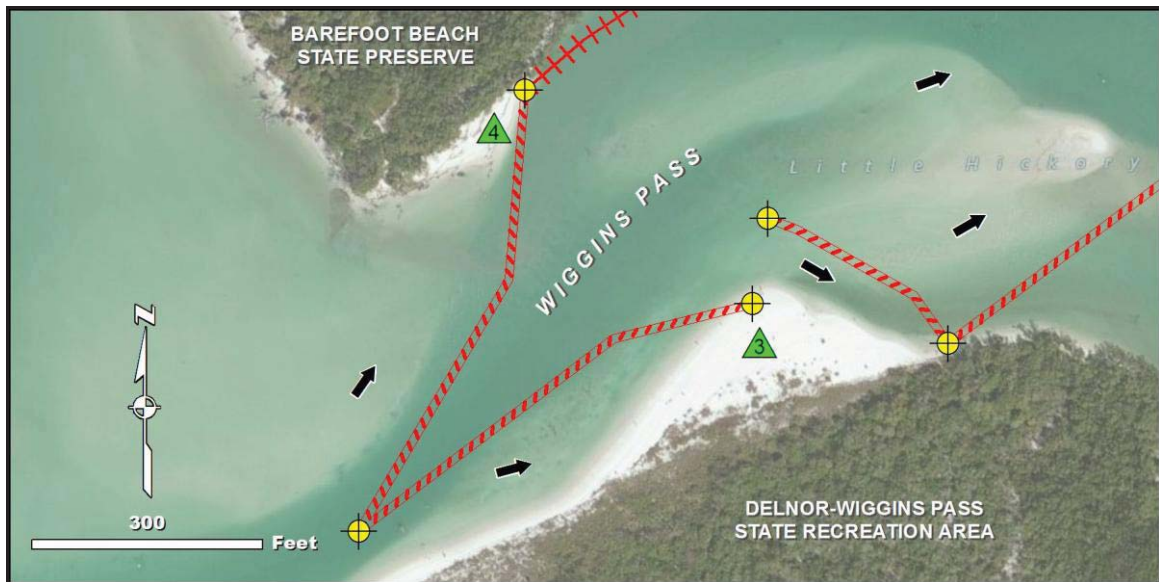
Relative Location: North side of the main inlet channel at the southern end of Wiggins Island in Barefoot Beach State Preserve.

Latitude: 26°17' 23.532" N    Longitude: 81°49' 48.893" W

Currents: Probably up to 3 knots.

Shoreline Description: Sand beach (steep).

Access: By watercraft.



## Collection Point Description

Inlet: **Wiggins Pass, Collier County, Florida**

Site Name: Collection Point #5

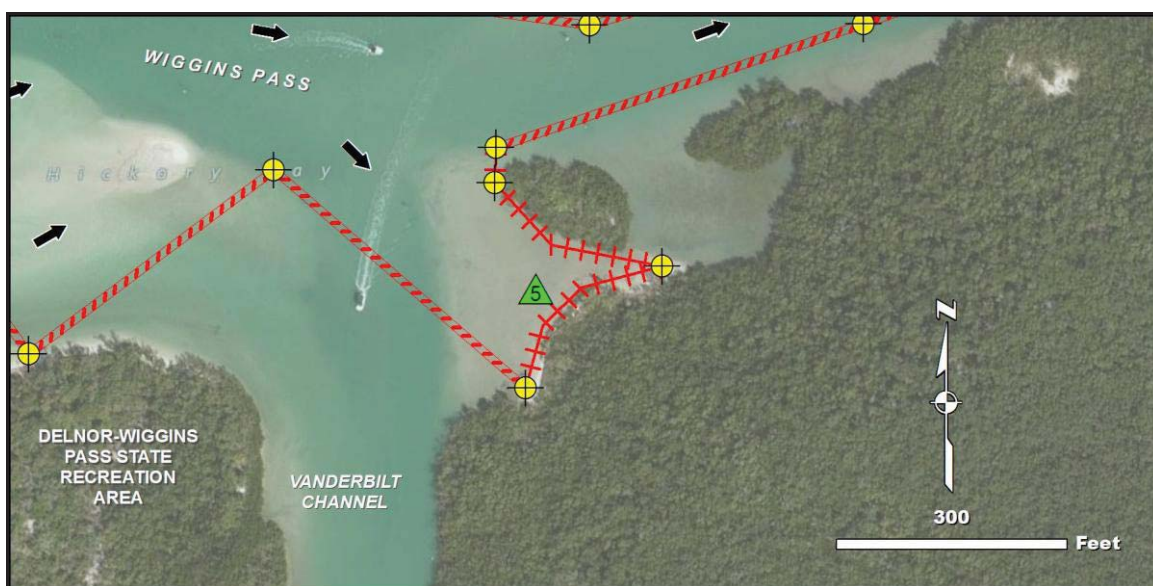
Relative Location: Just south of Wiggins Pass on the east side of the Vanderbilt Channel.

Latitude: 26°17' 21.273" N    Longitude: 81°49' 34.935" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach/sand flat. Place protection boom along the high-tide line for the oil to accumulate on.

Access: By watercraft.





## Collection Point Description

Inlet: **Wiggins Pass, Collier County, Florida**

Site Name: Collection Point #6; open water skimmer.

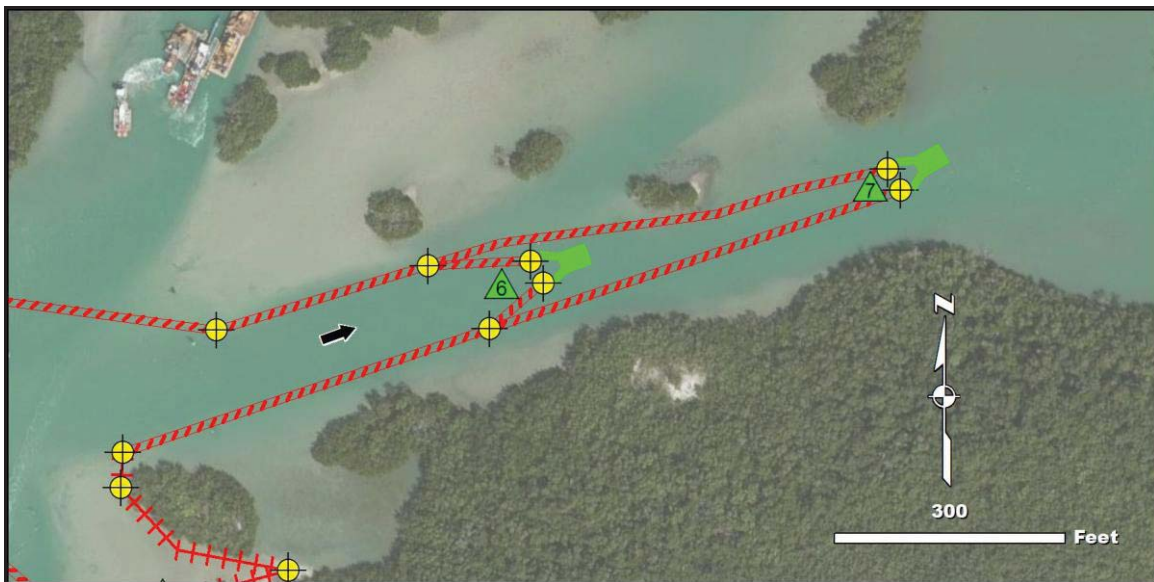
Relative Location: In the extension of the main inlet channel about 250 yards east of the navigation channel (Vanderbilt Channel).

Latitude: 26°17' 25.196" N    Longitude: 81°49' 30.376" W

Currents: Possibly up to 2 knots.

Shoreline Description: Open water skimmer.

Access: By watercraft.



## Collection Point Description

Inlet: **Wiggins Pass, Collier County, Florida**

Site Name: Collection Point #7; open water skimmer.

Relative Location: In the extension of the main inlet channel about 400 yards east of the navigation channel.

Latitude: 26°17' 26.483" N    Longitude: 81°49' 24.821" W

Currents: Possibly up to 2 knots.

Shoreline Description: Open water skimmer.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: **Clam Pass, Collier County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 29 June 1995; (overflight)

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**D.**

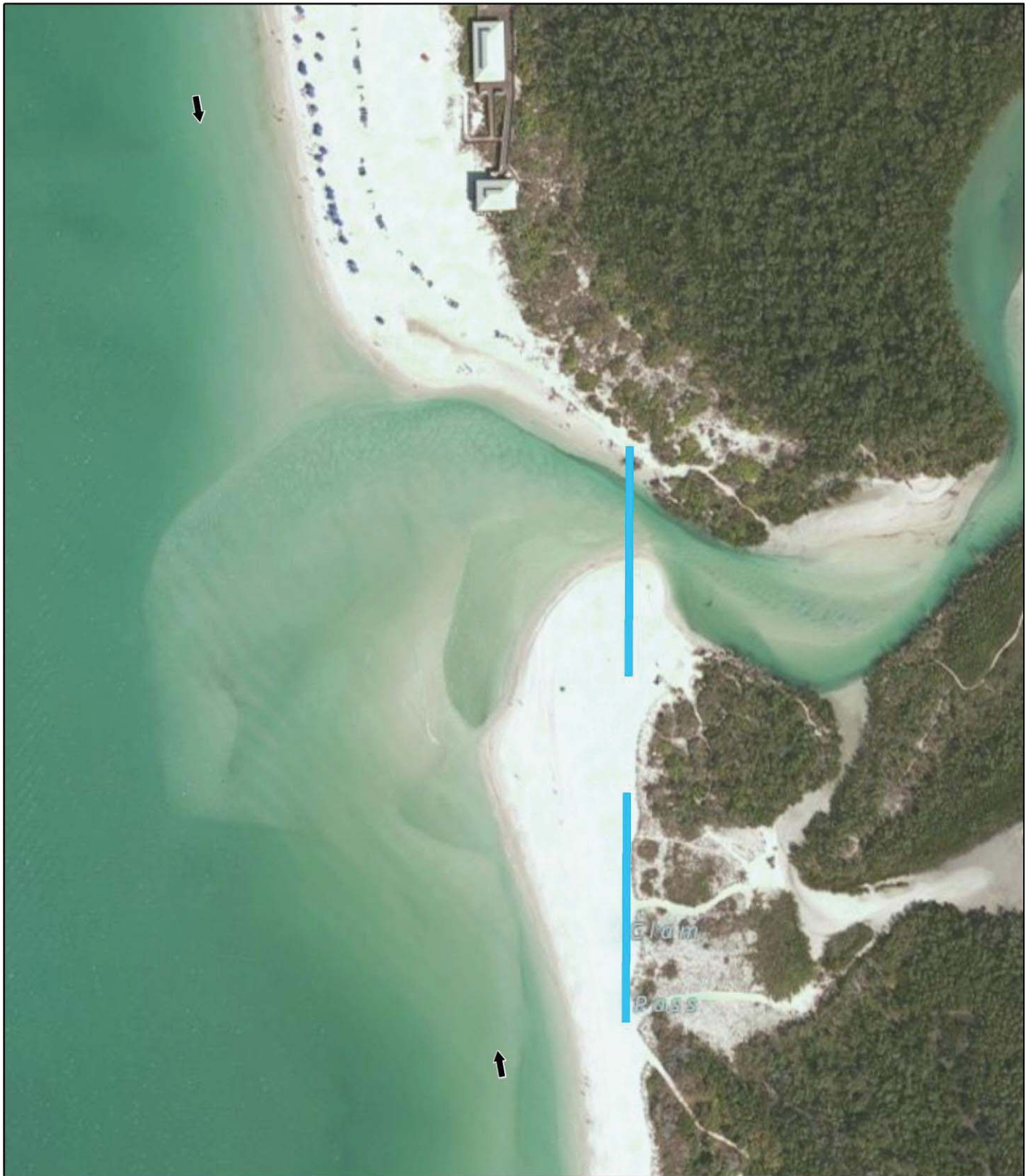
PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, wading birds, seabirds, and waterfowl. Seawalls, revetments, docks, etc. along the shore of Outer Clam Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Close off the main inlet channel and the washover channel to the south with sand dikes, both of which should be about 75-100 yards long.

# Clam Pass



© Bing Imagery



0 50 100 200 300 Feet





# INLET SUMMARY SHEET

SITE: **Doctors Pass, Collier County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 3 June 1995; 0950

[Low @ 0939 (+1.26); Naples (outer coast)]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**C.**

PRINCIPAL RESOURCES AT RISK:

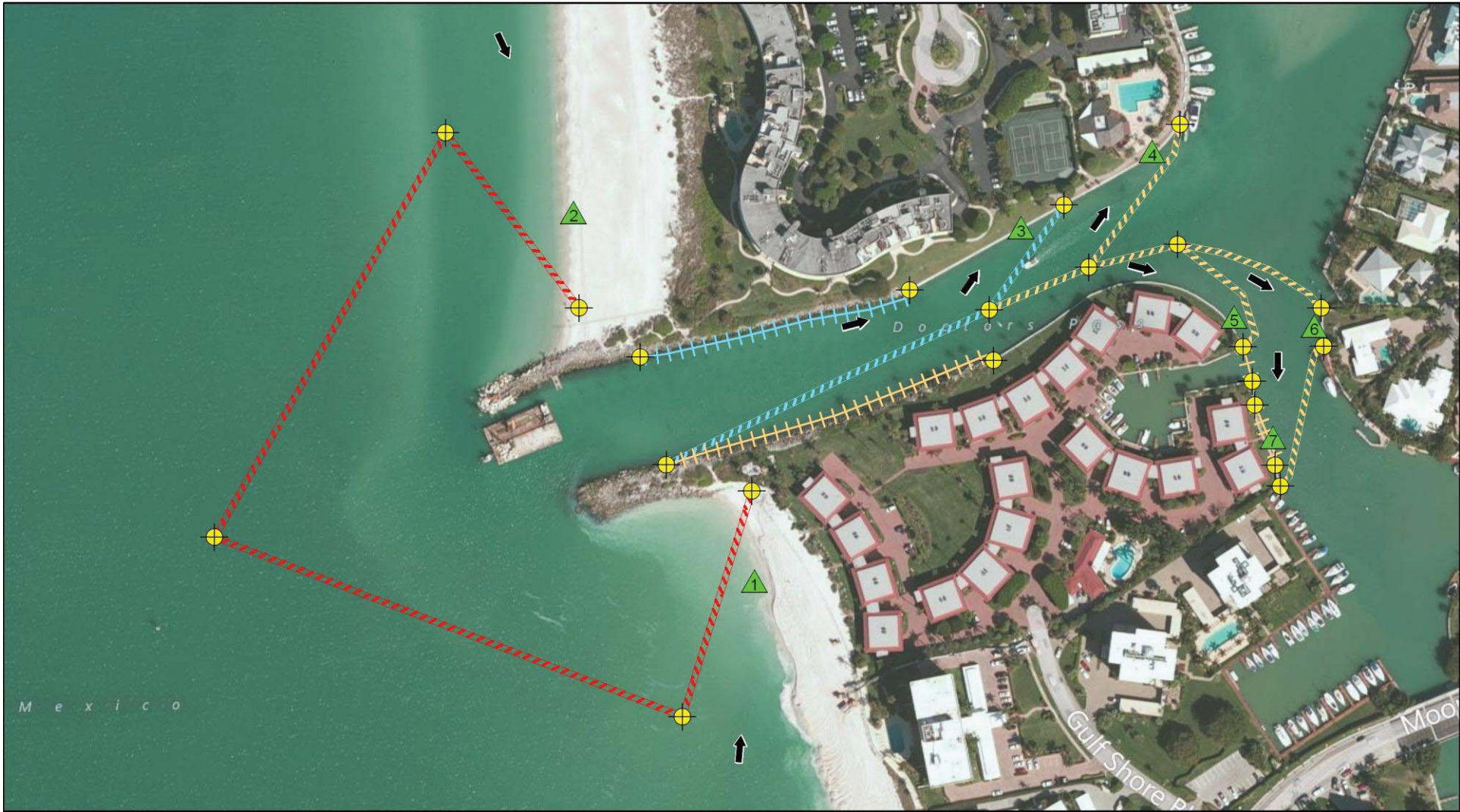
Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, wading birds, seabirds, and waterfowl. Boats, seawalls, revetments, docks, etc. along the shore of Inner Doctors Pass Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Conditions permitting, anchor a Christmas tree configuration of deflection boom offshore of the entrance to the main inlet channel to divert oil away from the inlet. Divert oil approaching the inlet through the marginal flood channels of the rather small ebb-tidal delta to collection points along the outer sand beaches (CPs 1 and 2). Line the riprap on both sides of the entrance portion of the main inlet channel with protection boom. Anchor a long line of deflection boom to the middle of the south jetty that leads to three Christmas tree configurations of deflection boom further inside the inlet. The north limb of the first (most seaward) C. tree would divert oil entering the inlet to a seawall on the north shore of the main inlet channel about two thirds of the way inside the inlet (CP3), and the north limb of the second C. tree would also divert oil to a seawall on the north shore about 90 yards east of CP3 (CP4). The south limb of the third C. tree would divert oil to the seawall at the east end of the peninsula along the south side of the main inlet channel (CP5), and the north limb would divert oil to the seawall just across the north/south channel to the south of Moorings Bay (CP6). From CP6, extend a line of deflection boom toward the southwest across the adjoining channel to the seawall at CP7. Place a line of protection boom along the platform over the seawall at CP7, as well as across the entrance to the basin between CP7 and CP5.

# Doctors Pass

268



© Bing Imagery



0 90 180 360 540 720 Feet

## Legend

- |                  |                       |                       |                       |
|------------------|-----------------------|-----------------------|-----------------------|
| USCG Station     | Open Water Collection | Deflection, Primary   | Protection, Primary   |
| Collection Point | Anchor Point          | Deflection, Secondary | Protection, Secondary |
| Skimmer          | Path of Oil           | Deflection, Tertiary  | Protection, Tertiary  |
|                  |                       | Dike                  |                       |

## Collection Point Description

Inlet: **Doctors Pass, Collier County, Florida**

Site Name: Collection Point #1

Relative Location: Just south of the south jetty.

Latitude: 26°10' 23.679" N    Longitude: 81°48' 50.937" W

Currents: 1-3 knots along shore to the north during rising tides.

Shoreline Description: Sand beach with riprap to the north (the south jetty).

Access: This is a tightly developed area, but there is a large parking area and apparently a public beach about 300 yards to the south. It would be highly desirable to avoid using watercraft here, because of the riprap barrier at the jetty.





## Collection Point Description

Inlet: **Doctors Pass, Collier County, Florida**

Site Name: Collection Point #2

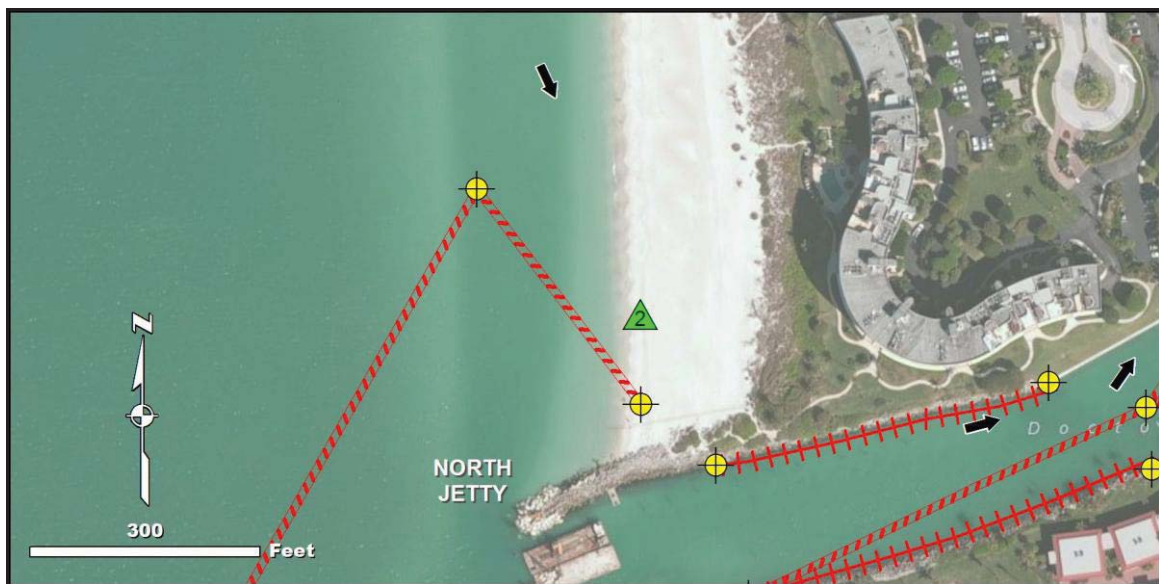
Relative Location: Just north of the north jetty.

Latitude: 26°10' 29.570" N    Longitude: 81°48' 54.007" W

Currents: 1-3 knots along shore from the north during rising tides.

Shoreline Description: Sand beach.

Access: Highly developed shoreline with limited land access. Watercraft access would appear to work here because of the relatively low landward end of the north jetty.





## Collection Point Description

Inlet: **Doctors Pass, Collier County, Florida**

Site Name: Collection Point #3

Relative Location: On the north shore of the main inlet channel about 90 yards west of the entrance to Moorings Bay.

Latitude: 26°10' 29.200" N    Longitude: 81°48' 46.133" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Seawall

Access: There is a parking area by a tennis court and you could conceivably drive across a grass lawn to the seawall. If private property issues become a problem, use watercraft.



## Collection Point Description

Inlet: **Doctors Pass, Collier County, Florida**

Site Name: Collection Point #4

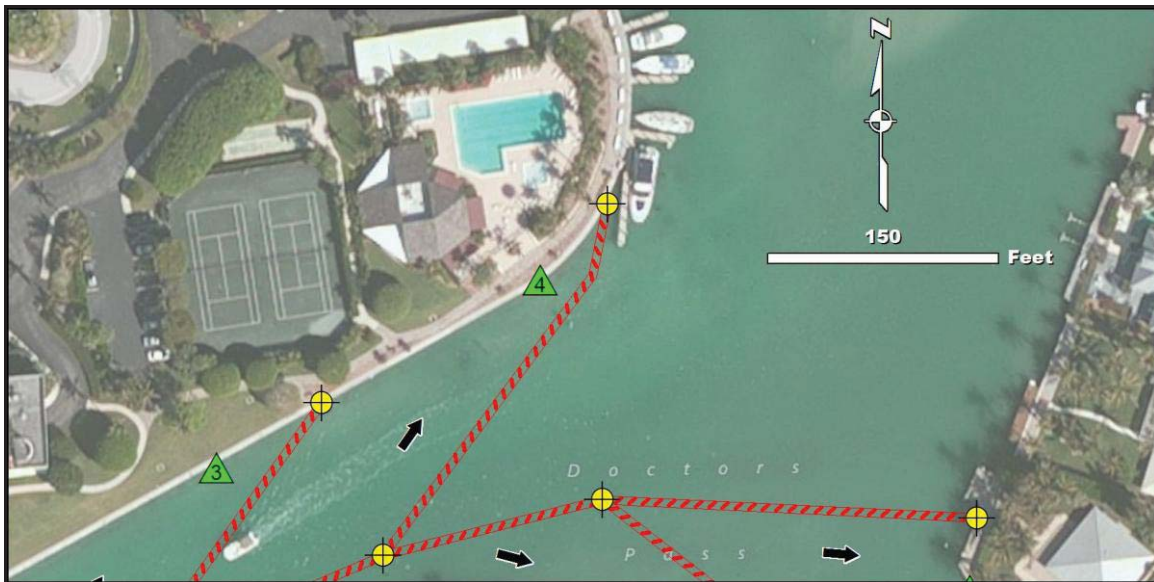
Relative Location: On the north side of the main inlet channel near the entrance to Moorings Bay.

Latitude: 26°10' 30.369" N    Longitude: 81°48' 43.796" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Seawall.

Access: There is a parking area by a tennis court and you could conceivably drive across a grass lawn to the seawall. If private property issues become a problem, use watercraft.



## Collection Point Description

Inlet: **Doctors Pass, Collier County, Florida**

Site Name: Collection Point #5

Relative Location: The east end of the peninsula along the south side of the main inlet channel.

Latitude: 26°10' 27.727" N    Longitude: 81°48' 42.410" W

Currents: Possibly up to 1.5 knots.

Shoreline Description: Seawall.

Access: By watercraft.



## Collection Point Description

Inlet: **Doctors Pass, Collier County, Florida**

Site Name: Collection Point #6

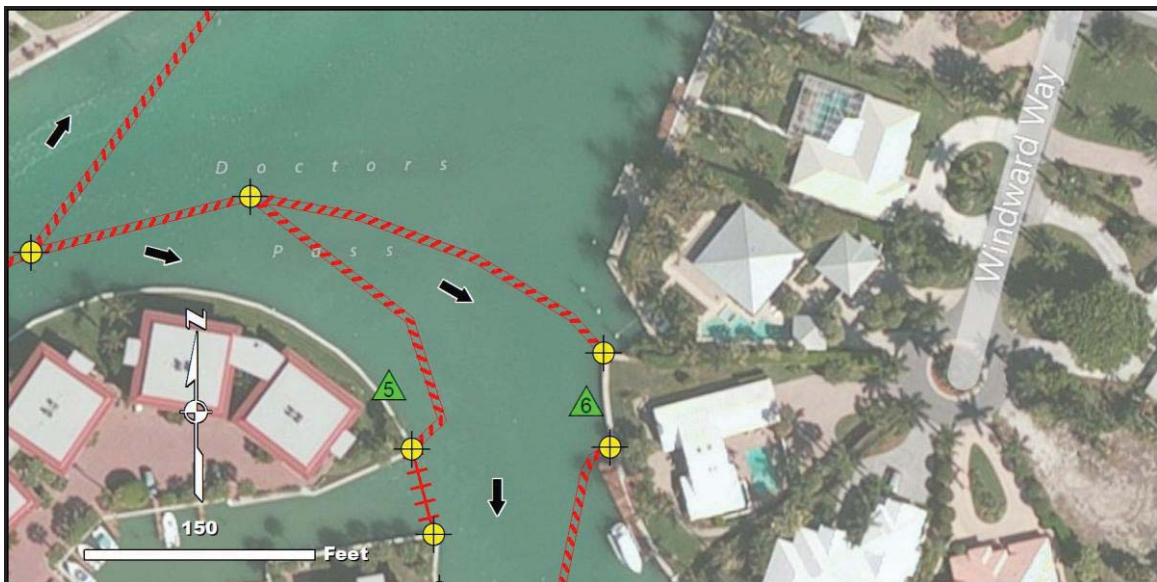
Relative Location: East side of the north/south channel at the south end of Moorings Bay, directly opposite (east of) CP5.

Latitude: 26° 10' 27.556" N Longitude: 81° 48' 40.987" W

Currents: Possibly up to 1.5 knots.

Shoreline Description: Seawall.

Access: By watercraft.





## Collection Point Description

Inlet: **Doctors Pass, Collier County, Florida**

Site Name: Collection Point #7

Relative Location: West side of the north/south channel at the south end of Moorings Bay, about 70 yards south of CP5.

Latitude: 26°10' 25.809" N    Longitude: 81°48' 41.760" W

Currents: Possibly up to 1 knot.

Shoreline Description: Seawall. Place protection boom along the overhang for the oil to accumulate on.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: **Gordon Pass, Collier County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 3 June 1995; 1130

[Low @ 0939 (+1.26); Naples (outer coast)]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**C.**

PRINCIPAL RESOURCES AT RISK:

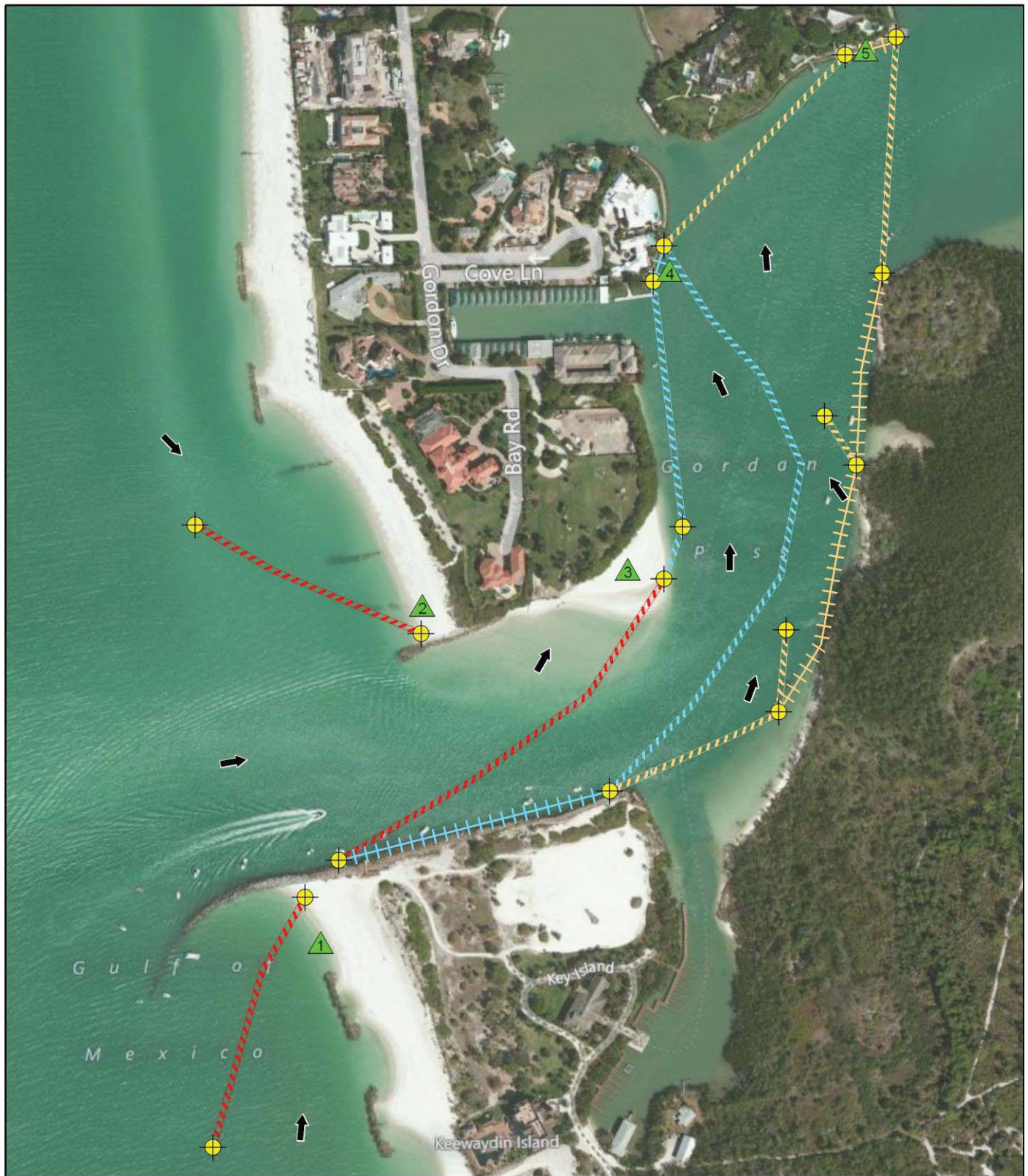
Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, including the Snowy plover and Wilson's plover; wading birds; seabirds, including the Least tern and Black skimmer; and waterfowl. Marina facilities, boats, seawalls, revetments, docks, etc. along the shore of Naples Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels of the ebb-tidal delta to collection points along the outer sand beaches (CPs 1 and 2). Place protection boom along the riprap along the north end of Keewaydin Island. From the south jetty, project a line of deflection boom obliquely across the main inlet channel to the sand beach on the north side of the main inlet channel (at the east side of the southern end of the Naples peninsula) (CP3). Extend a line of deflection boom in a northerly direction away from CP3 along the east shore of the Naples peninsula beyond the entrance to a large boat basin and on to a riprap shoreline near the end of Cove Lane (CP4). From CP4, extend another line of deflection boom in a northeasterly direction to another riprap shoreline at the end of another south trending peninsula further to the northeast (CP5). From the east end of the riprap on the north end of Keewaydin Island, project a long line of deflection boom out into the main inlet channel and on to the north until it eventually crosses the channel to divert oil to CP4. From that same spot on the north end of Keewaydin Island, extend another line of deflection boom across the entrance to the basin to the south. Then run a long line of protection boom along the mangrove shoreline on the east side of the main inlet channel. Place two short lines of deflection boom out into the channel that will divert the oil away from the mangroves. At the end of the mangroves, extend a line of deflection boom across the main inlet channel to CP5.



# Gordon Pass



© Bing Imagery



1:4,300



## Collection Point Description

Inlet: **Gordon Pass, Collier County, Florida**

Site Name: Collection Point #1

Relative Location: Just south of the south jetty on Keewaydin Island.

Latitude: 26°5' 28.981" N     Longitude: 81°48' 6.582" W

Currents: 1-3 knots along shore to the north during rising tides.

Shoreline Description: Sand beach with three breakwater-type groins to the south and the riprap jetty to the north.

Access: There are tracks and sand roads to the beach but no road to the island. Access through the private property may be an issue, but driving access is plentiful, assuming you can get the vehicles there. Worse comes to worse, use watercraft. You could land on the landward side of the island and walk over to the beach, thus avoiding climbing over the jetty.





## Collection Point Description

Inlet: **Gordon Pass, Collier County, Florida**

Site Name: Collection Point #2

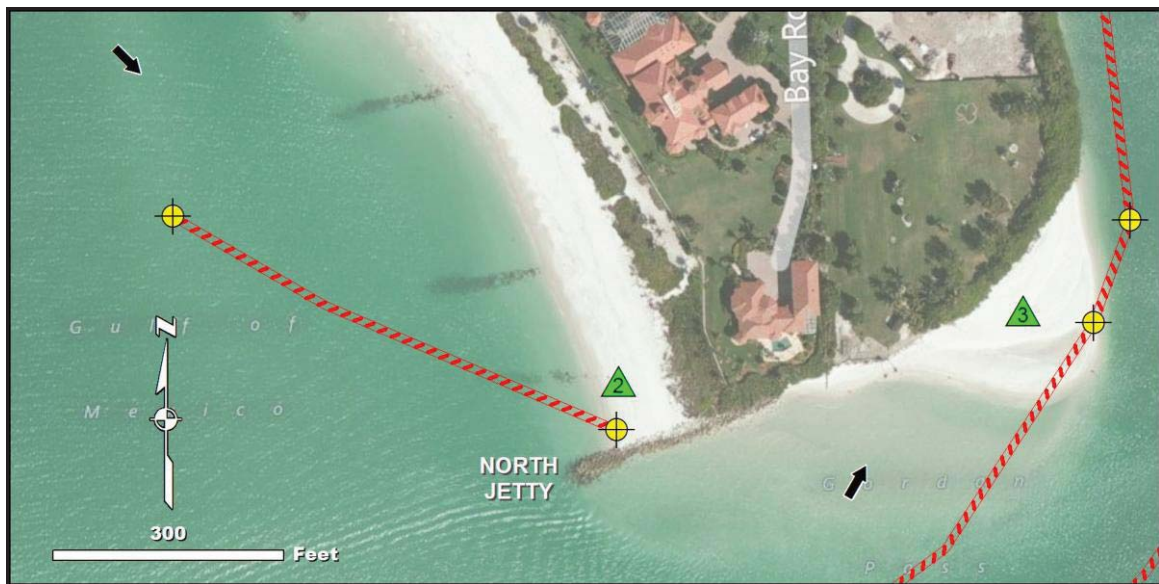
Relative Location: Just north of the north jetty in southern Naples.

Latitude: 26°5' 37.441" N     Longitude: 81°48' 3.572" W

Currents: 1-3 knots along shore to the south during rising tides.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: **Gordon Pass, Collier County, Florida**

Site Name: Collection Point #3

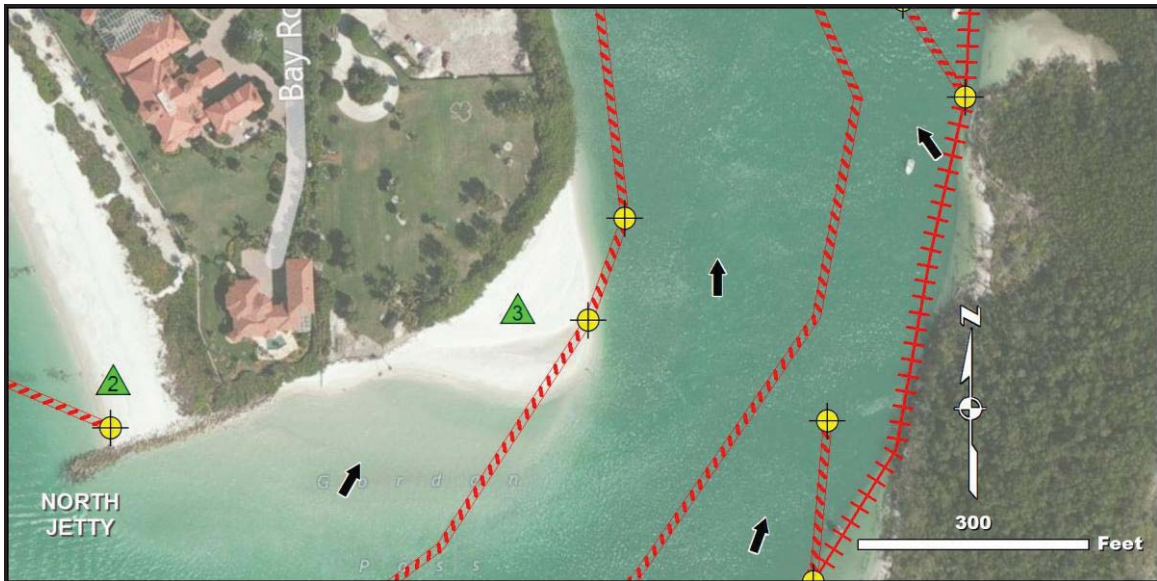
Relative Location: East end of the north side of the main inlet channel.

Latitude: 26°5' 38.255" N     Longitude: 81°47' 57.784" W

Currents: Possibly up to 3 knots.

Shoreline Description: Sand beach (steep).

Access: By watercraft.



## Collection Point Description

Inlet: **Gordon Pass, Collier County, Florida**

Site Name: Collection Point #4

Relative Location: Shoreline on the east side of the Naples peninsula about 300 yards north of the main inlet channel.

Latitude: 26°5' 45.764" N      Longitude: 81°47' 56.472" W

Currents: Possibly up to 2 knots.

Shoreline Description: Riprap zone lined with protection boom for the oil to accumulate on.

Access: By watercraft.



## Collection Point Description

Inlet: **Gordon Pass, Collier County, Florida**

Site Name: Collection Point #5

Relative Location: Near the end of Cutlass Lane on the southeast end a prominent developed peninsula about 500 yards north-northeast of the east end of the main inlet channel.

Latitude: 26°5' 51.238" N     Longitude: 81°47' 50.865" W

Currents: Possibly up to 2 knots.

Shoreline Description: Zone of riprap lined with protection boom for the oil to accumulate on.

Access: By watercraft.





# INLET SUMMARY SHEET

SITE: **Keewaydin Island Washovers, Collier County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]:

New inlet strategy added October 2011.

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**D.**

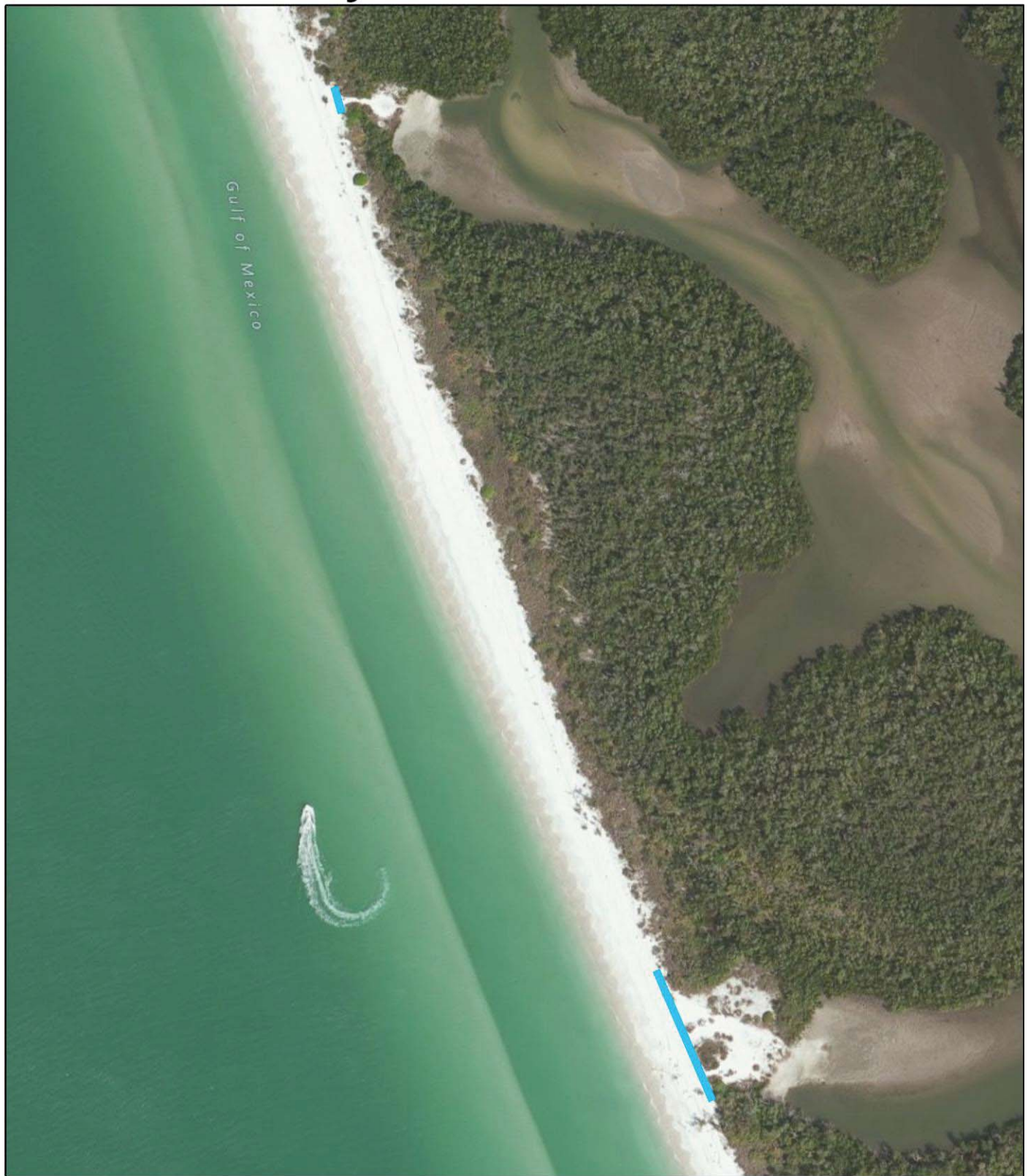
PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, including the Snowy plover and Wilson's plover; wading birds; seabirds, including the Least tern and Black skimmer; and waterfowl. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

(NOTE: These are two washover channels through Keewaydin Island into Bartell Bay.) Place sand dikes across the entrances of the two washover channels. The north dike should be about 25 yards long and the southern one should be about 75 yards long.

# Keewaydin Island Washovers



© Bing Imagery



1:2,500

0 80 160 320 480 Feet



# INLET SUMMARY SHEET

SITE: Hurricane Pass, Collier County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 29 May 1995; (overflight)

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**B.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds, including the Snowy plover and Wilson's plover; wading birds; seabirds, including the Least tern and Black skimmer; waterfowl; and raptors, including the Osprey. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

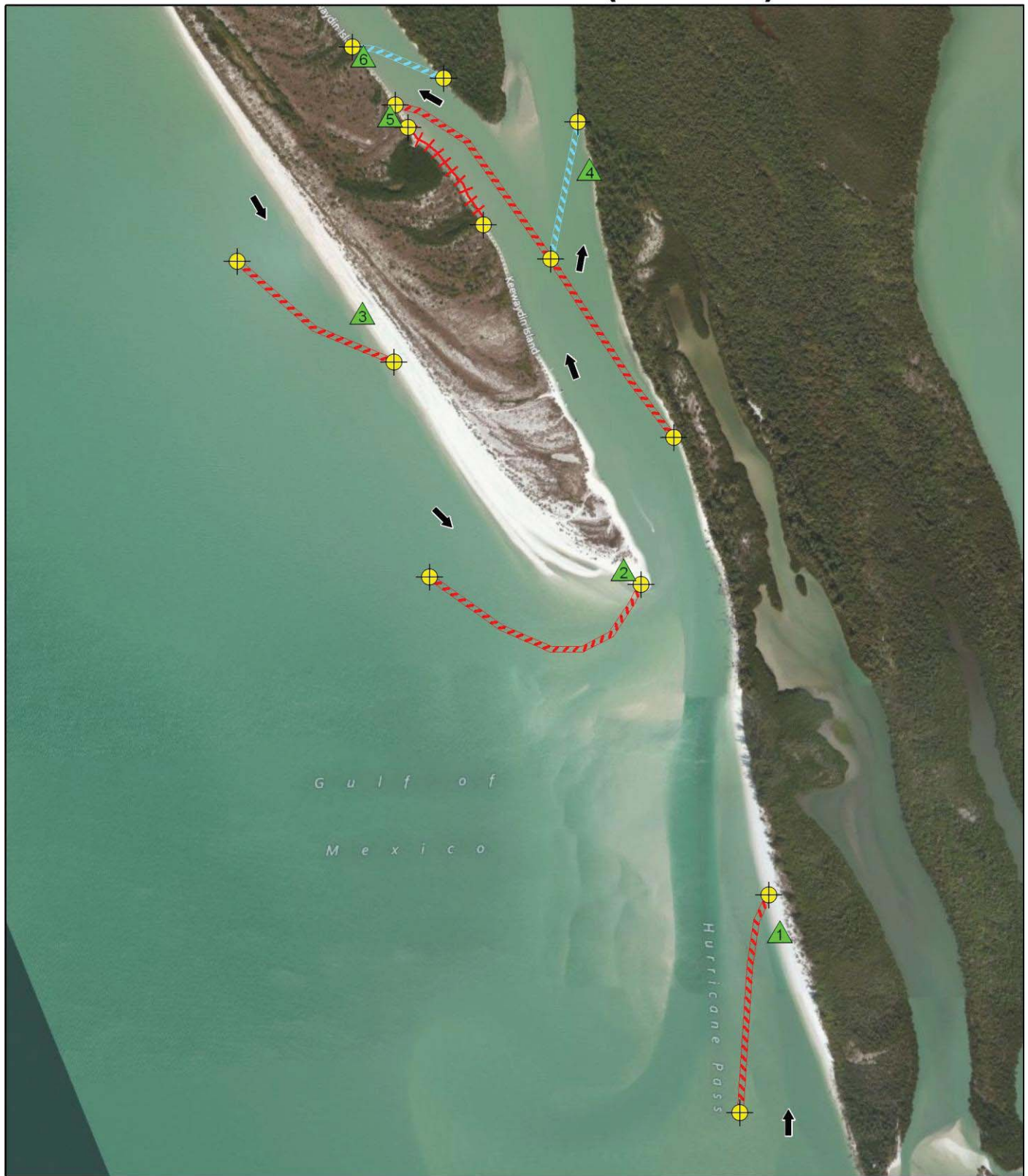
Divert oil entering the inlet through the marginal flood channels to collection points along the outer sand beaches (CPs 1, 2, and 3). Attach an anchor point for a line of deflection boom to the west shore of Cannon Island and run it obliquely across the main inlet channel. Place an anchor point at the end of this line of boom in the middle of the channel about 850 yards north of the south end of the recurved spit. From this anchor point, two limbs of a newly created Christmas tree configuration of deflection boom branch away to the north. The east limb of the resulting C. tree leads to a sand beach on the west shore of Cannon Island opposite the south end of Little Marco Island (CP4). The west limb of the C. tree leads to a sand beach on the east shore of the recurved spit about 0.7 miles northwest of the southern end of the spit (CP5). Extend another line of deflection boom from Little Marco Island obliquely across the adjoining channel to a sand beach on the east side of the recurved spit (about 0.9 miles northwest of the southern end of the spit) (CP6). Place a line of protection boom along side of the shrubs and trees by the shore to the south of CP5.

OTHER COMMENTS:

During both surveys, the ebb-tidal delta was elongated, with a well-defined main ebb channel oriented south/southwest.



# Hurricane Pass (Collier)



© Bing Imagery



1:11,000

0 345 690 1380 2070 Feet





## Collection Point Description

Inlet: Hurricane Pass, Collier County, Florida

Site Name: Collection Point #1

Relative Location: On the outer sand beach about 650 yards north of the south end of Sea Oat Island.

Latitude: 25°59' 3.371" N      Longitude: 81°44' 50.886" W

Currents: 1-3 knots along shore to the north during rising tides. The boom is stretched across the southern marginal flood channel of the huge ebb-tidal delta.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: Hurricane Pass, Collier County, Florida

Site Name: Collection Point #2

Relative Location: Southern end of the recurved spit at the southern end of Keewaydin Island.

Latitude: 25°59' 26.911" N    Longitude: 81°45' 1.610" W

Currents: 1-3 knots along shore to the south during rising tides. The boom extends across the northern marginal flood channel of this huge ebb-tidal delta.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: Hurricane Pass, Collier County, Florida

Site Name: Collection Point #3

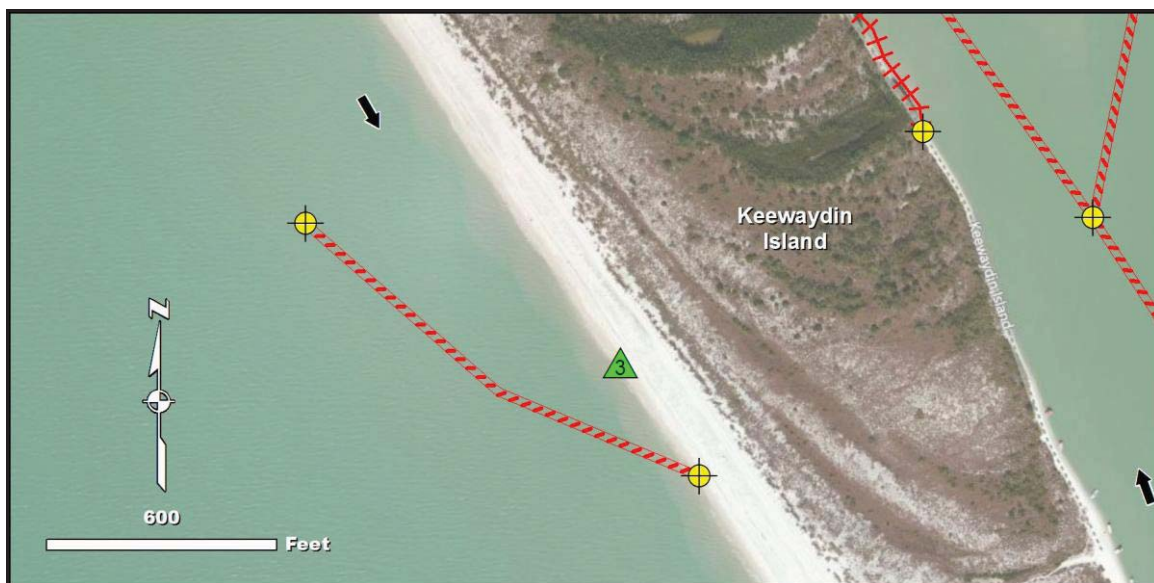
Relative Location: About 800 yards from the southern end of the recurved spit at the southern end of Keewaydin Island.

Latitude: 25°59' 43.749" N    Longitude: 81°45' 19.994" W

Currents: 1-3 knots along shore to the south during rising tides.

Shoreline Description: Sand beach.

Access: Would have to be by watercraft, but if the waves are big the crew would have to walk from the south end of the spit. Cleanup may be impossible under those conditions.



## Collection Point Description

Inlet: Hurricane Pass, Collier County, Florida

Site Name: Collection Point #4

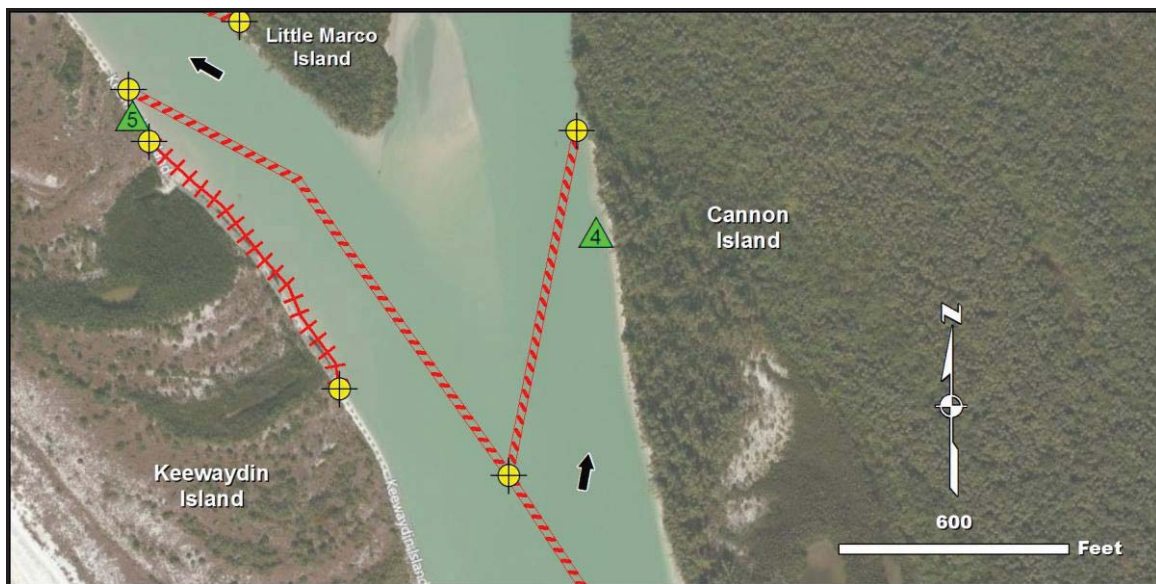
Relative Location: On the east shore of Cannon Island opposite the southern end of Little Marco Island.

Latitude: 25°59' 52.772" N    Longitude: 81°45' 3.524" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach.

Access: By watercraft.





## Collection Point Description

Inlet: Hurricane Pass, Collier County, Florida

Site Name: Collection Point #5

Relative Location: On the landward (east) side of the recurved spit about 0.7 miles northwest of the southern end of Keewaydin Island.

Latitude: 25°59' 56.685" N    Longitude: 81°45' 16.996" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: Hurricane Pass, Collier County, Florida

Site Name: Collection Point #6

Relative Location: On the landward (east) side of the recurved spit about 0.9 miles northwest of the southern end Keewaydin Island.

Latitude: 26°0' 0.340" N      Longitude: 81°45' 19.578" W

Currents: Possibly up to 2 knots.

Shoreline Description: Sand beach.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: **Big Marco Pass, Collier County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 3 June 1995; 1350

[Low @ 1034 (+1.01); Marco, Big Marco River]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

A.

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds, including the Little blue heron, Great egret, Snowy egret, Cattle egret, Tricolor heron, and Green heron; seabirds, including the Double-crested cormorant and Brown pelican; waterfowl; and raptors, including the Osprey. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Johnson, Tarpon, and Collier Bays and associated waterways. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil moving along the new sand spit on the outer shore of Marco Island and entering the inlet through the southern marginal flood channel of the ebb-tidal delta to collection points on the outer sand beaches on the spit (CPs 1 and 2). Place the lead anchor point of a Christmas tree configuration of deflection boom about 450 yards north of the end of the new recurved spit. The south limb of this C. tree extends to a sand beach on the south shore of the south fork of the main inlet channel just west of the entrance to Collier Bay (CP3). The north limb of the C. tree leads to a seawall on the west end of the Isles of Capri (end of the peninsula that separates the north and south forks of the main inlet channel) (CP6). Place another lead anchor point for a Christmas tree configuration of deflection boom off the entrance to the north fork of the main inlet channel. The north limb of this C. tree leads to a sand beach at the entrance to a smaller channel on the north side of the north fork of the main inlet channel CP7), and the south limb leads to CP6. Extend a long line of deflection boom from the north limb of this C. tree that crosses the north fork of the main inlet channel and terminates at a seawall on the south end of a peninsula on the eastern shore (at the end of W. Pago Pago Drive) (CP8). Further inside the north fork of the main inlet channel, place a line of deflection boom anchored on the south shore of Johnson Island that runs

# INLET SUMMARY SHEET

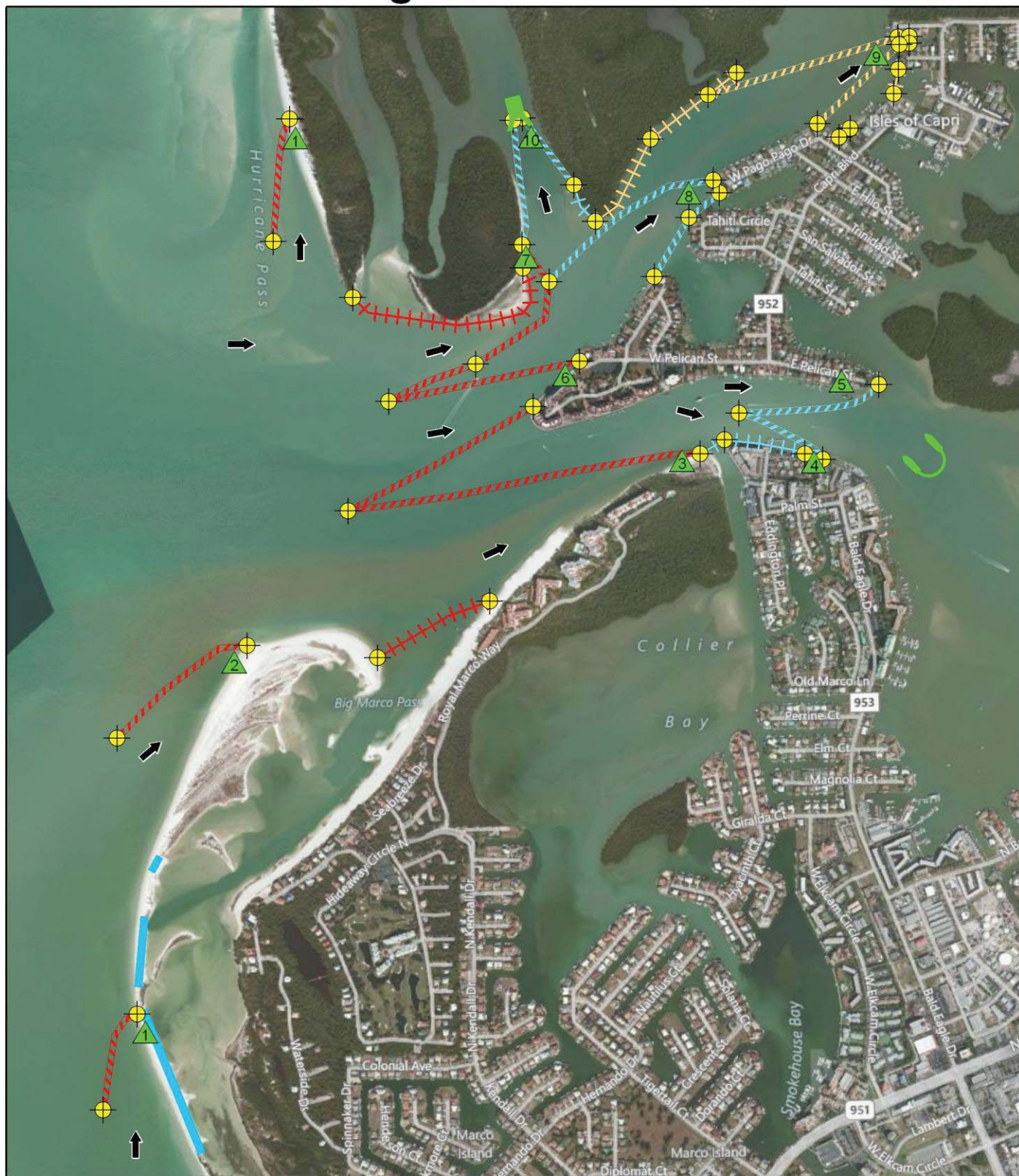
SITE: **Big Marco Pass, Collier County, Florida (continued)**

## PRELIMINARY PROTECTION STRATEGY (CONTINUED):

obliquely across the channel to a small man-made basin on the eastern shoreline (CP9). A shorter line of deflection boom in the south also leads to CP9. Place the lead anchor point for a small Christmas tree configuration of deflection boom in the middle of the south fork of the main inlet channel about 750 yards east of the entrance. The north limb of this C. tree leads to a seawall on the north shore, on the Isles of Capri (CP5), and the south limb leads to a seawall on the south shore (CP4). Establish an open water protection skimmer further to the east of CPs 4 and 5. Place an open water skimmer about 600 yards up inside the north/south channel on the west side of Johnson Island (CP10). Build three sand dikes on the southern outer shore of the new recurved spit: 1) On the washover terrace south of CP1 (about 550 yards long); 2) On the washover terrace north of CP1 (about 230 yards long); and 3) On another small washover terrace 150 yards north of dike number 2 (about 75 yards long). Place protection boom in the following five areas: 1) From the southern end of Sea Oat Island around the shore to CP7 (to keep oil out of the fallen trees along the shore and off the tidal flats); 2) Around the southern shore of Johnson Island (to keep oil out of the mangroves); 3) Across the entrances to two small basins south of CP9; 4) Along the shoreline between CP3 and CP4, including across the entrance to Collier Bay; and 5) Across the entrance to the bay in the lee of the new recurved spit.



# Big Marco Pass



© Bing Imagery



1:19,500

0 600 1200 2400 3600 Feet



## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #1

Relative Location: On the outer beach of the new sand spit about one mile south of the north end of the spit.

Latitude: 25°57' 21.296" N    Longitude: 81°45' 12.078" W

Currents: 1-3 knots along shore from the south during rising tides. The boom stretches across the southern marginal flood channel of the ebb-tidal delta.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #2

Relative Location: Near the north end of the new sand spit.

Latitude: 25°58' 3.473" N     Longitude: 81°44' 59.916" W

Currents: 1-3 knots along shore from the south during rising tides.

Shoreline Description: Sand beach.

Access: By watercraft.





## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #3

Relative Location: On the south side of a major channel (south fork of the main inlet channel) on the north end of Marco Island.

Latitude: 25°58' 25.623" N    Longitude: 81°44' 2.503" W

Currents: Possibly up to 4 knots.

Shoreline Description: Sand beach (steep).

Access: By watercraft.





## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #4

Relative Location: On the south side of the south fork of the main inlet channel (called Big Marco Pass on the chart) by the Marco Resort Club, beyond the end of Bald Eagle Drive (on the highly developed eastern peninsula at the north end of Marco Island).

Latitude: 25°58' 26.355" N    Longitude: 81°43' 45.544" W

Currents: Possibly up to 4 knots.

Shoreline Description: Seawall.

Access: There is a big parking lot adjacent to the seawall. However, this lot is on private property, so if that becomes an issue, use watercraft.



## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #5

Relative Location: On the north side of the south fork of the main inlet channel (called Big Marco Pass on the chart), at the east end of the Isles of Capri near the east end of E. Pelican Street.

Latitude: 25°58' 33.550" N    Longitude: 81°43' 39.246" W

Currents: Possibly up to 4 knots.

Shoreline Description: Seawall.

Access: By watercraft.



## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #6

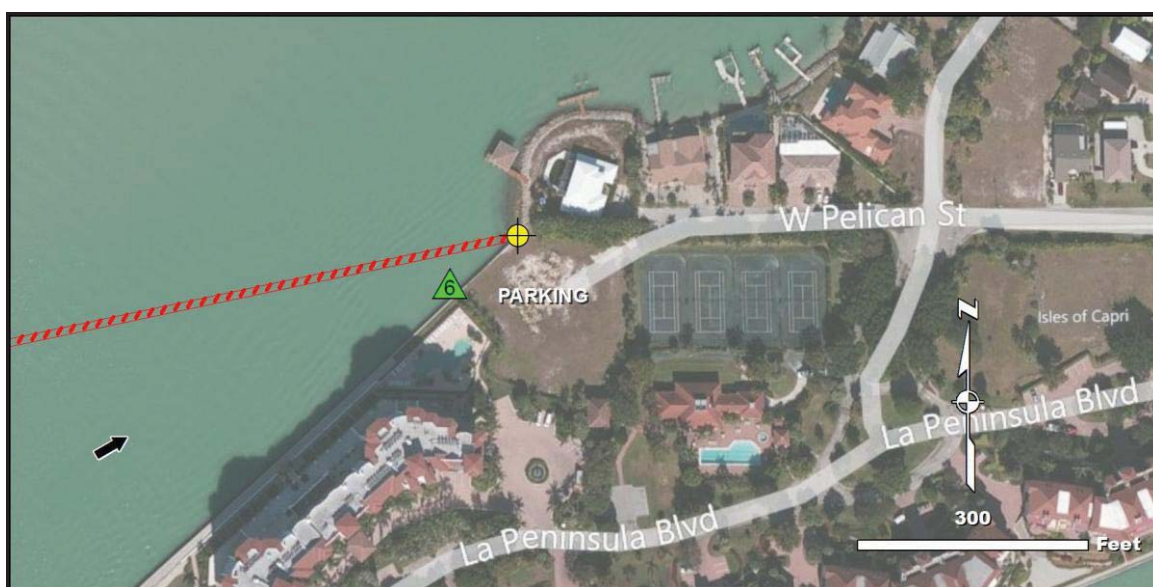
Relative Location: South side of the north fork of the main inlet channel near the west end of Isles de Capris (at the end of W. Pelican Street).

Latitude: 25°58' 36.993" N    Longitude: 81°44' 16.309" W

Currents: Possibly up to 4 knots.

Shoreline Description: Seawall.

Access: There is an empty lot right by the seawall. You should be able to drive across the grass to the seawall. However, this is private property, so if that becomes an issue, use watercraft.



## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #7

Relative Location: North side of the north fork of the main inlet channel, fairly close to the entrance. On the eastern side of an island covered with mangroves.

Latitude: 25°58' 49.282" N    Longitude: 81°44' 21.864" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach.

Access: By watercraft.





## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #8

Relative Location: At the southwest end of a highly developed peninsula on the east side of the north fork of the main inlet channel, at the end of W. Pago Pago Drive.

Latitude: 25°58' 56.931" N    Longitude: 81°43' 58.702" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Seawall

Access: By watercraft.



## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #9

Relative Location: On the east side of the north fork of the main inlet channel about 1.2 miles northeast of the entrance. On the Isles of Capri between Antigua Street and Cristobal Street.

Latitude: 25°59' 13.645" N    Longitude: 81°43' 33.839" W

Currents: Possibly up to 2 knots.

Shoreline Description: Small man-made basin surrounded by seawalls. Close the channel with protection boom a ways inside the basin.

Access: By watercraft.



## Collection Point Description

Inlet: **Big Marco Pass, Collier County, Florida**

Site Name: Collection Point #10; open water skimmer

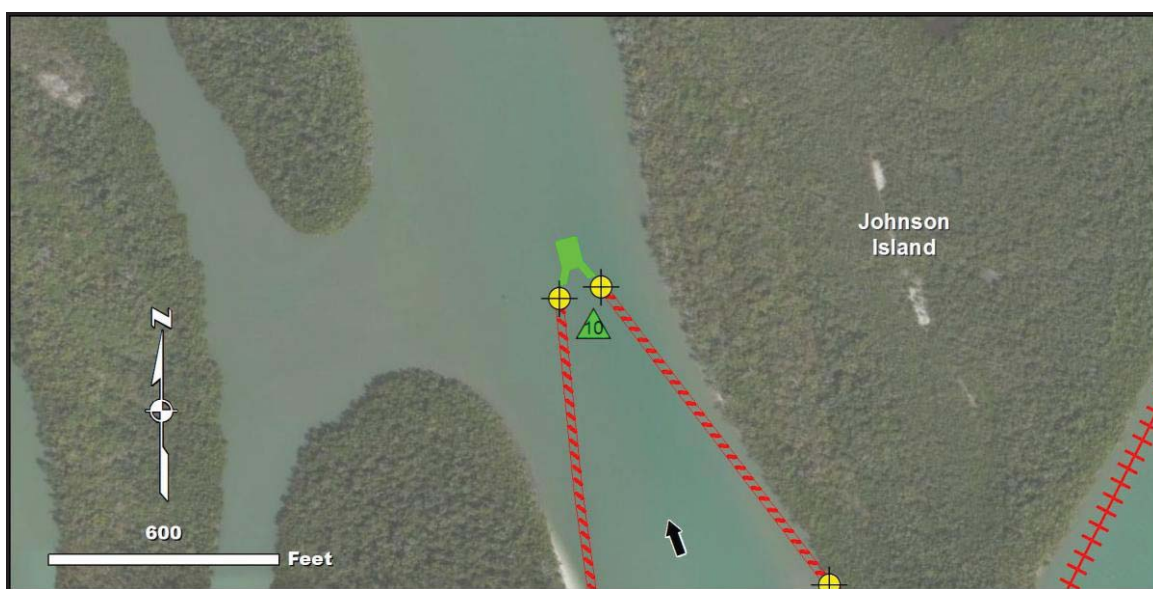
Relative Location: First major channel entering on the north side of the north fork of the main inlet channel. It runs along the west side of Johnson Island. The skimmer should be located about 600 yards to the north/northwest of the channel entrance.

Latitude: 25°59' 4.777" N     Longitude: 81°44' 22.253" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Open water skimmer.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: Caxambas Pass, Collier County, Florida

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 3 June 1995; 1614  
[High @ 1610 (+3.52); Cape Romano]

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

A.

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds; seabirds; waterfowl; and raptors, including the Osprey. Marina facilities, boats, seawalls, revetments, docks, etc. along the shores of Roberts Bay and Goodland Bay. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Divert oil entering the inlet through the marginal flood channels of the ebb-tidal delta to collection points along the outer sand beaches (CPs 1 and 2). Extend a line of deflection boom across the northernmost inlet channel to a seawall at the southeast end of Marco Island (CP3). Another line of deflection boom should lead to the boat ramp and seawall in Caxambas Park on the southeast side of Marco Island (CP4). Deploy a line of deflection boom along the north shore that leads to a seawall on the north side of the main inlet channel in the highly developed peninsula opposite Henry Key (at the end of Heights Ct.) (CP8). Place a small Christmas tree of deflection boom in the middle of the channel north of the west end of Henry Key, the north limb of which goes to CP8 and the south limb of which goes to a seawall at the southwest end of this same peninsula (CP5). Extend another line of deflection boom from the northwest corner of Henry Key across the inlet channel to CP5. Another line of deflection boom extends away from the middle of Henry Key to the seawall at CP6 (located a short distance east of CP5). Another line of deflection boom extending away from Henry Key reaches obliquely across the northern inlet channel to a seawall on the north shore of the channel near the south end of the second highly developed peninsula beyond Henry Key (near S. Inlet Dr.) (CP7). Place an open water skimmer in the channel between Henry Key and Allan Key (CP9). Place protection boom in the



# INLET SUMMARY SHEET

SITE: Caxambas Pass, Collier County, Florida (continued)

PRELIMINARY PROTECTION STRATEGY (CONTINUED):

following five areas: 1) Around the north shore of Allan Key (to protect the mangroves); 2) All the way around the shore of Henry Key; 3) Across the entrance to the man-made canal east of CP4; 4) Across the entrance to the man-made canal east of CP6; and 5) Across the entrance to the man-made channel west of CP7. Use open water collection in Caxambas Bay. Place a sand dike across the small open inlet about 750 yards southeast of CP1.

# Caxambas Pass



© Bing Imagery



0 600 1,200 2,400 3,600 4,800 Feet

## Legend

- |                  |                       |                       |                       |
|------------------|-----------------------|-----------------------|-----------------------|
| USCG Station     | Open Water Collection | Deflection, Primary   | Protection, Primary   |
| Collection Point | Anchor Point          | Deflection, Secondary | Protection, Secondary |
| Skimmer          | Path of Oil           | Deflection, Tertiary  | Protection, Tertiary  |
|                  |                       | Dike                  |                       |

## Collection Point Description

Inlet: Caxambas Pass, Collier County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on Dickmans Island south of the main inlet channel.

Latitude: 25°53' 57.616" N    Longitude: 81°42' 54.595" W

Currents: 1-3 knots along shore from the south during rising tides.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: Caxambas Pass, Collier County, Florida

Site Name: Collection Point #2

Relative Location: Outer beach near the southwest end of Marco Island.

Latitude: 25°54' 40.760" N    Longitude: 81°43' 45.207" W

Currents: 1-3 knots along shore from the north during rising tides.

Shoreline Description: Sand beach.

Access: If you could get permission to work on this private property, you could drive close to the beach. If not, you would have to use watercraft, which would be difficult because of the riprap on the shore to the south, as well as the potential for big waves.





## Collection Point Description

Inlet: Caxambas Pass, Collier County, Florida

Site Name: Collection Point #3

Relative Location: On the southeast tip of Marco Island by the Shipps Landing Condos.

Latitude: 25°54' 29.181" N    Longitude: 81°43' 4.939" W

Currents: Possibly 2-4 knots.

Shoreline Description: Seawall

Access: It would be possible to drive across the grass to the seawall. However, this is private property, so if that becomes an issue, use watercraft.



## Collection Point Description

Inlet: Caxambas Pass, Collier County, Florida

Site Name: Collection Point #4

Relative Location: The boat ramp in Caxambas Park on the southeast side of Marco Island.

Latitude: 25°54' 44.639" N    Longitude: 81°43' 2.756" W

Currents: Possibly up to 1 knot.

Shoreline Description: Seawall/boat ramp.

Access: You can park right by the seawall (in the boat ramp parking area).



## Collection Point Description

Inlet: Caxambas Pass, Collier County, Florida

Site Name: Collection Point #5

Relative Location: At the end of a highly developed peninsula on the north shore of the main inlet channel (across the channel from Henry Key); at the end of S. Barfield Ct.

Latitude: 25°54' 30.792" N    Longitude: 81°42' 23.576" W

Currents: Possibly 2-3 knots.

Shoreline Description: Seawall

Access: By watercraft.



## Collection Point Description

Inlet: Caxambas Pass, Collier County, Florida

Site Name: Collection Point #6

Relative Location: At the end of a highly developed peninsula (east end) on the north shore of the main inlet channel (across the channel from Henry Key).

Latitude: 25°54' 30.191" N    Longitude: 81°42' 16.389" W

Currents: Possibly 2-3 knots.

Shoreline Description: Seawall

Access: By watercraft.





## Collection Point Description

Inlet: Caxambas Pass, Collier County, Florida

Site Name: Collection Point #7

Relative Location: On the north shore of the main inlet channel near the south end of the second highly developed peninsula beyond Henry Key, near S. Inlet Dr.

Latitude: 25°54' 36.367" N    Longitude: 81°42' 2.289" W

Currents: Possibly up to 2 knots.

Shoreline Description: Seawall

Access: At this time, there is a big empty lot by the seawall. If this changes, use watercraft.



## Collection Point Description

Inlet: Caxambas Pass, Collier County, Florida

Site Name: Collection Point #8

Relative Location: On the north side of the main inlet channel in the highly developed peninsula opposite Henry Key (at the end of Heights Ct.).

Latitude: 25°54' 41.099" N    Longitude: 81°42' 26.589" W

Currents: Possibly about one knot.

Shoreline Description: Seawall

Access: At this time, there is a big empty lot by the seawall. If this changes, use watercraft.



## Collection Point Description

Inlet: **Caxambas Pass, Collier County, Florida**

Site Name: Collection Point #9; open water skimmer

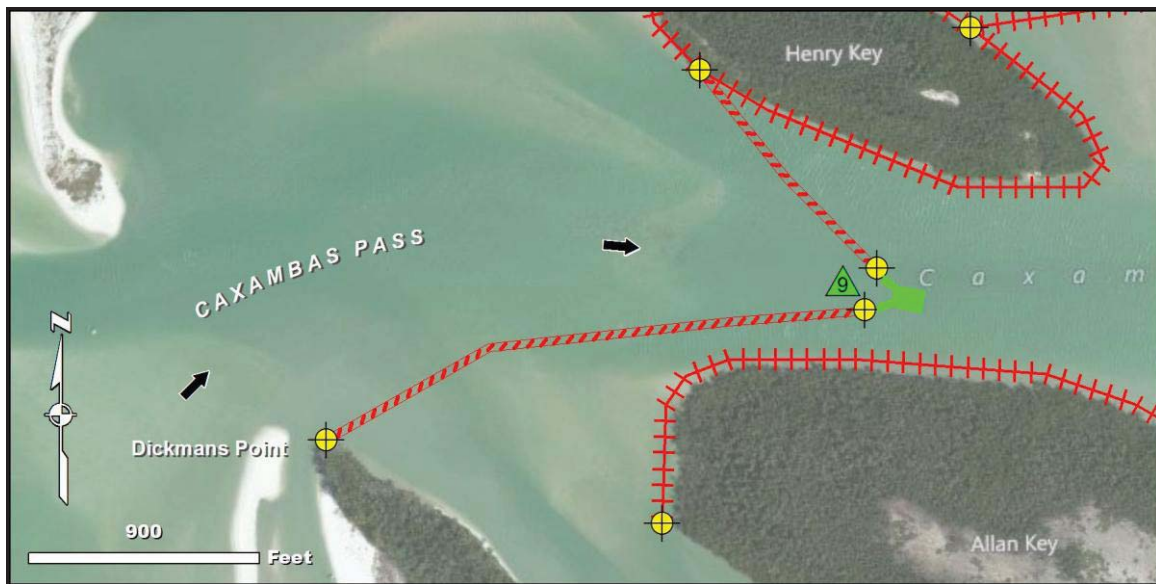
Relative Location: In the channel between Henry Key and Allan Key.

Latitude: 25°54' 11.976" N    Longitude: 81°42' 34.341" W

Currents: Possibly up to 2-4 knots.

Shoreline Description: Open water skimmer.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: **Blind Pass, Collier County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 29 May 1995; (overflight)

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**C/D**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds; seabirds; waterfowl; and raptors, including the Osprey. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

Wave conditions permitting, anchor a Christmas tree configuration of deflection boom offshore of the small ebb-tidal delta designed to divert oil away from the inlet. This shoreline is in a constant rate of flux, so it may be quite different in the future. Ideally, the main inlet channel could be closed with a sand dike about 200 yards long. The washover terrace to the north should also be closed with a sand dike (about 130 yards long). If, for some reason this cannot be done, such as there is not enough sand available to build the dikes, place a line of deflection boom obliquely across the inlet channel so that the oil will be diverted to the sand beach on the north side of the inlet (CP1).



# Blind Pass (Collier)



© Bing Imagery



1:8,500

0 270 540 1080 1620 Feet



## Collection Point Description

Inlet: **Blind Pass, Collier County, Florida**

Site Name: Collection Point #1

Relative Location: The north shore of the main inlet channel on Kice Island.

Latitude: 25°52' 16.160" N    Longitude: 81°41' 47.695" W

Currents: Possibly up to 3 knots.

Shoreline Description: Sand beach.

Access: By watercraft.



# INLET SUMMARY SHEET

SITE: **Morgan Bay, Collier County, Florida**

DATE AND TIME OF ORIGINAL FIELD SURVEY [TIDE]: 29 May 1995; (overflight)

UPDATED:

In October 2011 using imagery collected in 2010 and 2011.

RANKING (DEGREE OF DIFFICULTY): (see ranking scale)

**A.**

PRINCIPAL RESOURCES AT RISK:

Mangroves. Manatees present. Atlantic loggerhead turtles nest on outer beaches. Shorebirds; wading birds; seabirds; waterfowl; and raptors, including the Osprey. For further information refer to the recent ESI map and data and the GRP.

PRELIMINARY PROTECTION STRATEGY:

(NOTE: We estimate that this shoreline has eroded 120 yards since 1995. Therefore, expect some major changes here.) There are two open inlets. For the inlet on the north side of Big Morgan Island, place a line of deflection boom obliquely across the inlet entrance to divert oil to the steep sand beach on the south side of the inlet (CP2). Do the same thing for the inlet between Carr Island and Morgan Key (CP1). We are proposing that sand dikes be constructed in three areas: 1) Across the washover channel in the middle of Big Morgan Island (about 40 yards long); 2) Across the washover channel about 200 yards north of the southern inlet (also about 40 yards long); and 3) Along the almost continuous washover zone to the south of Carr Island (about 680 yards long). Making these sand dikes may be a problem, because of the possible paucity of sand to build them with. Obviously, this will be a very difficult area to deal with in the event of a major oil spill.



# Morgan Bay



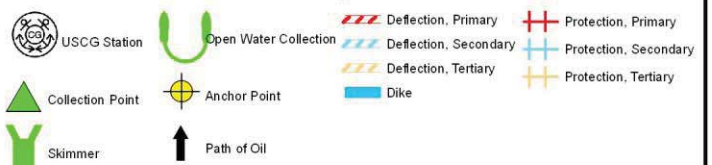
© Bing Imagery



1:6,000



## Legend





## Collection Point Description

Inlet: **Morgan Bay, Collier County, Florida**

Site Name: Collection Point #1

Relative Location: Inlet between Carr Island and Morgan Key.

Latitude: 25°51' 16.748" N    Longitude: 81°41' 10.405" W

Currents: Possibly up to 2-3 knots.

Shoreline Description: Sand beach.

Access: By watercraft.



## Collection Point Description

Inlet: **Morgan Bay, Collier County, Florida**

Site Name: Collection Point #2

Relative Location: Inlet on the north side of Big Morgan Island.

Latitude: 25°51' 33.978" N    Longitude: 81°41' 23.828" W

Currents: Possibly 2-3 knots.

Shoreline Description: Sand beach.

Access: By watercraft.

