Tidal Inlet Protection

Strategies for Oil-Spill Response

U.S. Coast Guard

Sector Mobile East

Present research in 2022 supported by

Florida Fish and Wildlife Conservation Commission, Florida Wildlife Research Institute (FWC/FWRI)

Final Report

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Prepared by Phil Bambach and Jeffrey Dahlin

Research Planning, Inc.

Introduction

Florida's tidal inlets are important locations for planning strategies to protect the crucial resources of the state's sounds, bays and estuaries. Through these channels, oil spilled on the open waters of the Gulf could reach these resources. The project goal under the sponsorship of the Florida Fish and Wildlife Conservation Commission, Florida Fish and Wildlife Research Institute (FWC/FWRI), 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 the Florida Panhandle (and Perdido Pass, AL).This project relied on in-house study of vertical imagery (Microsoft Bing, Google Earth, etc.), field site validation, discussions with federal, state and local representatives with knowledge of the currents of the area, UAS (unmanned aircraft system), and fixed wing overflight imagery collected during site validation.

These proposed protection strategies are based on our best professional judgment of what would work under average wave and tide conditions (unless noted otherwise). 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. It is important to note that the proposed strategies should not be interpreted as the only workable protection scheme. Each spill will be specific to the time, place, and circumstance, meaning the strategy used to protect the inlet will have to be customized at the time of the spill.

This discussion covers shoreline of U.S. Coast Guard (USCG) Sector Mobile East, which extends from Perdido Pass in the west (Baldwin County, AL) to East Pass in the east (Franklin County, FL). Ten inlets, visible in Figure 2, are examined in the discussion. Baldwin County in Alabama and Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf and Franklin Counties in Florida are covered in this volume. All ten inlets were surveyed during 9-13 May 2022 by Bambach and Dahlin (RPI), Rice (FWC), and various federal, state and Oil Spill Response Organization (OSRO) representatives.

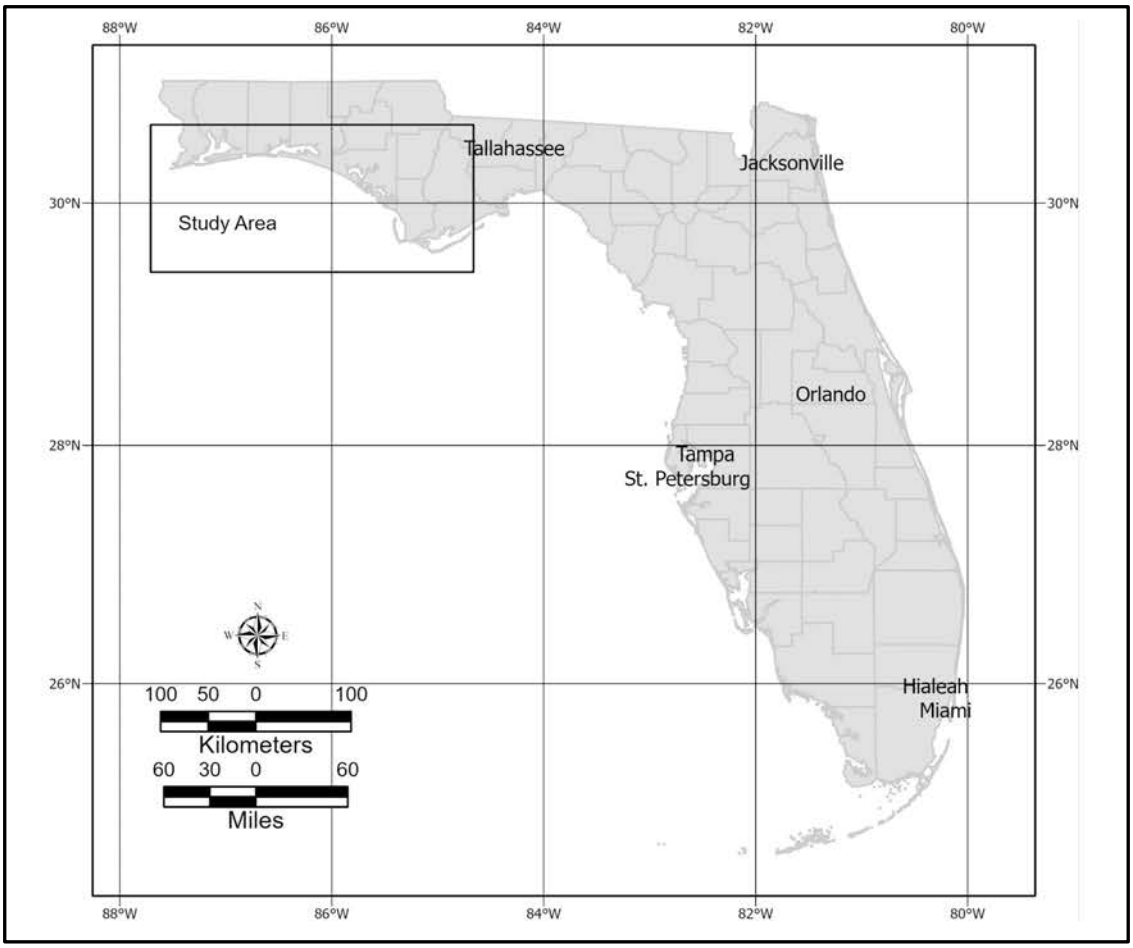


Figure 1. Area covered in this report – USCG Sector Mobile East.

Table 1. Inlets surveyed in USCG Sector Mobile East and their associated class ranking (See Figure 2).

Inlet Number/Name	Class
1) Perdido Pass (AL)	B
2) Caucus Channel (Pensacola Pass)	A
3) East Pass (Destin Pass)	C
4) St. Andrew Bay Pass at Shell Island	B
5) St Andrew Sound Entrance (on Crooked Island)	C
6) St Joseph Bay Entrance, Port St. Joe	A
7) Indian Pass (St. Vincent Sound)	B
8) West Pass (Entrance to Apalachicola Bay)	A
9) Government Cut (St. George Island)	C
10) East Pass (St. George Sound)	A

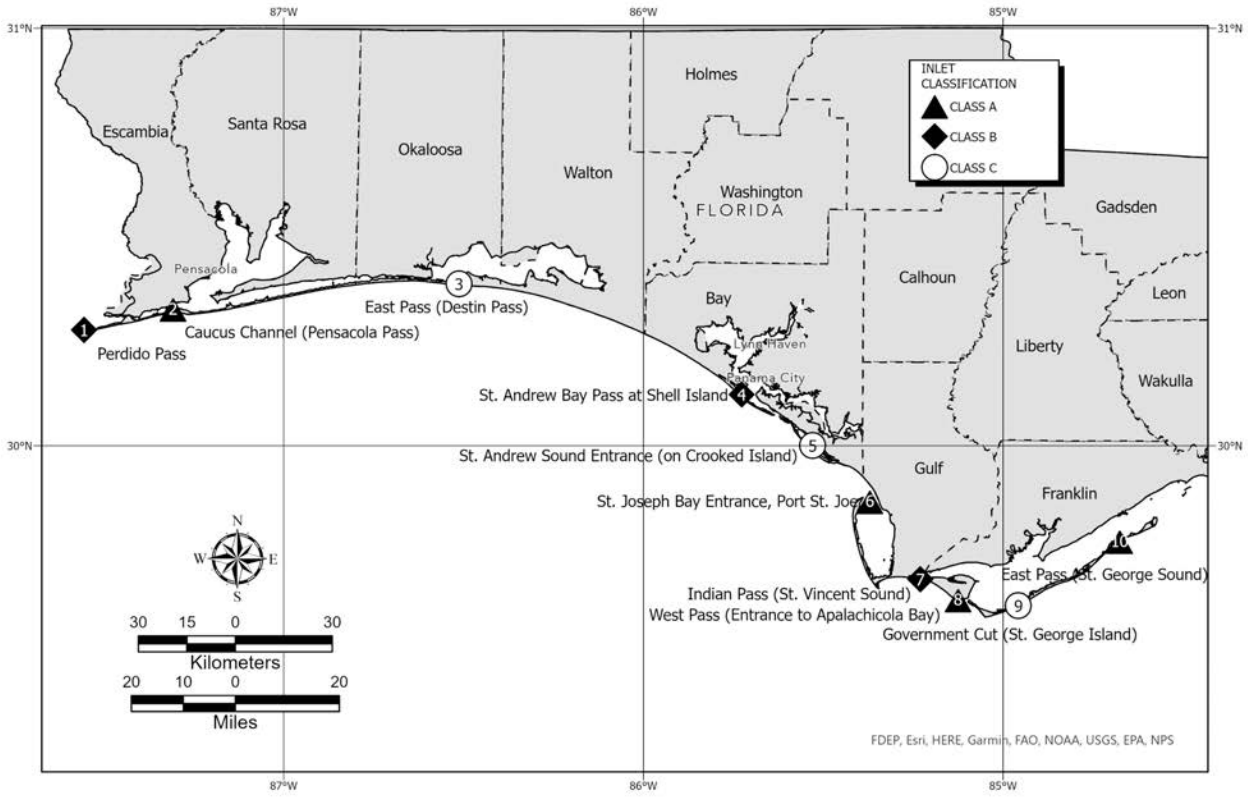


Figure 2. Inlets surveyed along the Panhandle of Florida in USCG Sector Mobile East.

The proposed strategies emphasize flood-tidal conditions, because it is assumed that the strategy is designed to deal with spilled oil coming to the inlet from the open ocean. These proposed potential strategies are based on the available information 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 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 included.

Tidal Inlet Morphology

Tidal inlets are channels that have formed through barrier islands dividing them into segments. They are passageways allowing water to flow in and out of the bay/estuarine system. The amount of water that flows through an inlet during a tidal cycle is called the tidal prism. Tidal inlets on the sandy coastal plains of the eastern USA are usually formed by either of two processes: (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) (Hayes, 2011).

As shown in Figure 3, a typical tidal inlet through a barrier island consists of a deep channel between the adjacent sand spits, called the inlet throat. On either side of the inlet throat there are lobate-shaped sand bodies called tidal deltas. The sand deposit on the landward side of the inlet is the flood-tidal delta and is usually composed of sheet-like lobes of sand with seaward-sloping ramps covered by landward-migrating waves of sand. The sand deposited on the seaward side of the inlet, the ebb-tidal delta, is built seaward by ebb currents, but waves mold the outer margins into an arched shape and create 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 (Hayes, 1980). This means that there is a time period (one hour or so) when any oil heading landward would be moving only through the marginal flood channels. At this time the oil 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.

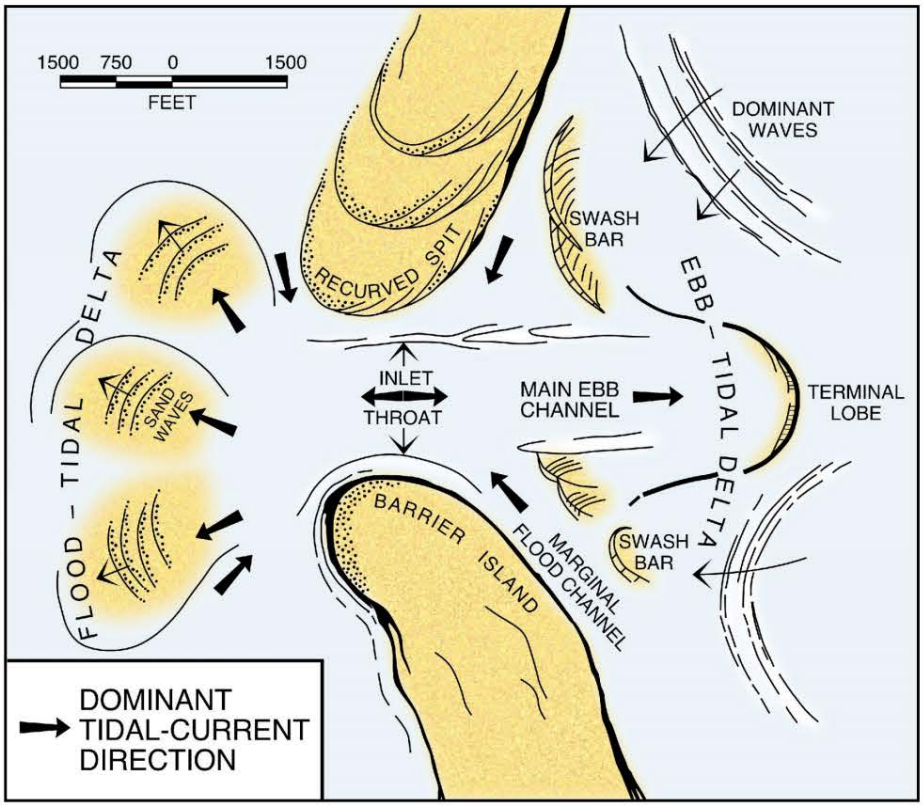


Figure 3. Schematic showing the morphological components of a typical tidal inlet (Hayes, 1991).

Tidal Inlets - USCG Sector Mobile East

Along the Florida Panhandle, 4 of the 10 inlets described in this report have been modified significantly by man. These inlets are predominantly in the western portion of the study area where larger ports and human populations exist. These inlets are Perdido Pass (AL), East Pass (Destin Pass), St. Andrew Bay Pass at Shell Island, and Government Cut (St. George Island). All four of these inlets have a set of two jetties that extend out from the mouth of the inlet and consistent dredging activities take place to keep these inlets open and deep enough for large vessel traffic. Caucus Channel (Pensacola Pass) has no jetties but is regularly dredged to allow large vessels to move in and out of Pensacola Bay (Browder, 2000). The remaining five inlets, St. Andrews Sound Entrance (Crooked Island), St. Joseph Bay Entrance, Indian Pass, West Pass, and East Pass (Dog Island), remain in their natural state except for occasional dredging activity. It is important to note that, at the time of this report, a secondary inlet has formed at the St. Andrews Sound Entrance, most likely due to a wash over event during recent winter storms (Figure 4). This inlet is addressed in conjunction with the main St. Andrews Sound Entrance.



Figure 4. Newly opened inlet east of the original inlet into St. Andrews Sound at Crooked Island. Photograph taken on 11 May 2022.

Reliable tidal current data on the inlets of the Panhandle of Florida are relatively limited. Table 2 summarizes the known tidal data from the NOAA Tides and Currents website. We have reliable NOAA current speed data for only 3 of the 10 inlets. All the other inlets have either model data, information that was verbally reported to various outlets, or the data are from older sources.

Table 2. Maximum tidal current velocities (in knots [kt]) in the tidal inlets in the USCG Sector Mobile East. Unless otherwise indicated, the data are from the NOAA (2022) Tidal Current Tables. *Data from Liu et. al. (2022). **Reported but not published. ***Data from Zeh (1980).

Inlet Name	Ave Flood (kt)	Ave Ebb (kt)	Max Flood (kt)	Max Ebb (kt)
Perdido Pass (AL)	1.2*	1.6*	1.5*	1.9*
Caucus Channel (Pensacola Pass)	1.1*	1.5*	1.3*	1.7*
East Pass (Destin Pass)	2.5 to 3.0	2.75 to 3.25	>3	>3.25
St. Andrew Bay Pass at Shell Island	2.0	2.4	2.5	3
St Andrew Sound Entrance (on Crooked Island)	Not documented	Not documented	Not documented	Not documented
St Joseph Bay Entrance, Port St. Joe	Cross inlet currents	Cross inlet currents	Cross inlet currents	Cross inlet currents
Indian Pass (St. Vincent Sound)	Not documented	Not documented	4 to 5**	4 to 5**
West Pass (Entrance to Apalachicola Bay)	>1	>1	3 to 4	3 to 4
Government Cut (St. George Island)	1.8***	1.8***	Not documented	Not documented
East Pass (St. George Sound)	Strong cross inlet currents	Strong cross inlet currents	Strong cross inlet currents	Strong cross inlet currents

The longshore drift generated by wave action varies throughout the study area. In the western portion of the study area, longshore drift is from east to west with a few exceptions. In the eastern portion of the study area, the prevailing drift direction is more complex, changing within small distances along the shoreline. The inferred longshore sediment transport directions, plotted on Figure 5, 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 as well as information gathered from studies completed in the area.

The following trends are apparent (from west to east; see Figure 5):

1) Longshore drift moves from east to west along Perdido Key with sand sourced from the eroding continental shelf (Stone, 1996) with Perdido Pass acting as a natural sink.

2) Longshore drift moves from east to west bypassing East Pass to Santa Rosa Island with the primary source of sand being the Grayton Beach headlands and Caucus Pass acting as a sink to terminate the depositional cell (Stone, 1996). Note: There is a very localized

longshore transport near East Pass that has had reversals in the past from west to east (East Pass Inlet Management Implementation Plan, 2013).

3) From the center of Shell Island, one sediment cell moves sand northwest to St. Andrews Bay Pass and the other moves sediment southeast toward Crooked Island (Stone, 1996).

4) St. Andrews Sound was formed from the constant erosion in the center of what was once one continuous barrier island. On the northwest side of the inlet, drift direction is to the northwest and on the southeast side of the inlet drift direction is to the southeast.

5) Two longshore transport cells are present along St. Joseph Spit, eroding sediment along the lower most portion of the spit just north of Cape San Blas and depositing sediment on the tip of the spit resulting in a net northly drift direction.

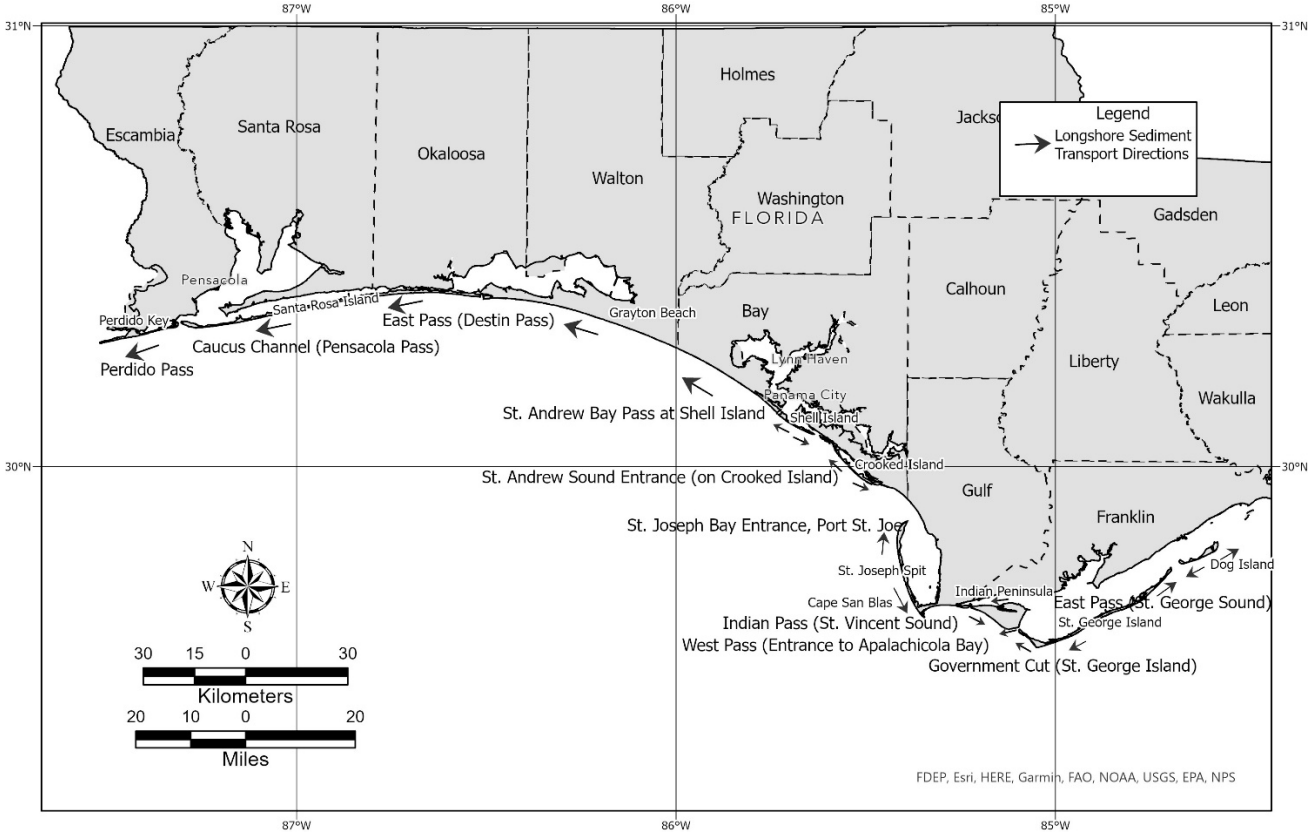


Figure 5. Dominant longshore drift direction patterns along the Panhandle of Florida based on several publication completed in the area and on interpretations of the geomorphology of the tidal inlets.

6) Based on arial imagery, longshore drift moves from west to east forming Indian Peninsula just west of Indian Pass.

7) At West Pass, the longshore drift direction is from east to west, depositing in the form of offshore bars and beach reaches approximately 2 miles west of the of the mouth of the inlet.

8) In the center of St. George Island two longshore transport cells diverge creating a predominantly western longshore drift direction on the west side of the island crossing Government Cut and an eastern longshore drift direction all the way to East Pass (Stone, 1996).

9) In the center of Dog Island, two transport cells also diverge, creating a predominantly western longshore drift direction on the west side of Dog Island (Stone, 1996).

It is important to note that the trends described above are not always consistent from year to year and are based off conditions that were experienced during the time of the fieldwork in the spring of 2022, the time of research of the articles cited, and the time of the photographs and aerial imagery analyzed.

Due to the complexities related to their drainage networks, tidal inlets in USCG Sector Mobile East 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 than flood-tidal deltas (refer to Figure 3), and vice versa. Perdido Pass and East Pass (Destin Pass) appear to be the most flood-tide dominated deltas judging from the large flood tide deltas that have formed islands in the back bays of Perdido Pass (Orange Beach Islands), as well as East Pass (Crab Island). The other inlets appear to be either neutral or slightly ebb-tide dominated inlets. Indian Pass and West Pass are the two exceptions in that they predominantly drain the river fed waters of Apalachicola Bay making them significantly more ebb-tide dominated inlets (Huang et al., 2015).

One inlet in particular, St. Andrews Sound Entrance on Crooked Island, is very much in a natural state and is constantly evolving. In 1975 Hurricane Eloise initially opened the inlet at Crooked Island (Johnson, 1997). Within the last year (winter 2021-2022), a second inlet has opened east of the initial inlet (Figure 4), most likely due to wave action from winter storm activity. This is important to note, in that the inlets that are more in their natural state, will always be changing, so the strategies that are formulated will have to evolve with them.

INLET PROTECTION STRATEGIES

In deciding on a protection strategy, the following order of controls dictated the final strategy:

1) Physical processes of the inlet;
2) Protection priorities; and
3) Effectiveness of response.

If the waves were assumed to be too large or tidal currents too strong for booms to function in certain parts of the inlet during typical ocean conditions, the strategy calls for fall back to more protected sites. Information from several sources dictated which parts of the bay system landward of the inlet required priority protection. Typically, most of the inlets contained sensitive tidal flat and marshes, and oyster beds (especially in the eastern portion of the study area). Archaeological sites and human resources are other examples of areas needing protection. The potential effectiveness of the response strategy was also given careful consideration. The 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, priority number one is containment and number two is recovery.

- Deflection booms are the best way to control oil around tidal inlets because of the common occurrence of tidal currents greater than 0.7 knots which is the threshold velocity for entrainment of oil past a boom set at 90° to the current (Figure 6).

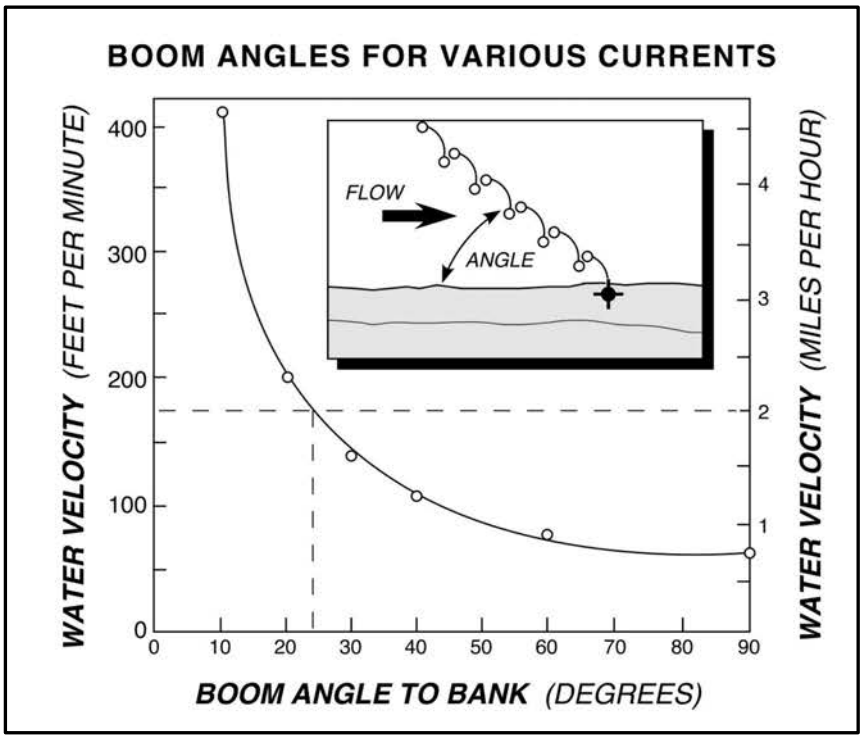


Figure 6. Angles to set booms to avoid entrainment of the oil based on water current velocity in miles per hour and feet per minute. THE SYMBOLS USED TO DEPICT BOOMS ARE NOT SHOWN TO TRUE SCALE. The length of the segments of boom to be used will be determined by local conditions.

- The ideal method of recovery is to direct 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 although this method is rarely used for this area because many of the inlets are in sparsely populated areas where the inlet itself is in a very natural state. That is why the most common collection point shoreline type for this region is fine- to medium-grained sand beaches (ESI 3A). These 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.

- Deflection boom will become entrained if current velocities exceed approximately 3.5 knots unless the angle of the boom is practically parallel with the current. Where usual flood tides approach 3.5 knots, a set of cascading boom was used to reduce the strain on each individual section of boom. Large wind-driven waves also may cause both entrainment and splash over, dependent upon the physical configuration of the boom.

- The protection strategies depicted relate only to spills that have taken place out in the Gulf of Mexico (not within the back bays or river systems of the area), and the strategy applies only to flood-tide conditions.

An example of one of the protection strategies completed in September 2022, Perdido Pass, is presented graphically in Figure 7. The first step is to divert oil entering the inlet through what would be the marginal flood channels (if the jetty did not exist) to collection points along the outer beaches (collection points 1 and 2). Next, protection boom is installed around the riprap on the jetty to prevent oil from getting in the crevasses of the riprap, which makes cleanup more challenging. Next, “Christmas-tree configuration” of deflection boom is erected, with the lead anchor point being slightly east of the of the thalweg of the inlet. The east limb of this Christmas tree defection boom would divert oil to the sand beach on the west end of Perdido Key at Gulf State Park-Florida Point (collection point 3), and the east limb would divert oil to the solid man-made structure to just west of the Orange Beach Boat Ramp (collection point 4). Landward of the primary boom, secondary boom would direct oil to the beach at Bird Island (collection point 5). West of the main inlet and south of Gilchrist Island, secondary boom would direct oil to a small beach west of The Pass Condominiums (collection point 6). Notice that the strategy includes protection boom to prevent oil from entering the marina just east of the beach. North of Gilchrist Island secondary boom would direct oil to a floating skimmer (collection point 7). Skimmers are most commonly used when there are large swaths of water that need to be covered or where land collection points are not feasible. Another set of anchor points and secondary boom direct oil to a floating skimmer positioned in the south end of Terry Cove where currents have decreased (collection point 8). Finally, a set of anchor points and tertiary boom direct oil to a floating skimmer located east of Bird Island (collection point 9). Protection boom would be installed around Caribe Resort to prevent oil from entering the marina.

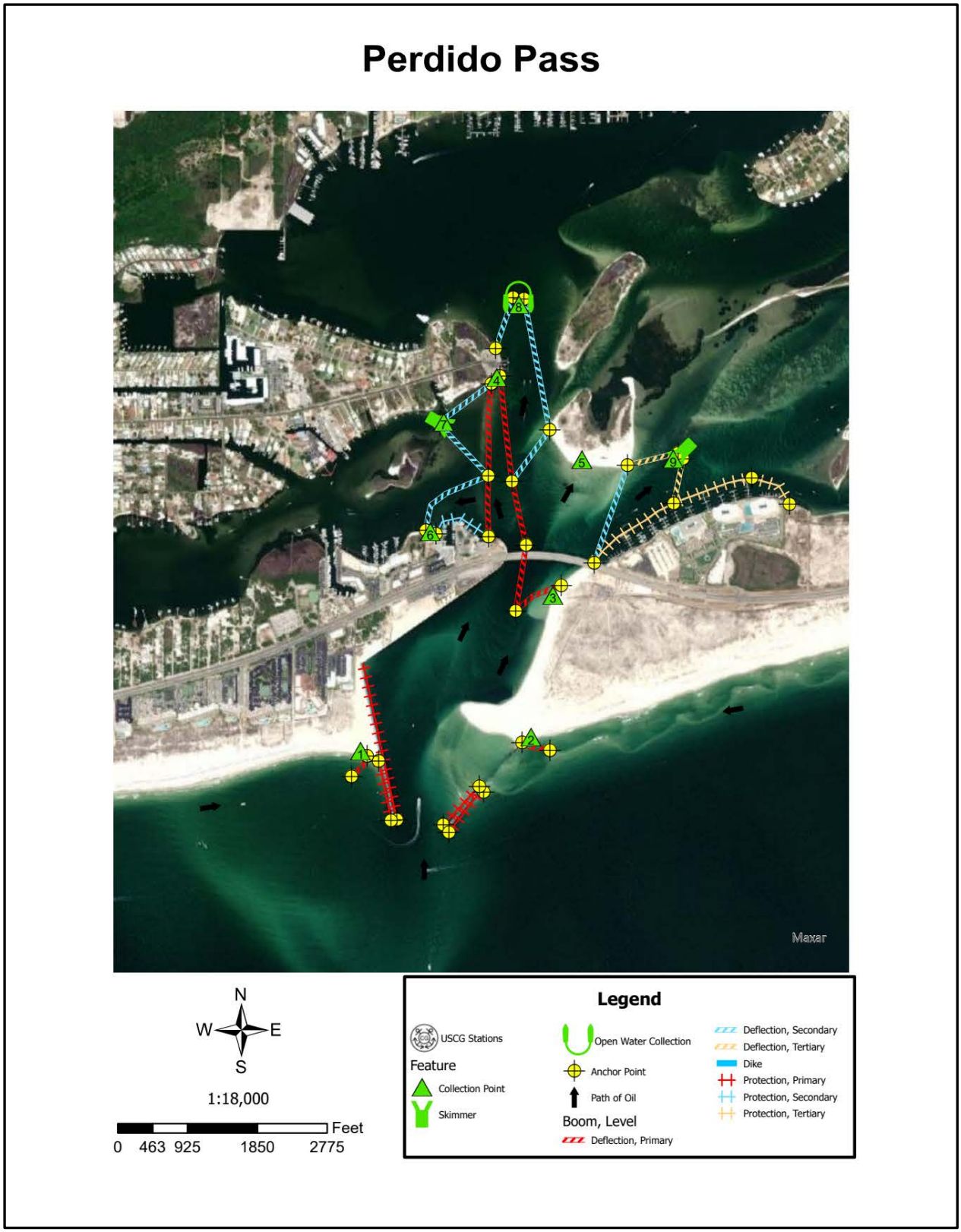


Figure 7. Flood-tide protection strategy for Perdido Pass.

Inlet Classification

The inlets of the Florida Panhandle were ranked using the same system that was used for the Sector St. Petersburg TIPs project (Hayes et al., 2011). This ranking system is summarized in Table 3, on a scale that ranges from A to C. The inlets classed as A's are the most costly and difficult to protect whereas the inlets classed at C's are the least costly and difficult to protect. It is important to note that the Sector St. Petersburg study also included a D class but none of the inlets in this study fit the D classification therefore it was omitted from the table below (Table 3).

Table 3. Ranking scale for the tidal inlets of USCG Sector Mobile East based on estimated degree of difficulty for containment and recovery.

Scale	Description
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 a small tidal prism and relatively weak tidal currents.

Boom Requirements

The strategies required to protect the tidal inlets of USCG Sector Mobile East require a certain length of boom for the schemes to be successful. The length of each type of boom (deflection or protection) and total boom lengths (in feet) are displayed in Table 4. The amount of boom was also classified as to whether it represented a part of the initial protection (called primary boom), secondary protection (some oil must pass by the primary boom before it reaches the secondary boom), or the third level of protection (called tertiary boom). The totals given in Table 5 include all secondary and tertiary boom configurations as shown on the strategy example (Figure 7). The boom configurations that represent primary protection assure that there are no openings for the oil to move through without somehow entraining the first lines of boom. During some conditions such as strong winds, large waves, and wind tides, the probability of entrainment increases, which creates the need for the back-up boom.

Table 4. Amount of boom required for protection strategies presented for the major tidal inlets in USCG Sector Mobile East – classified as deflection and protection boom. Refer to Figure 2 for site names and locations.

		Length in Feet		
Inlet	**Class**	**Deflection**	**Protection**	**Total**
Perdido Pass	B	13,424	7,466	20,889
Caucus Channel (Pensacola Pass)	A	13,806	6,076	19,883
East Pass (Destin Pass)	C	11,116	4,152	15,269
St. Andrew Bay Pass at Shell Island	B	757	7,003	7,761
St. Andrew Sound Entrance (on Crooked Island)	C	16,956	1,094	18,050
St. Joseph Bay Entrance, Port St. Joe	A	5,241	0	5,241

		Length in Feet		
Inlet	**Class**	**Deflection**	**Protection**	**Total**
Indian Pass (St. Vincent Sound)	B	4,570	0	4,570
West Pass (Entrance to Apalachicola Bay)	A	1,400	0	1,400
Government Cut (St. George Island)	C	4,545	3,589	8,134
East Pass (St. George Sound)	A	786	0	786

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

		Length in Feet			
Inlet	**Class**	**Primary**	**Secondary**	**Tertiary**	**Total**
Perdido Pass	B	9,768	7,351	3,771	20,889
Caucus Channel (Pensacola Pass)	A	19,883	0	0	19,883
East Pass (Destin Pass)	C	8,732	6,536	0	15,269
St. Andrew Bay Pass at Shell Island	B	7,761	0	0	7,761
St. Andrew Sound Entrance (on Crooked Island)	C	14,113	3,937	0	18,050
St. Joseph Bay Entrance, Port St. Joe	A	5,241	0	0	5,241
Indian Pass (St. Vincent Sound)	B	4,570	0	0	4,570
West Pass (Entrance to Apalachicola Bay)	A	1,400	134	0	1,534
Government Cut (St. George Island)	C	8,134	0	0	8,134
East Pass (St. George Sound)	A	786	0	0	786

EXPLANATION OF TERMS USED

The following provides explanations and definitions for the terminology used in the discussion of protection strategies for the ten major tidal inlets surveyed in USCG Sector Mobile East.

Beach Morphology

The typical sand beach morphology found in much of the Florida Panhandle shoreline is illustrated in Figure 8. During storm events sand beaches are usually planed off.

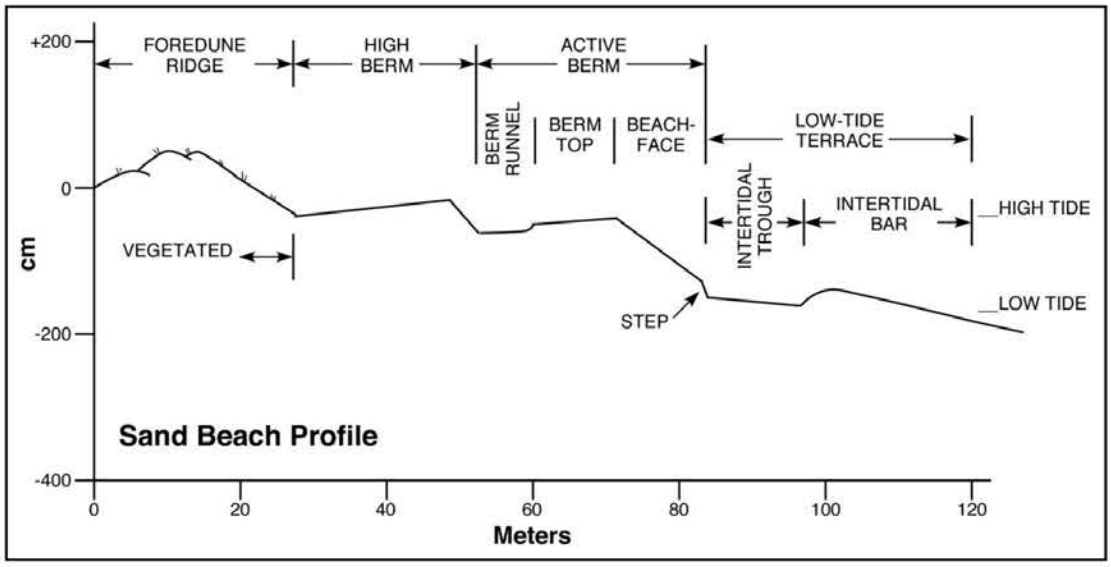


Figure 8. Schematic of typical sand beach along the Florida Panhandle

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 millimeters (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 9, 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
MUD	Silt		0.00391
	Clay		0.00024
	Colloid		

Figure 9: Grain size scale (Wentworth, 1922).

Other Commonly Used Terms

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 8).

Breakwater. A structure protecting a shore area, harbor, anchorage, or basin from waves usually parallel to shore. It is typically exposed to the water on both sides of the structure.

Collection point. Zone along the shoreline where oil is directed so it can be collected from the 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 6).

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 landward 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. A deposit of dune sand that forms a distinct ridge landward of the high berm or back-beach. Usually vegetated (see Figure 8).

Groin. A shore protection structure built perpendicular to the shoreline, intended to trap littoral drift and retard erosion of the shore

Harbor. Any protected water area affording a place of safety for vessels.

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.

Knot. A unit of speed in navigation equal to one nautical mile per hour (1.852 km/h).

Longshore drift. 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 breakpoint of the waves.

Pile. A heavy section of concrete, timber, or metal driven into the seabed, to serve as a support or protection.

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.

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

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.

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.

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.

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.

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Inlet Summary Sheet

Site: Perdido Pass, Baldwin County, Alabama

Date Surveyed: May 9, 2022
Time Surveyed: 09:00-11:00

Ranking (Degree of Difficulty): B

Average Flood Current: 1.2 kts

Maximum Flood Current: 1.5 kts

Principal Resources at Risk:

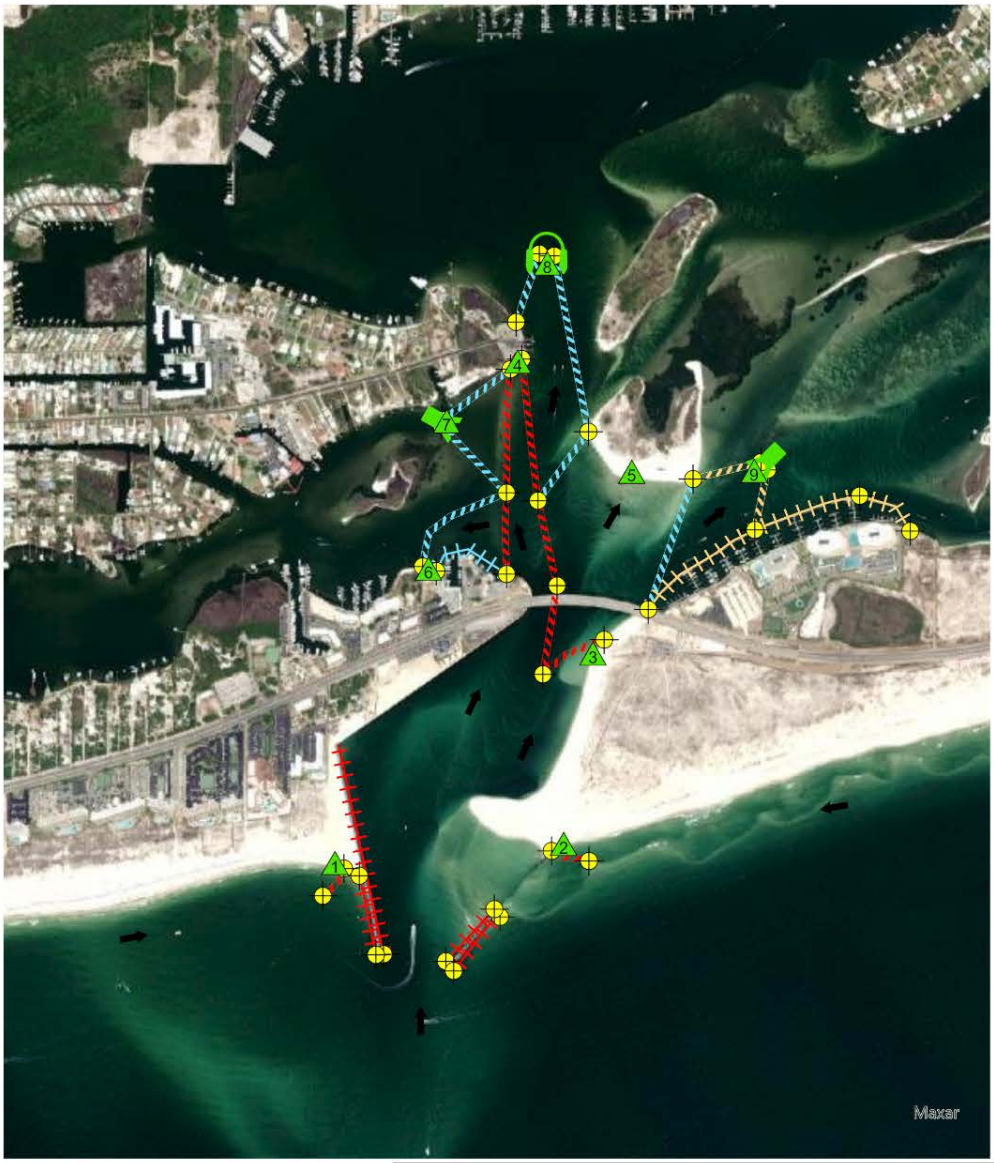
West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the outer beaches. Shorebirds, including the Federally threatened Piping Plover and Red Knot, and wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. The Federally endangered Perdido Key Beach Mouse is present on the beaches and dunes of Perdido Key. Marina facilities, boats, seawalls, revetments, docks, etc. within Bayou St. John and Cotton Bayou. The spit on the east side of the inlet is Gulf State Park – Florida Point.

Preliminary Protection Strategy:

Divert oil entering the inlet through the marginal flood channel to collection points (CP) along the outer sand beaches (CPs 1 and 2). It is important to note that these collection points are usable only during calm conditions. Within the main channel of Perdido Pass, establish an anchor in the eastern portion of the channel (away from the thalweg of the inlet); oil that moves east of the anchor will be collected on the beach at Gulf State Park (CP 3) while oil that moves west of the anchor will be directed to the solid man-made surface at the Orange Beach Boat Ramp (CP 4) using a series of boom and anchors. Secondary boom will direct oil to the sand beach on Bird Island (CP 5) and to an easy access retaining wall along Cotton Bayou (CP 6). Secondary boom will also direct oil to a floating skimmer within Cotton Bayou (CP 7) and one in lower portion of Terry Cove (CP 8), preventing oil from moving further into the inlet. Tertiary boom will direct oil to a floating skimmer west of Bird Island (CP 9), and protection boom will be installed along the north side of Perdido Key preventing oil from entering the marinas in the area.

Other Comments: During the *Deepwater Horizon* spill, oil was predominantly collected on the east side of the pass within Gulf State Park.

Perdido Pass



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Legend

Feature
- USCG Stations
- Collection Point
- Skimmer
- Open Water Collection
- Anchor Point
- Path of Oil

Boom, Level
- Deflection, Primary
- Deflection, Secondary
- Deflection, Tertiary
- Dike
- Protection, Primary
- Protection, Secondary
- Protection, Tertiary



Photograph of Perdido Pass taken on 9 May 2022.

Collection Point #1 Description

Inlet: Perdido Pass, Baldwin County, Alabama

Site Name: Collection Point #1

Relative Location: Outer beach on the west side of the inlet near Perdido Beach Resort. Boom extends out into what would be the marginal flood channel if the jetty was not present.

Latitude: 30° 16' 18.5" N **Longitude:** 87° 33' 34.5" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Wave Height: Maximum 5 ft

Shoreline Description: Sand beach

Access: There is a beach access alley between the Perdido Beach Resort and the Phoenix East Condominiums.



Perdido Pass

Scale: 1:3,200

Collection Point #2 Description

Inlet: Perdido Pass, Baldwin County, Alabama

Site Name: Collection Point #2

Relative Location: Outer beach on the east side of the inlet near Gulf State Park-Florida Point. Boom extends out into what would be the marginal flood channel if the jetty was not present. The prevailing longshore drift direction is to the west.

Latitude: 30° 16' 20.1" N **Longitude:** 87° 33' 12." W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Wave Height: Maximum 5 ft

Shoreline Description: Sand beach

Access: There is a beach access at Gulf State Park-Florida Point. Call 251-929-0900 for access information. Orange Beach public parking has driving access to the beach.



Perdido Pass

Scale: 1:2,700

Collection Point #3 Description

Inlet: Perdido Pass, Baldwin County, Alabama

Site Name: Collection Point #3

Relative Location: Beach on the east side of the inlet near Gulf State Park-Florida Point. Boom is anchored from a point in the eastern section of the main channel to the beach at an angle in which the boom should not be entrained.

Latitude: 30° 16’ 36.1” N **Longitude:** 87° 33’ 9.3” W

Average Flood Currents: 1.2 kts **Maximum Flood Currents:** 1.5 kts

Wave Height: Maximum 4 ft

Shoreline Description: Sand beach

Access: There is beach access at Gulf State Park-Florida Point via the Alabama Point East parking area. Call 251-929-0900 for access information.



Perdido Pass

Scale: 1:3,900

Collection Point #4 Description

Inlet: Perdido Pass, Baldwin County, Alabama

Site Name: Collection Point #4

Relative Location: Man-made surface on the west side of the inlet near the Orange Beach Boat Ramp. A series of deflection boom will direct the oil in the main part of the channel to this solid man-made surface.

Latitude: 30° 17' 0.1" N **Longitude:** 87° 33' 16.7" W

Average Flood Currents: 1.2 kts **Maximum Flood Currents:** 1.5 kts

Wave Height: Maximum 4 ft

Shoreline Description: Solid man-made structure

Access: Orange Beach Boat Ramp.

Comment: Beach west of the boat ramp is not used due to access issues and wetlands behind beach.



Perdido Pass

Scale: 1:2,300

Collection Point #5 Description

Inlet: Perdido Pass, Baldwin County, Alabama

Site Name: Collection Point #5 (Secondary)

Relative Location: Sand beach on the seaward side of Bird Island. Secondary deflection boom will direct the oil onto the south side of Bird Island.

Latitude: 30° 16’ 51.4” N **Longitude:** 87° 33’ 5.6” W

Average Flood Currents: 1.2 kts **Maximum Flood Currents:** 1.5 kts

Wave Height: Maximum of 4 ft

Shoreline Description: Sand beach

Access: The only access to the beach would be to ferry heavy equipment over to the island.



Perdido Pass

Scale: 1:4,600

Collection Point #6 Description

Inlet: Perdido Pass, Baldwin County, Alabama

Site Name: Collection Point #6 (Secondary)

Relative Location: Sand beach west of Perdido Pass near Alabama Point.

Latitude: 30° 16’ 43.2” N **Longitude:** 87° 33’ 25.3” W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Wave Height: Not documented

Shoreline Description: Sand beach

Access: There is beach access from Parkway Drive north of Perdido Beach Blvd.

Comment: Protection boom placed around marina at The Pass Condominiums .



Perdido Pass

Scale: 1:2,500

Collection Point #7 Description

Inlet: Perdido Pass, Baldwin County, Alabama

Site Name: Collection Point #7 (Secondary); open-water skimmer

Relative Location: Skimmer collection point in the channel south and west of collection point 4. Secondary boom will direct the oil to the skimmer positioned in the channel.

Latitude: 30° 16’ 55.6” N **Longitude:** 87° 33’ 23.6” W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Wave Height: Not documented

Shoreline Description: No shoreline

Access: By watercraft.



Perdido Pass

Scale: 1:3,500

Collection Point #8 Description

Inlet: Perdido Pass, Baldwin County, Alabama

Site Name: Collection Point #8 (Secondary); open-water collector

Relative Location: Open-water collection point in Terry Cove, north and west of Robinson Island.

Latitude: 30°17'08.9"N **Longitude:** 87°33'13.8"W

Average Flood Currents: 1.2 kts **Maximum Flood Currents:** 1.5 kts

Wave Height: Not documented

Shoreline Description: No shoreline

Access: By watercraft.



Perdido Pass

Scale: 1:4,100

Collection Point #9 Description

Inlet: Perdido Pass, Baldwin County, Alabama

Site Name: Collection Point #9 (Tertiary); open-water skimmer

Relative Location: Skimmer collection point located in the channel approximately 1,050 feet east of Bird Island.

Latitude: 30° 16' 51.4" N **Longitude:** 87° 32' 53.6" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Wave Height: Not documented

Shoreline Description: No shoreline

Access: By watercraft.

Comment: Protection boom installed around Caribe Marina. Call 251-980-8410 for more information.



Perdido Pass

Scale: 1:4,500

Inlet Summary Sheet

Site: Caucus Channel, Escambia County, Florida

Date Surveyed: May 9, 2022
Time Surveyed: 14:00-1600

Ranking (Degree of Difficulty): A

Average Flood Current: 1.1 kts

Maximum Flood Current: 1.3 kts

Principal Resources at Risk:

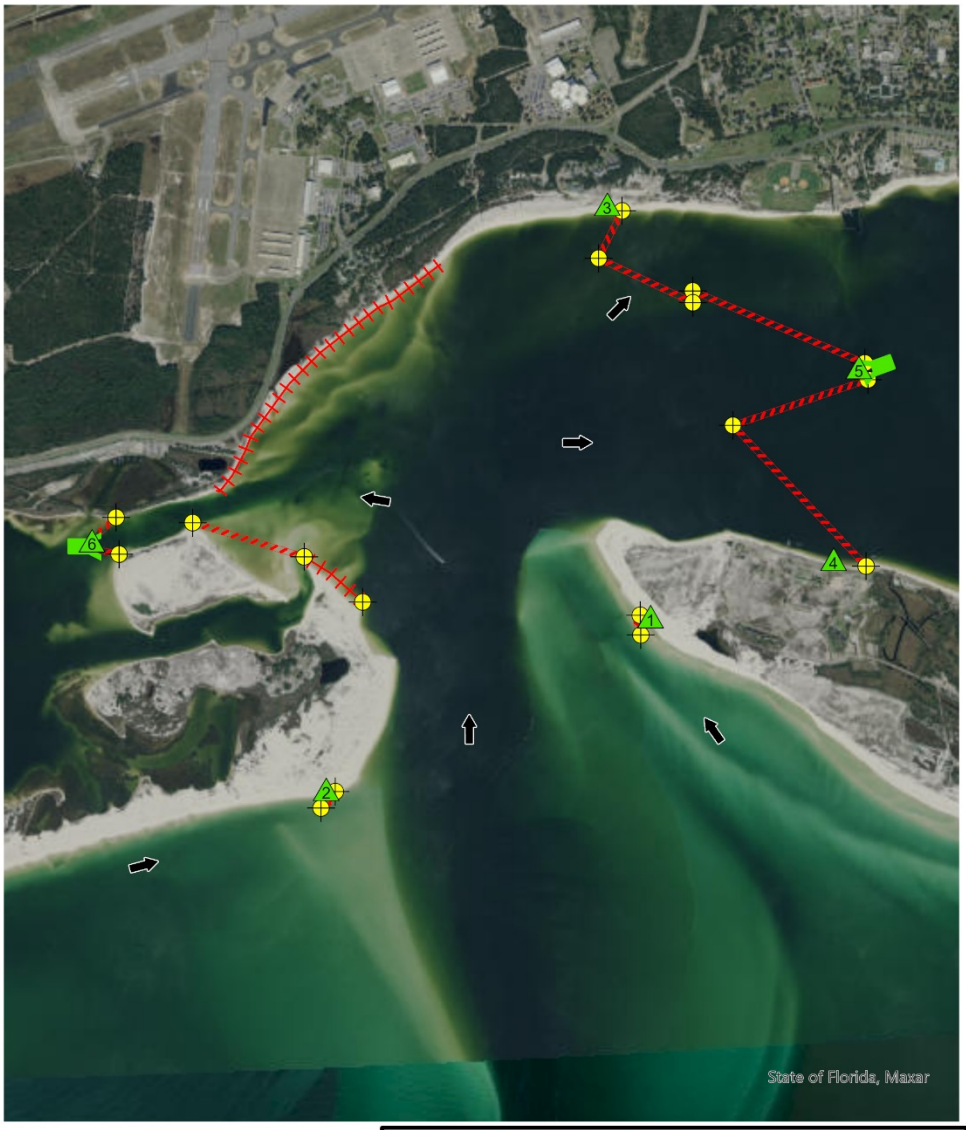
West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the outer beaches. Shorebirds, including the Federally threatened Piping Plover and wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. The Federally endangered Perdido Key Beach Mouse is present on the beaches and dunes of Perdido Key. This area is designated as Critical Habitat for the Federally endangered Gulf Sturgeon. Marina facilities, boats, seawalls, revetments, docks, etc. within Pensacola Bay and Big Lagoon. The barrier islands are part the Gulf Islands National Seashore. The bay and nearshore waters are part of the Fort Pickens State Park Aquatic Preserve.

Preliminary Protection Strategy:

Divert oil entering the inlet through the marginal flood channel to collection points along the outer sand beaches, CP 1 on the west end of Santa Rosa Island and CP 2 on the east end of Perdido Key. Landward of the channel, oil will be allowed to wash up on San Carlos Beach with a collection point near the parking lot (CP 3). Oil that moves into southern portion of bay will be directed to a beach collection point just east of the Fort Pickens Fishing Pier (CP 4). Oil that moves further north in the bay will be directed to a floating skimmer (CP 5) using a boom anchor and deflection boom. On the west side of the inlet, protection and deflection boom will push oil around the north side of Perdido Key and Sand Island and into the channel connecting the inlet to Big Lagoon to the west. Where the channel opens into the lagoon and currents slow down, deflection boom will direct oil to a floating skimmer (CP 6).

Other Comments:

Caucus Channel (Pensacola Pass)



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Legend

Feature
- Collection Point
- Skimmer
- Open Water Collection

Anchor Point
Path of Oil

Boom, Level
- Deflection, Primary
- Deflection, Secondary
- Deflection, Tertiary
- Dike
- Protection, Primary
- Protection, Secondary
- Protection, Tertiary

Collection Point #1 Description

Inlet: Caucus Channel, Escambia County, Florida

Site Name: Collection Point #1

Relative Location: Sand beach on the east side of the inlet near Fort Pickens Beach Point. This area is part of the Gulf Island National Seashore (850-934-2619). Boom extends out into the marginal flood channel.

Latitude: 30° 19' 39.6" N **Longitude:** 87° 17' 58.7" W

Average Flood Currents: 1.1 **kts** **Maximum Flood Currents:** 1.3 kts

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in the Fort Pickens sector of Gulf Islands National Seashore. Call 850-934-2619 for access information. There is a beach access from Battery Cooper Loop Rd. Will need to transport recovery equipment approximately 1.25 miles on the beach.



Caucus Channel (Pensacola Pass)

Scale: 1:5,300

Collection Point #2 Description

Inlet: Caucus Channel, Escambia County, Florida

Site Name: Collection Point #2

Relative Location: Sand beach on the west side of the inlet near the McRee Sector of the Gulf Islands National Seashore. Boom extends out into the marginal flood channel.

Latitude: 30° 19' 13.8" N **Longitude:** 87° 18' 54.9" W

Average Flood Currents: 1.1 kts **Maximum Flood Currents:** 1.3 kts

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in the McRee sector of Gulf Islands National Seashore. Call 850-934-2619 for access information. The only access to the beach would be to transport equipment over 4.7 miles along the beach from the terminus of Johnson Beach Road on Perdido Key or ferry heavy equipment over to the island.



Caucus Channel (Pensacola Pass)

Scale: 1:5,000

Collection Point #3 Description

Inlet: Caucus Channel, Escambia County, Florida

Site Name: Collection Point #3

Relative Location: Sand beach located northeast of the main throat of the inlet near the parking lot of San Carlos Beach. Deflection boom and boom anchors will direct oil onto the beach for collection.

Latitude: 30°20'41.3"N **Longitude:** 87°18'06.2"W

Average Flood Currents: 1.1 kts **Maximum Flood Currents:** 1.3 kts

Waves: Not documented

Shoreline Description: Sand beach

Access: This area is located on Pensacola Naval Air Station. Call 850-452-4785 or 850-277-1110 for access information. There is beach access via the San Carlos Beach parking lot as well as near the baseball fields off Old Radford Blvd.



Caucus Channel (Pensacola Pass)

Scale: 1:6,000

Collection Point #4 Description

Inlet: Caucus Channel, Escambia County, Florida

Site Name: Collection Point #4

Relative Location: Sand beach located on the bayside of Santa Rosa Island near the Fort Pickens Fishing Pier. Using boom anchors and deflection boom, oil will be directed onto the beach for collection.

Latitude: 30° 19' 48.2" N **Longitude:** 87° 17' 27.0" W

Average Flood Currents: 1.1 kts **Maximum Flood Currents:** 1.3 kts

Waves: Not documented

Shoreline Description: Sand beach

Access: This area is located in the Fort Pickens sector of Gulf Islands National Seashore. Call 850-934-2619 for access information. There is beach access from the Fort Pickens Ferry Pier parking lot on the north side of Santa Rosa Island.



Caucus Channel (Pensacola Pass)

Scale: 1:8,900

Collection Point #5 Description

Inlet: Caucus Channel, Escambia County, Florida

Site Name: Collection Point #5; open-water skimmer

Relative Location: Skimmer collection point approximately 2,100 feet south of the U.S. Coast Guard Station Pensacola. Using boom and boom anchors, oil will be directed to the skimmer positioned in the channel.

Latitude: 30° 20' 16.9" N **Longitude:** 87° 17' 22.6" W

Average Flood Currents: 1.1 kts **Maximum Flood Currents:** 1.3 kts

Waves: Not documented

Shoreline Description: No shoreline

Access: By watercraft.



Caucus Channel (Pensacola Pass)

Scale: 1:14,500

Collection Point #6 Description

Inlet: Caucus Channel, Escambia County, Florida

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

Relative Location: Floating skimmer collection point located where the channel north of Sand Island opens up into Big Lagoon. Boom anchors and deflection boom with direct the oil to the floating skimmer.

Latitude: 30° 19' 51.0" N **Longitude:** 87° 19' 35.5" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Not documented

Shoreline Description: No shoreline

Access: By watercraft.



Caucus Channel (Pensacola Pass)

Scale: 1:5,400

Inlet Summary Sheet

Site: East Pass (Destin Pass), Okaloosa County, Florida

Date Surveyed: May 10, 2022
Time Surveyed: 09:00 – 11:00

Ranking (Degree of Difficulty): C

Average Flood Current: 2.5 to 3 kts

Maximum Flood Current: >3 kts

Principal Resources at Risk:

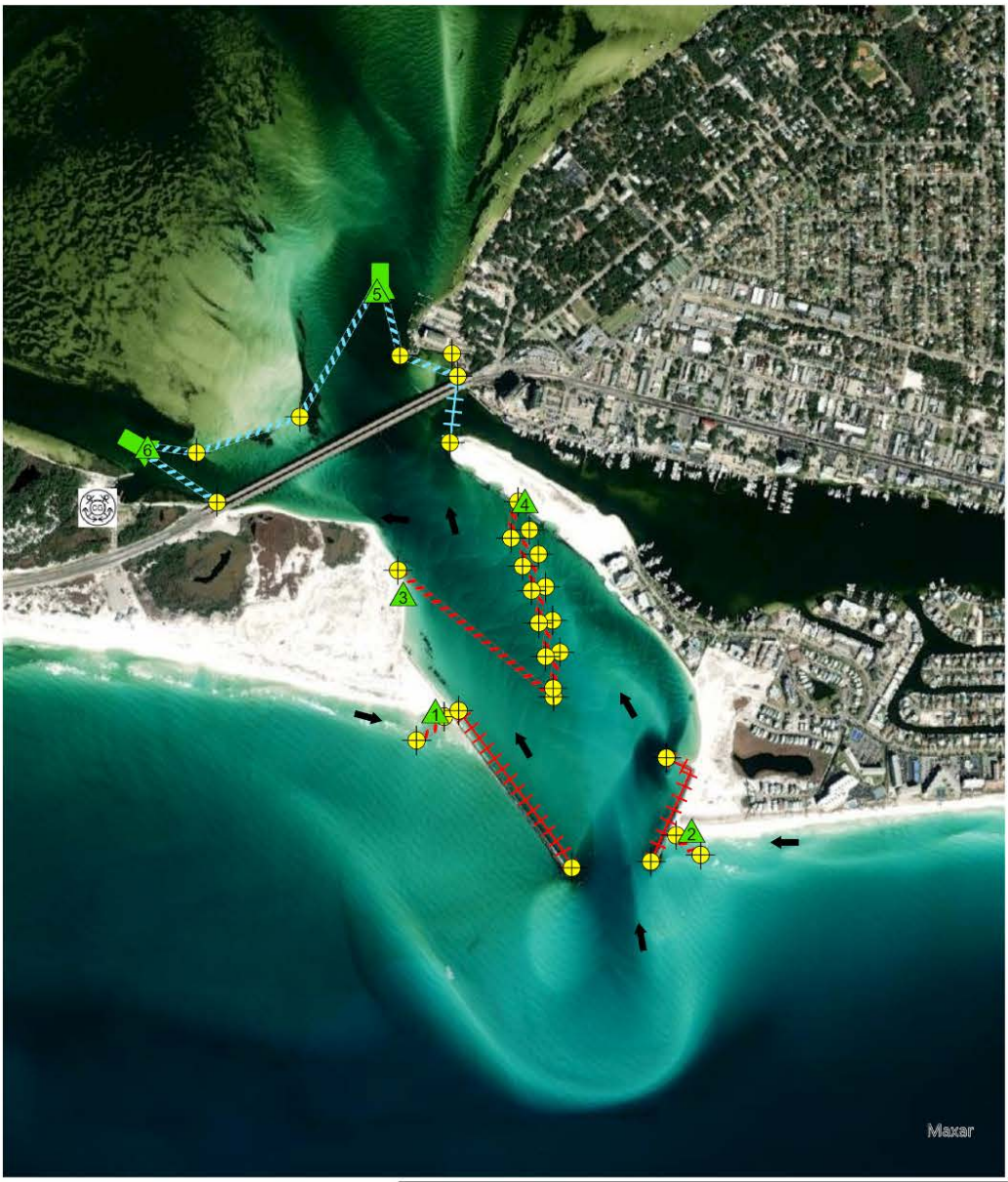
West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the outer beaches. Shorebirds, including the Federally threatened Piping Plover and wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. The Federally endangered Choctawhatchee Beach Mouse is present on the beaches and dunes near Destin, FL. This area is designated as Critical Habitat for the Federally endangered Gulf Sturgeon. Marina facilities, boats, seawalls, revetments, docks, etc. within Choctawhatchee Bay and Destin Harbor.

Preliminary Protection Strategy:

Divert oil entering the inlet through the marginal flood channel to collection points along the outer sand beaches (CPs 1 and 2). Within the main channel of East Pass, a boom anchor will be installed. Oil that moves west of the boom anchor will be directed to a sand beach using deflection boom on the west side of the channel (CP 3), while oil that moves east of the boom anchor will be directed to a sand beach through the use of cascading boom on the east side of the channel (CP 4). As a secondary measure, deflection boom will run along Crab Island. Oil that moves east of Crab Island will be directed to a floating skimmer (CP 5) positioned in the channel between Crab Island and the mainland. Oil that moves west of the Crab Island will be directed to a floating skimmer (CP 6) positioned in the channel between Crab Island and Santa Rosa Island.

Other Comments:

East Pass (Destin Pass)



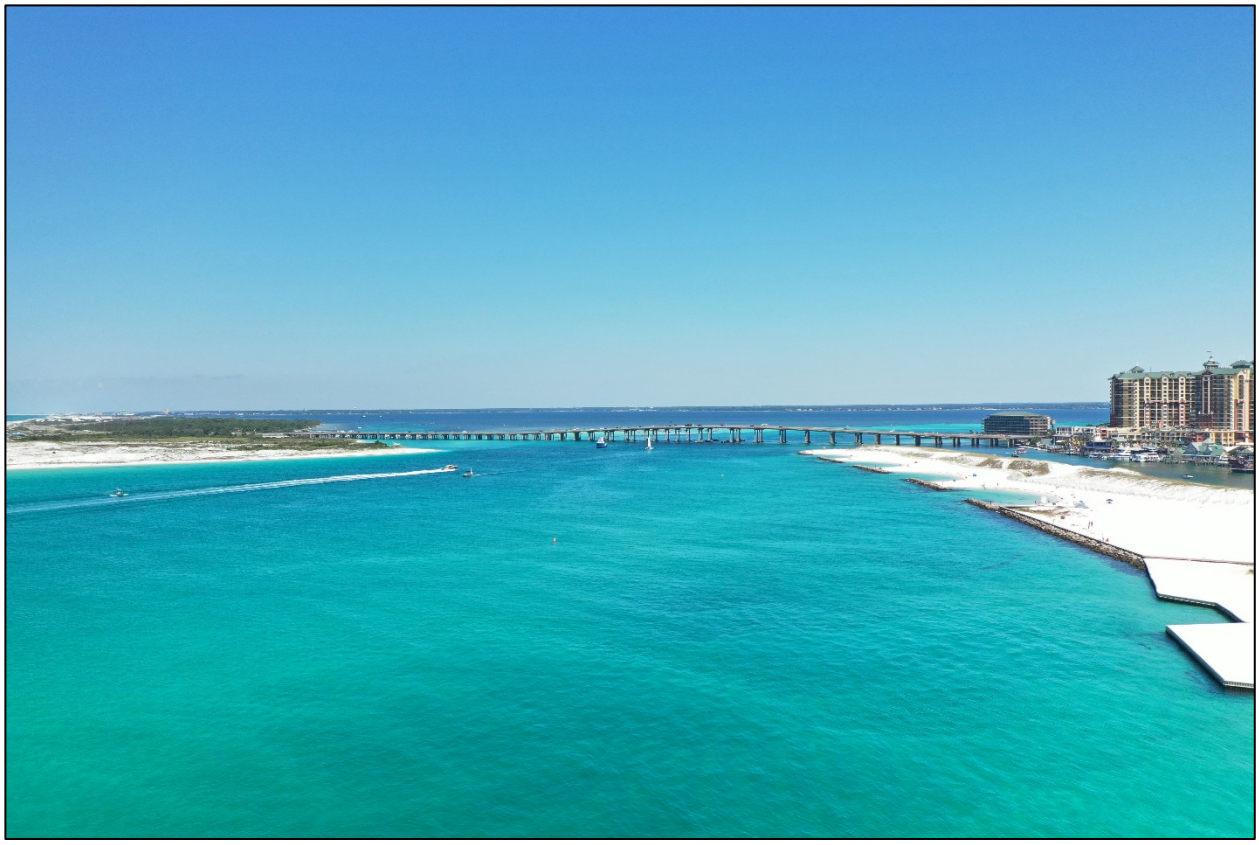
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Legend

- USCG Stations
- Feature
  - Collection Point
  - Skimmer
- Open Water Collection
- Anchor Point
- Path of Oil
- Boom, Level
  - Deflection, Primary
  - Deflection, Secondary
  - Deflection, Tertiary
  - Dike
  - Protection, Primary
  - Protection, Secondary
  - Protection, Tertiary



Photograph of East Pass (Destin Pass) looking south from inside the inlet taken on 10 May 2022.

Collection Point #1 Description

Inlet: East Pass (Destin Pass), Okaloosa County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the west side of the inlet near Eglin Beach Park. Boom extends out into what would be the marginal flood channel if the jetty was not present.

Latitude: 30° 23' 7.8" N **Longitude:** 86° 30' 54.1" W

Average Flood Currents: Not documented **Maximum Food Currents:** Not documented

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is on Eglin Air Force base property, that has been permanently closed to beach use. Contact Eglin Air Force Base at 850-882-1113. There is a beach access via Eglin Beach Club Road. Will need to transport heavy equipment approximately 3,300 feet down the beach.



East Pass (Destin Pass)

Scale: 1:4,200

Collection Point #2 Description

Inlet: East Pass (Destin Pass), Okaloosa County, Florida

Site Name: Collection Point #2

Relative Location: Outer beach on the east side of the inlet near the terminus of Lands End Drive. Boom extends out into what would be the marginal flood channel if the jetty was not present.

Latitude: 30° 22' 55.2" N **Longitude:** 86° 30' 22.6" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: There is beach access using Melrose Avenue north of the collection area.



East Pass (Destin Pass)
Scale: 1:4,900

Collection Point #3 Description

Inlet: East Pass (Destin Pass), Okaloosa County, Florida

Site Name: Collection Point #3

Relative Location: Beach located on the west side of the inlet near Santa Rosa Island Beach. Boom extends from the boom anchor in the middle of the channel directing the oil to the beach.

Latitude: 30° 23' 20.2" N **Longitude:** 86° 30' 58.0" W

Average Flood Currents: 2.5 to 3 kts **Maximum Flood Currents:** >3

Waves: Not documented

Shoreline Description: Sand beach

Access: This area is on Eglin Air Force base property, that has been permanently closed to beach use. Contact Eglin Air Force Base at 850-882-1113. There is beach access from the Santa Rosa Island Beach parking lot. Heavy equipment will need to be transported approximately 2,610 feet down the beach.



East Pass (Destin Pass)

Scale: 1:5,300

Collection Point #4 Description

Inlet: East Pass (Destin Pass), Okaloosa County, Florida

Site Name: Collection Point #4

Relative Location: Sand beach located on the east side of the inlet near Norriego Point; Cascading boom extends from the boom anchor in the middle of the channel directing the oil to the beach.

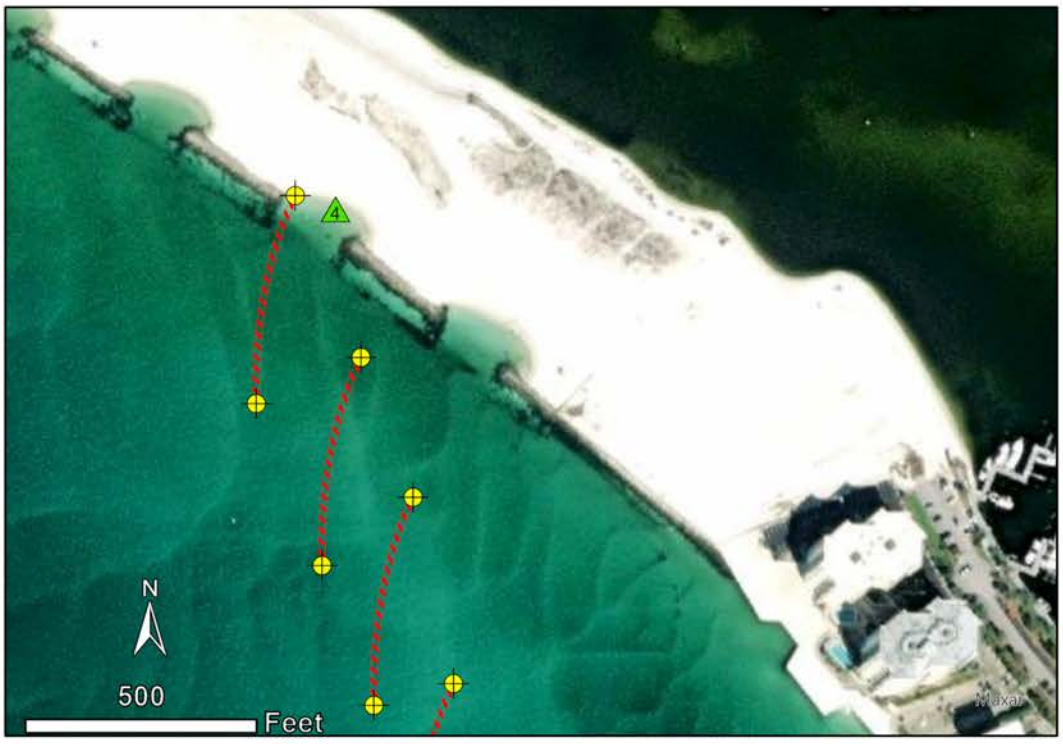
Latitude: 30° 23' 30.0" N **Longitude:** 86° 30' 43.0" W

Average Flood Currents: 2.5 to 3 kts **Maximum Flood Currents:** >3

Waves: Not documented

Shoreline Description: Sand beach

Access: There is beach access from the terminus of Gulf Shore Drive. Contact city of Destin at 850-837-4242.



East Pass (Destin Pass)

Scale: 1:4,200

Collection Point #5 Description

Inlet: East Pass (Destin Pass), Okaloosa County, Florida

Site Name: Collection Point #5 (Secondary): open-water skimmer

Relative Location: Floating skimmer collection point located in the channel between Crab Island and the mainland to the east. Secondary deflection boom and boom anchors will be used to direct oil to the floating skimmer.

Latitude: 30° 23' 52.2" N **Longitude:** 86° 31' 01.2" W

Average Flood Currents: 2.5 to 3 kts **Maximum Flood Currents:** >3 kts

Waves: Not documented

Shoreline Description: No shoreline

Access: By watercraft.



East Pass (Destin Pass)

Scale: 1:5,400

Collection Point #6 Description

Inlet: East Pass (Destin Pass), Okaloosa County, Florida

Site Name: Collection Point #6 (Secondary): open-water skimmer

Relative Location: Floating skimmer collection point located in the channel between Crab Island and Santa Rosa Island. Secondary deflection boom and boom anchors will be used to direct oil to the floating skimmer.

Latitude: 30° 23' 35.8" N **Longitude:** 86° 31' 29.3" W

Average Flood Currents: Not documented **Maximum Flood Currents**: Not documented

Waves: Not documented

Shoreline Description: No shoreline

Access: By watercraft.



East Pass (Destin Pass)

Scale: 1:6,500

Inlet Summary Sheet

Site: Saint Andrews Bay Pass at Shell Island, Bay County, Florida

Date Surveyed: May 10, 2022
Time Surveyed: 14:00-15:00

Ranking (Degree of Difficulty): B

Average Flood Current: 2 kts

Maximum Flood Current: 2.5 kts

Principal Resources at Risk:

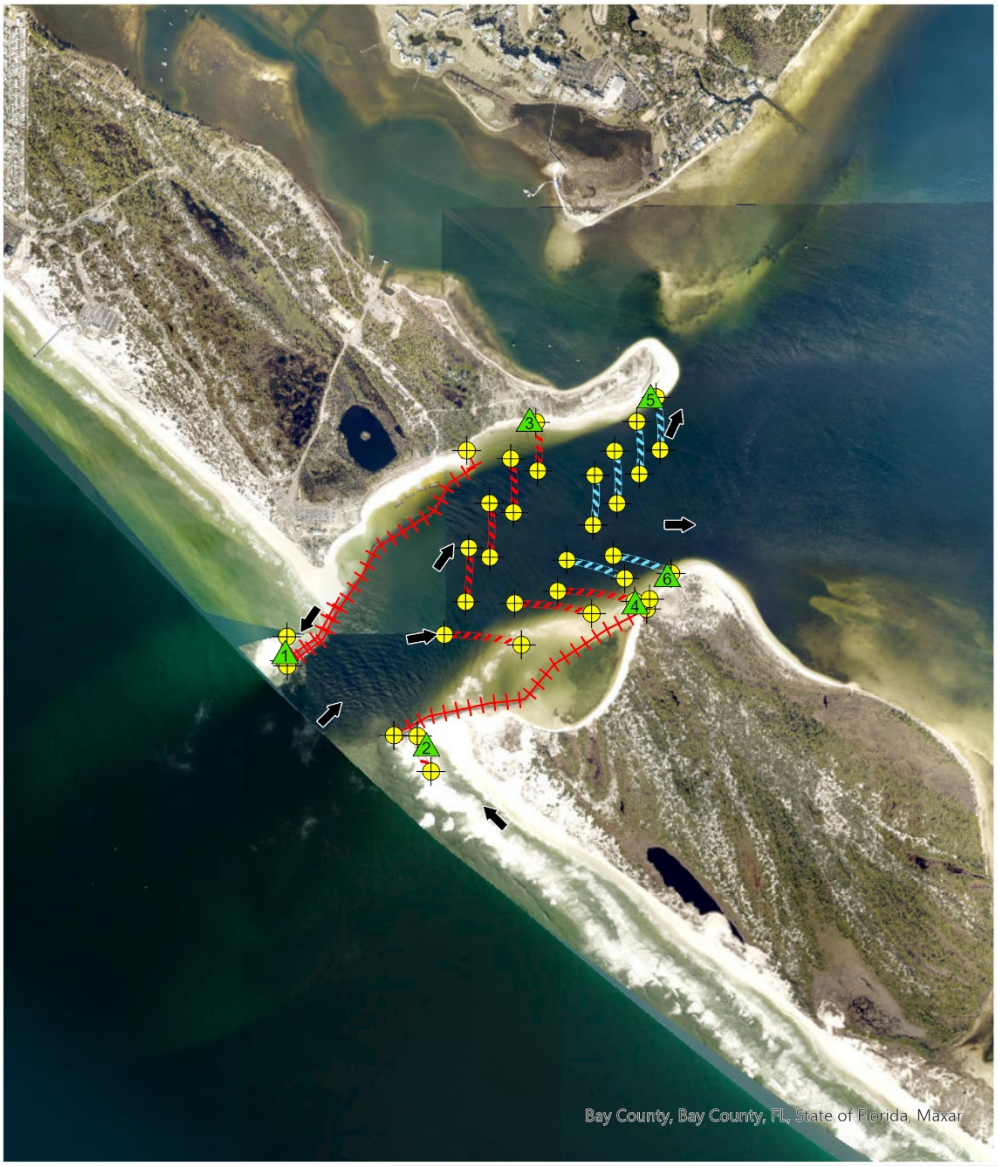
West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the outer beaches. Shorebirds, including the Federally threatened Piping Plover and Red Knot, wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. The Federally endangered Choctawhatchee Beach Mouse is present on the beaches and dunes near St. Andrews State Park. This area is designated as Critical Habitat for the Federally endangered Gulf Sturgeon. Marina facilities, boats, seawalls, revetments, docks, etc. within Saint Andrews Bay. The waters of this area are part of the St. Andrews Bay State Park Aquatic Preserve. St. Andrews State Park includes the land on either side of the inlet.

Preliminary Protection Strategy:

Divert oil entering the inlet through what would be the marginal flood channel to collection points along the outer sand beaches (CPs 1 and 2). A series of primary cascading boom will be installed on the northwest side of the inlet directing oil to the beach (CP 3). On the southeast side of the inlet primary cascading boom will also be installed, directing oil to the beach (CP 4). The same process will take place behind the primary boom on both the northwest (CP 5) and southeast (CP 6) sides of the inlet as secondary measures to prevent oil from entering St. Andrews Bay.

Other Comments: The area is in Saint Andrews State Park. Call 850-708-6100 for access information. Call Jon Brucker (850-670-7723) for access information St. Andrews Aquatic Preserve..

St. Andrew Bay Pass at Shell Island



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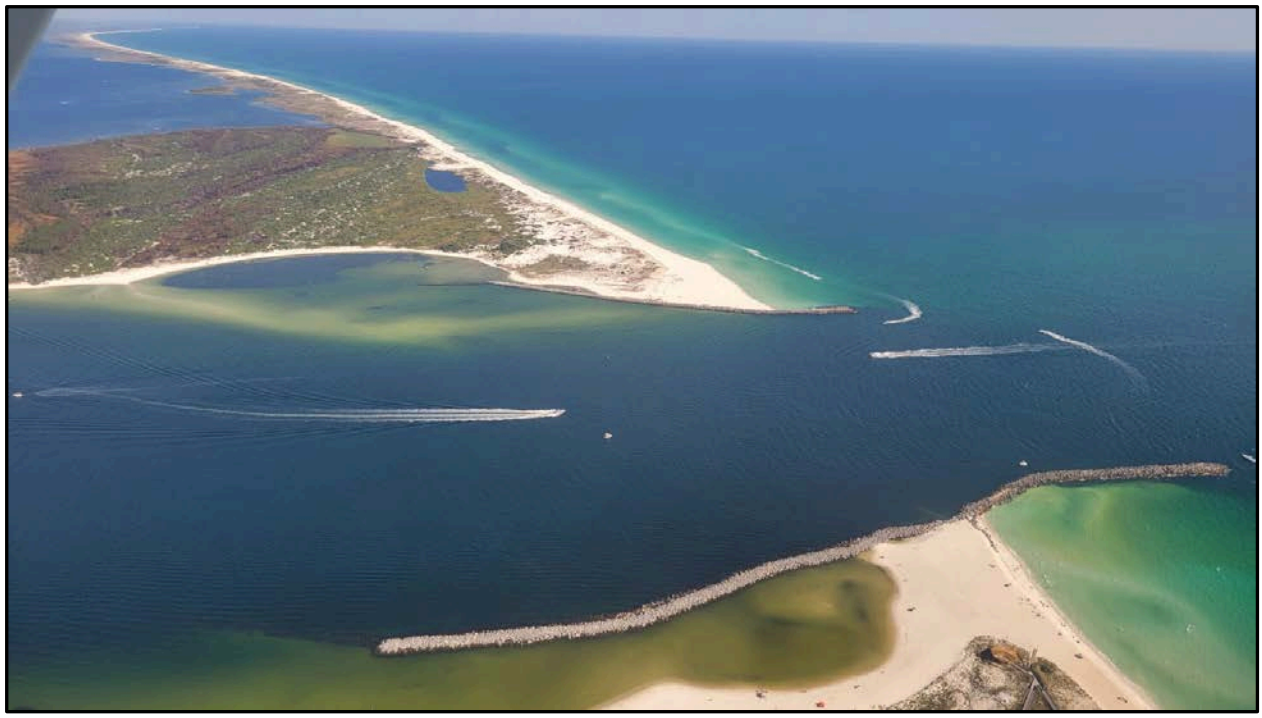
0 500 1000 2000 3000 Feet

Legend

Feature
- Collection Point
- Skimmer
- Open Water Collection

- Anchor Point
- Path of Oil

Boom, Level
- Deflection, Primary
- Deflection, Secondary
- Deflection, Tertiary
- Dike
- Protection, Primary
- Protection, Secondary
- Protection, Tertiary



Photograph of Saint Andrews Bay Pass at Shell Island taken on 11 May 2022.

Collection Point #1 Description

Inlet: Saint Andrews Bay Pass at Shell Island, Bay County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the northwest side of the inlet within Saint Andrews State Park. Boom extends out into what would be the marginal flood channel if the jetty was not present. Note the collection point is at the end of the jetty where the flood tide currents circulate before entering the pass.

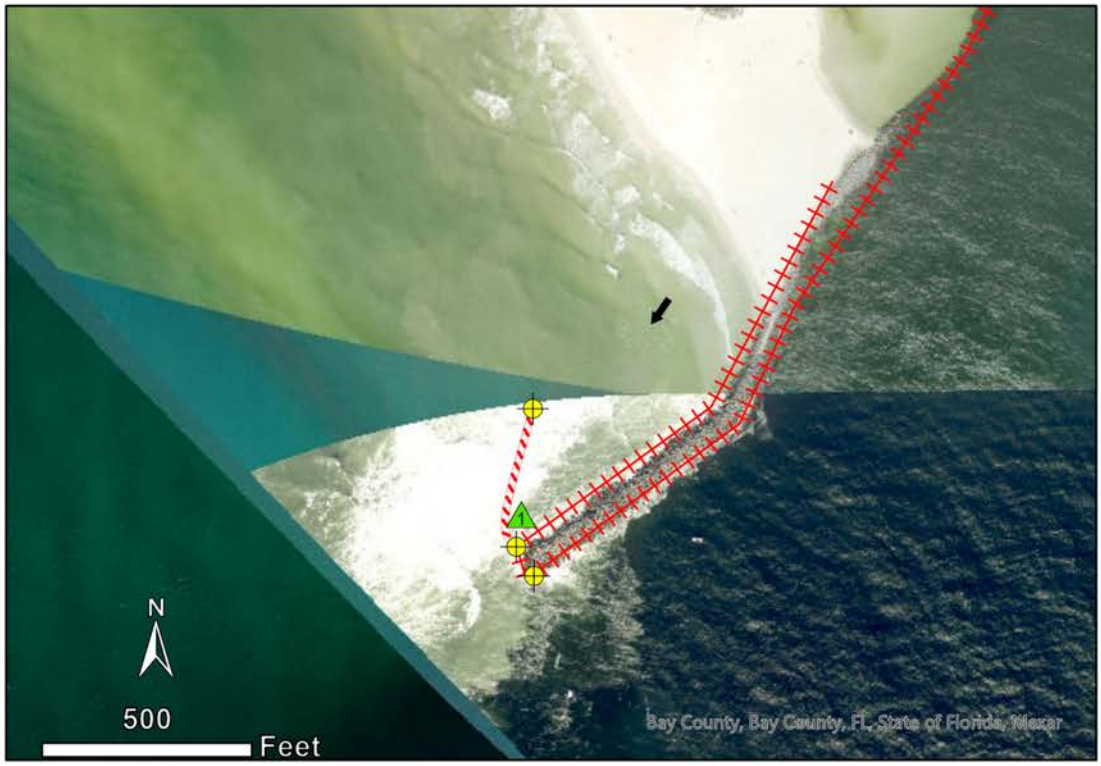
Latitude: 30° 07' 15.2" N **Longitude:** 85° 44' 05.6" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in Saint Andrews State Park. Call 850-708-6100 for access information. Will need to transport heavy equipment approximately 2,610 feet down the beach. The skimmer will need to be deployed from the water since there is no land access along the riprap.



St. Andrew Bay Pass at Shell Island

Scale: 1:4,800

Collection Point #2 Description

Inlet: Saint Andrews Bay Pass at Shell Island, Bay County, Florida

Site Name: Collection Point #2

Relative Location: Outer beach on the southeast side of the inlet. Boom extends out into what would be the marginal flood channel if the jetty was not present.

Latitude: 30° 7' 4.4" N **Longitude:** 85° 43' 46.5" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in Saint Andrews State Park. Call 850-708-6100 for access information. Heavy equipment would need to be ferried over to the island or hauled 10.5 miles along the beach from the nearest beach access on the island.



St. Andrew Bay Pass at Shell Island

Scale: 1:5,500

Collection Point #3 Description

Inlet: Saint Andrews Bay Pass at Shell Island, Bay County, Florida

Site Name: Collection Point #3

Relative Location: Beach located on the north side of the inlet within Saint Andrews State Park. A series of cascading boom directs oil to the beach.

Latitude: 30° 7' 42.3" N **Longitude:** 85° 43' 32.6" W

Average Flood Currents: 2 kts **Maximum Flood Currents:** 2.5 kts

Waves: Not documented

Shoreline Description: Sand beach

Access: There is a beach access within Saint Andrews State Park. Call 850-708-6100 for access information.



St. Andrew Bay Pass at Shell Island

Scale: 1:4,200

T

Collection Point #4 Description

Inlet: Saint Andrews Bay Pass at Shell Island, Bay County, Florida

Site Name: Collection Point #4

Relative Location: Beach located on the southeast side of the inlet on Shell Island. A series of cascading boom directs oil to the beach.

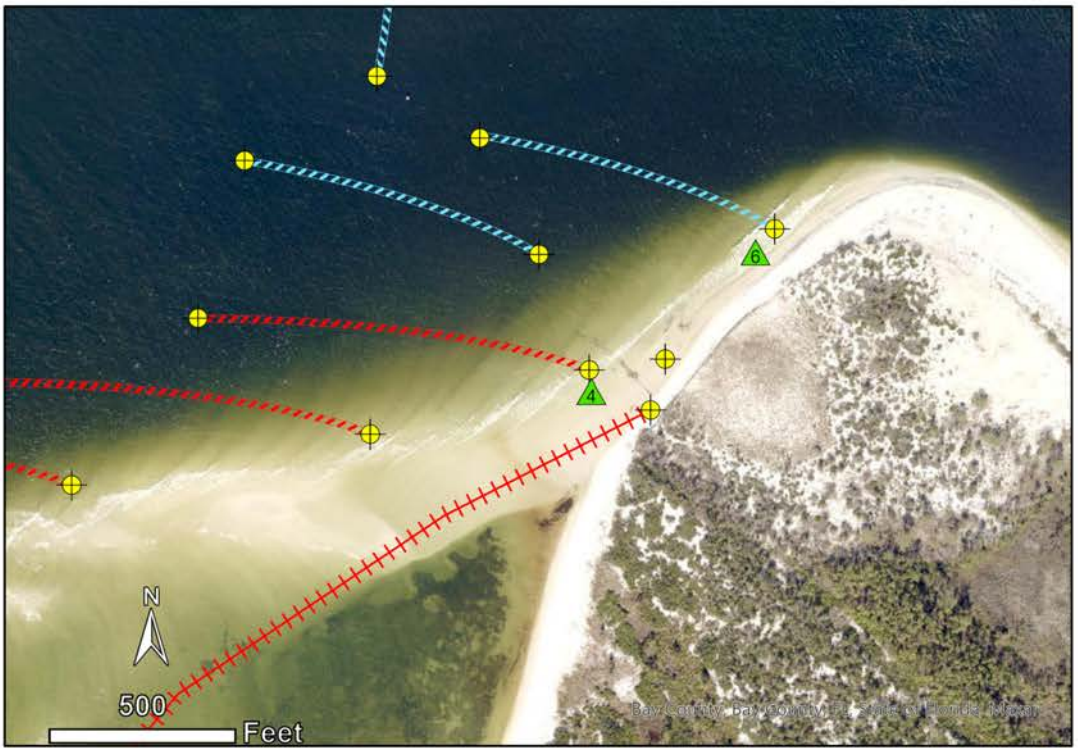
Latitude: 30° 07' 21.0" N **Longitude:** 85° 43' 18.4" W

Average Flood Currents: 2 kts **Maximum Flood Currents:** 2.5 kts

Waves: Not documented

Shoreline Description: Sand beach

Access: This area is located in Saint Andrews State Park. Call 850-708-6100 for access information. Heavy equipment would need to be ferried over to the island or hauled 10.5 miles along the beach from the nearest beach access on the island.



St. Andrew Bay Pass at Shell Island

Scale: 1:5,300

Collection Point #5 Description

Inlet: Saint Andrews Bay Pass at Shell Island, Bay County, Florida

Site Name: Collection Point #5 (Secondary)

Relative Location: Beach located on the north side of the inlet (near Sandy Point), east of the primary cascading boom. A series of secondary cascading boom with direct oil to the beach.

Latitude: 30° 07' 45.0" N **Longitude:** 85° 43' 16.3" W

Average Flood Currents: 2 kts **Maximum Flood Currents:** 2.5 kts

Waves: Not documented

Shoreline Description: Sand beach

Access: There is beach access within St. Andrews State Park. Call 850-708-6100 for access information.



St. Andrew Bay Pass at Shell Island

Scale: 1:6,600

Collection Point #6 Description

Inlet: Saint Andrews Bay Pass at Shell Island, Bay County, Florida

Site Name: Collection Point #6 (Secondary)

Relative Location: Sand beach located on the south side of inlet, east of the primary cascading boom. A series of secondary cascading boom will direct oil to the beach.

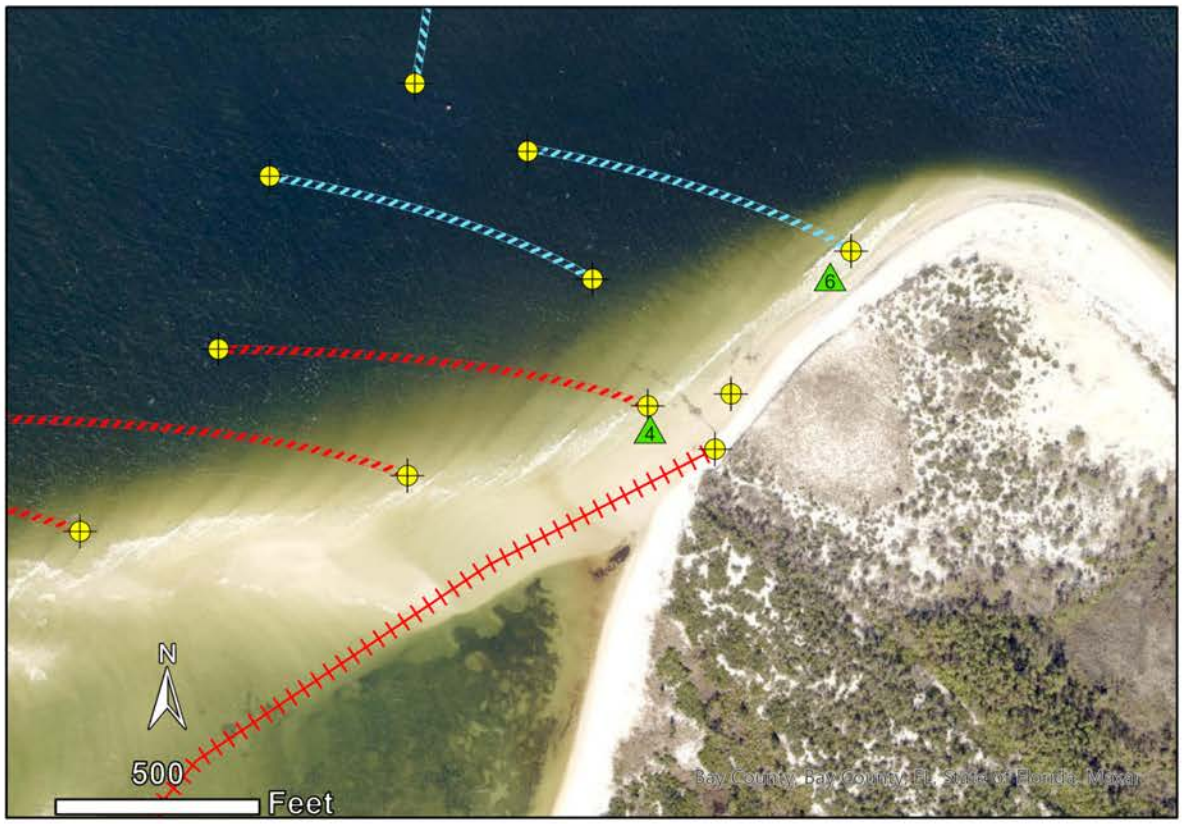
Latitude: 30° 07' 24.2" N **Longitude:** 85° 43' 14.0" W

Average Flood Currents: 2 kts **Maximum Flood Currents:** 2.5 kts

Waves: Not documented

Shoreline Description: Sand beach

Access: This area is located in Saint Andrews State Park. Call 850-708-6100 for access information Heavy equipment would need to be ferried over to the island or hauled 10.5 miles along the beach from the nearest beach access on the island.



St. Andrew Bay Pass at Shell Island

Scale: 1:5,300

Inlet Summary Sheet

Site: Saint Andrews Sound Entrance (Crooked Island), Bay County, Florida

Date Surveyed: May 11, 2022
Time Surveyed: 09:00-10:00

Ranking (Degree of Difficulty): C

Average Flood Current: Not documented

Maximum Flood Current: Not documented

Principal Resources at Risk:

West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the outer beaches. Shorebirds, including the Federally threatened Piping Plover and Red Knot, wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. The Federally endangered Choctawhatchee Beach Mouse is present on the beaches and dunes on the northwestern portion of the inlet, and the Federally endangered St. Andrews Beach Mouse is present on the beaches and dunes on the southeast portion of the inlet. This area is designated as Critical Habitat for the Federally endangered Gulf Sturgeon.

Preliminary Protection Strategy:

Divert oil entering the primary inlet through the marginal flood channel on the northwest side of the inlet to the collection point along the outer sand beach (CP 1). Using boom and boom anchors, direct the oil entering the main inlet of Saint Andrews Sound to a floating skimmer positioned within the sound (CP 2). The same technique is to be used for the new inlet, with oil being directed to a floating skimmer positioned in the sound (CP 3) though the use of boom and boom anchors.

Other Comments: It is important to note that a second inlet was located east of the main inlet at the time of fieldwork; therefore, it was included in this protection strategy.

St. Andrew Sound Entrance (on Crooked Island)



N
W E
S

1:27,000

0 500 1000 2000 3000 Feet

Legend

- USCG Stations
- Feature
  - Collection Point
  - Skimmer
- Open Water Collection
- Anchor Point
- Path of Oil
- Boom, Level
  - Deflection, Primary
  - Deflection, Secondary
  - Deflection, Tertiary
  - Dike
  - Protection, Primary
  - Protection, Secondary
  - Protection, Tertiary

Collection Point #1 Description

Inlet: Saint Andrews Sound Entrance (Crooked Island), Bay County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the northwest side of the inlet. Boom extends out into the marginal flood channel.

Latitude: 30° 0' 9.4" N **Longitude:** 85° 32' 14.3" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located on Tyndall Air Force Base property. Call 850-283-1113 for access information. Heavy equipment would need to be ferried over to the island or hauled 6.25 miles along the beach from the nearest beach access on the island.



St. Andrew Sound Entrance (on Crooked Island)

Scale: 1:3,700

Collection Point #2 Description

Inlet: Saint Andrews Sound Entrance (Crooked Island), Bay County, Florida

Site Name: Collection Point #2

Relative Location: Floating skimmer collection point, positioned landward of the throat of the main inlet where it begins to open into Saint Andrews Sound. Boom and boom anchor will direct the oil to the floating skimmer.

Latitude: 30° 00' 22.9" N **Longitude:** 85° 31' 50.0" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Not documented

Shoreline Description: No shoreline

Access: This area is located on Tyndall Air Force Base property. Call 850-283-1113 for access information. By watercraft. There is a research laboratory boat ramp located at the far east end of the inlet located off Research Rd 29° 58' 00.1" N 85° 27' 53.2" W.



St. Andrew Sound Entrance (on Crooked Island)

Scale: 1:6,800

Collection Point #3 Description

Inlet: Saint Andrews Sound Entrance (Crooked Island), Bay County, Florida

Site Name: Collection Point #3

Relative Location: Floating skimmer collection point, positioned landward of the new inlet into Saint Andrews Sound. Boom and boom anchor will direct the oil to the floating skimmer.

Latitude: 29° 59' 39.4" N **Longitude:** 85° 31' 11.2" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Not documented

Shoreline Description: No shoreline

Access: This site is located on Tyndall Air Force Base property. Call 850-283-1113 for access information. By watercraft. There is a research laboratory boat ramp located at the far east end of the inlet.



St. Andrew Sound Entrance (on Crooked Island)

Scale: 1:12,000

Inlet Summary Sheet

Site: St. Joseph Bay Entrance (Port St. Joe), Gulf County, Florida

Date Surveyed: May 11, 2022
Time Surveyed: 10:00-10:30

Ranking (Degree of Difficulty): A

Average Flood Current: Speed not documented

Maximum Flood Current: Speed not documented

Principal Resources at Risk:

West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the beaches throughout the area. Shorebirds, including the Federally threatened Piping Plover and Red Knot, wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. The Federally endangered St. Andrews Beach Mouse is present on the beaches and dunes all the way around St. Joseph Bay. This area is designated as Critical Habitat for the Federally endangered Gulf Sturgeon. Marina facilities, boats, seawalls, revetments, docks, etc. within St. Joseph Bay. This aquatic area is in the St. Joseph Bay Aquatic Preserve. The peninsula is part of T.H. Stone Memorial St. Joseph Peninsula State Park.

Preliminary Protection Strategy:

Divert oil entering the inlet at the tip of the cape to a collection point along the outer sand beach (CP 1). Through the use of cascading boom and boom anchors, direct the oil entering the eastern portion of St Joseph Bay to the beach near Port St. Joe Bay Park (CP 2). Oil entering the western portion of the bay will be collected by a floating skimmer(s). There will be no boom in this area due to the extensive bay opening making boom deployment unfeasible.

Other Comments:

St. Joseph Bay Entrance, Port St. Joe



N
W E
S

1:55,000

0 1250 2500 5000 7500 Feet

Legend

- USCG Stations
- Feature
  - Collection Point
  - Skimmer
- Open Water Collection
- Anchor Point
- Path of Oil
- Boom, Level
  - Deflection, Primary
  - Deflection, Secondary
  - Deflection, Tertiary
  - Dike
  - Protection, Primary
  - Protection, Secondary
  - Protection, Tertiary

Collection Point #1 Description

Inlet: St. Joseph Bay Entrance (Port St. Joe), Gulf County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the northwest side of the inlet. Boom extends out to collect oil moving with the prevailing along shore drift.

Latitude: 29° 52' 42.5" N **Longitude:** 85° 23' 24.6" W

Average Flood Current: Speed not documented, strong erratic cross currents

Maximum Flood Current: Speed not documented, strong erratic cross currents

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in the T.H. Stone Memorial St. Joseph Peninsula State Park. Call 850-227-1327 for access information. Heavy equipment would need to be ferried over to the end of the spit because it is no longer accessible by road.



St. Joseph Bay Entrance, Port St. Joe

Scale: 1:10,000

Collection Point #2 Description

Inlet: St. Joseph Bay Entrance (Port St. Joe), Gulf County, Florida

Site Name: Collection Point #2

Relative Location: Sand beach located near Port St. Joe Bay Park. A series of cascading boom will direct oil to the beach.

Latitude: 29° 51' 15.1" N **Longitude:** 85° 20' 23.3" W

Average Flood Current: Speed not documented, strong erratic cross currents

Maximum Flood Current: Speed not documented, strong erratic cross currents

Waves: Maximum 4 ft

Shoreline Description: Sand beach

Access: There is access from the parking lot at Port St. Joe Bay Park.



St. Joseph Bay Entrance, Port St. Joe

Scale: 1:11,100

Inlet Summary Sheet

Site: Indian Pass (St. Vincent Sound), Gulf County, Florida

Date Surveyed: May 11, 2022
Time Surveyed: 12:00-13:00

Ranking (Degree of Difficulty): B

Average Flood Current: Not documented

Maximum Flood Current: 4 to 5 kts

Principal Resources at Risk:

West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the beaches throughout the area. Shorebirds, including the Federally threatened Piping Plover and Red Knot, wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. The Federally endangered St. Andrews Beach Mouse is present on the outer beaches of Indian Peninsula. This area is designated as Critical Habitat for the Federally endangered Gulf Sturgeon. Apalachicola Bay is an important area for oysters and other aquaculture. Marina facilities, boats, seawalls, revetments, docks, etc. within St. Vincent Sound. Managed areas in this inlet include Apalachicola Bay Aquatic Preserve, Apalachicola National Estuarine Research Reserve, and St. Vincent National Wildlife Refuge.

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). The remaining oil that enters the pass will be directed to a floating skimmer (CP 3) positioned approximately 1,650 feet north of Indian Pass Camp (east camp) landward of Indian Pass within St. Vincent Sound

Other Comments: The literature indicates that Indian Pass (along with West Pass) drains a large percentage of Apalachicola Bay; therefore, ebb tide dominates (Twichell, 2010). This is important in that these strategies may not be needed during more common tidal conditions.

Indian Pass (St. Vincent Sound)



N
W E
S

1:29,000

0 500 1000 2000 3000 Feet

Legend

USCG Stations

Feature

Collection Point

Skimmer

Open Water Collection

Anchor Point

Path of Oil

Boom, Level

Deflection, Primary

Deflection, Secondary

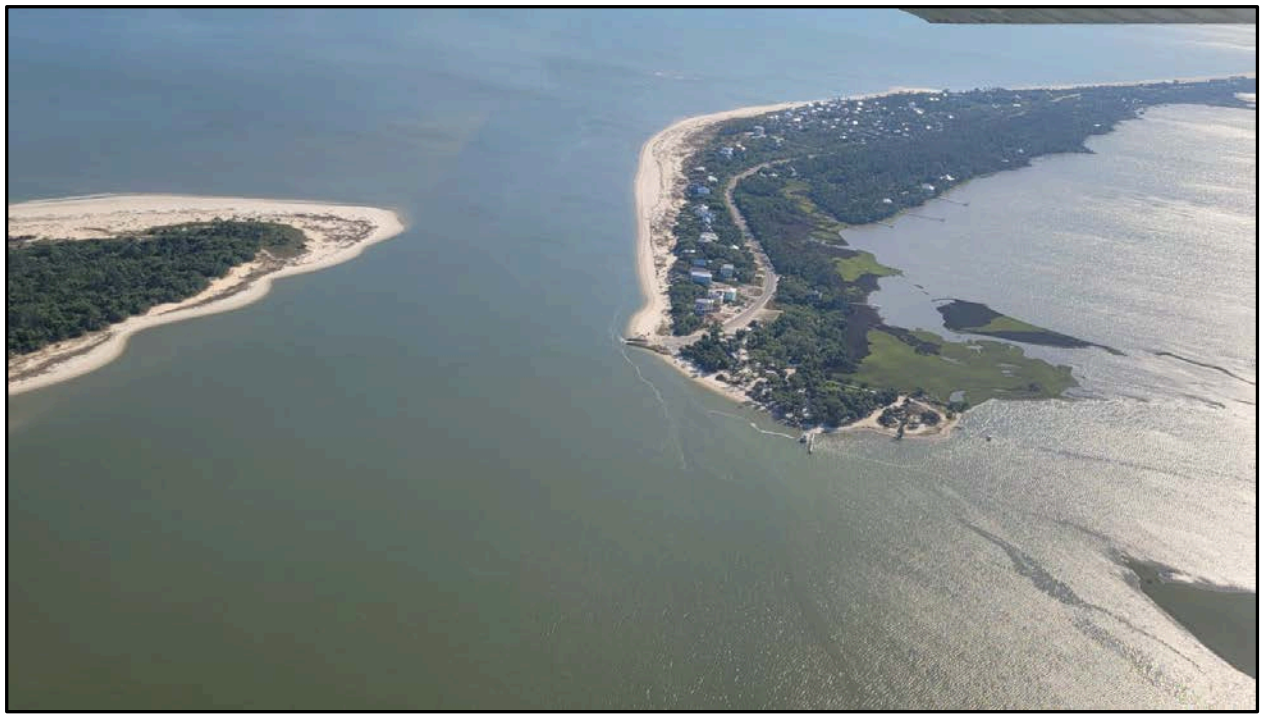
Deflection, Tertiary

Dike

Protection, Primary

Protection, Secondary

Protection, Tertiary



Photograph of Indian Pass (St. Vincent Sound) taken on 11 May 2022.

Collection Point #1 Description

Inlet: Indian Pass (St. Vincent Sound), Gulf County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the west side of the inlet. Boom extends out into the marginal flood channel.

Latitude: 29° 40' 35.5" N **Longitude:** 85° 14' 9.0" W

Average Flood Currents: Not documented **Maximum Flood Currents:** 4 to 5 kts

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: There is beach access off S. Oak Drive within the small town on Indian Peninsula.



Indian Pass (St. Vincent Sound)

Scale: 1:4,300

Collection Point #2 Description

Inlet: Indian Pass (St. Vincent Sound), Franklin County, Florida

Site Name: Collection Point #2

Relative Location: Outer beach on the east side of the inlet. Boom extends out into the marginal flood channel.

Latitude: 29° 40' 40.5" N **Longitude:** 85° 13' 21.8" W

Average Flood Currents: Not documented **Maximum Flood Currents**: 4 to 5 kts

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in the St. Vincent National Wildlife Refuge. Call 850-653 8808) for access information. Heavy equipment would have to be ferried across the pass to St. Vincent Island than hauled approximately 2,295 feet along the beach.



Indian Pass (St. Vincent Sound)

Scale: 1:4,700

Collection Point #3 Description

Inlet: Indian Pass (St. Vincent Sound), Franklin County, Florida

Site Name: Collection Point #3; open-water skimmer

Relative Location: Southern portion of St. Vincent Sound approximately 1,650 feet north of Indian Pass Camp (east).

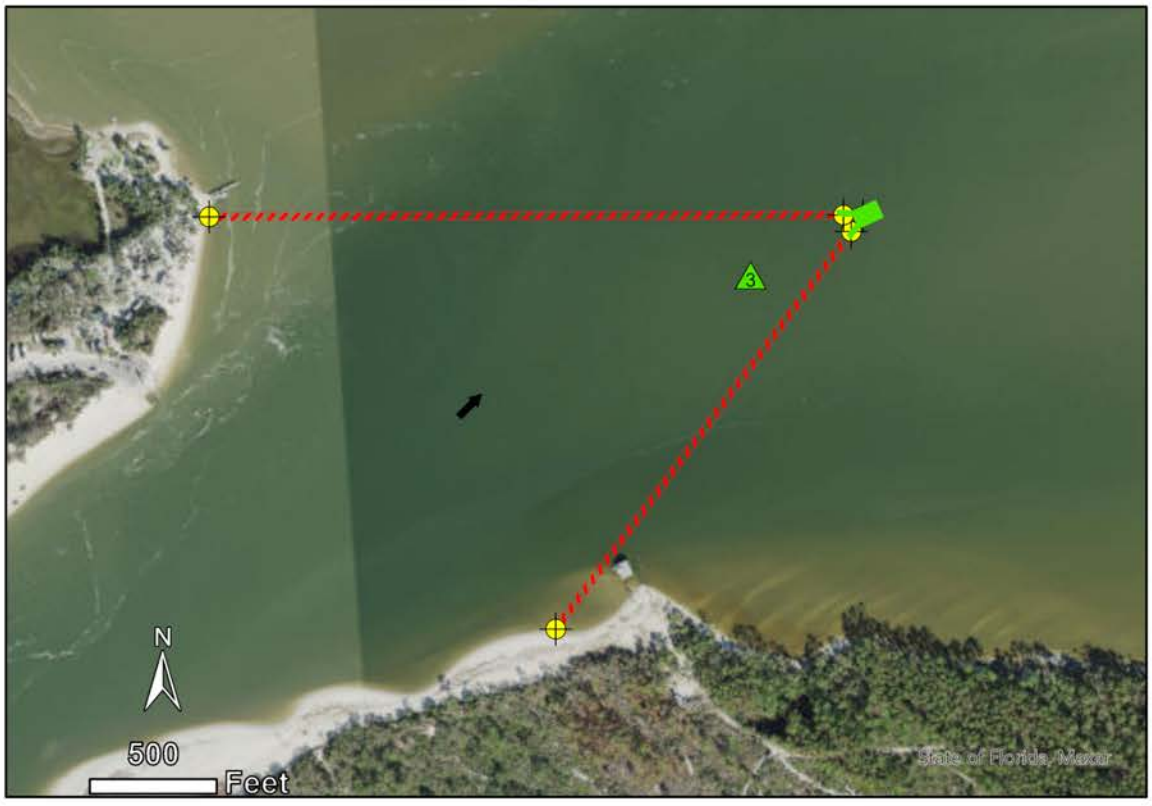
Latitude: 29° 41' 3.1" N **Longitude:** 85° 12' 56.3" W

Average Flood Currents: Not documented **Maximum Flood Currents:** 4 to 5 kts

Waves: Not documented

Shoreline Description: No shoreline

Access: By watercraft.



Indian Pass (St. Vincent Sound)

Scale: 1:8,300

Inlet Summary Sheet

Site: West Pass (Entrance to Apalachicola Bay), Franklin County, Florida

Date Surveyed: May 12, 2022
Time Surveyed: 13:00-14:00

Ranking (Degree of Difficulty): A

Average Flood Current: >1

Maximum Flood Current: 3 to 4 kts

Principal Resources at Risk:

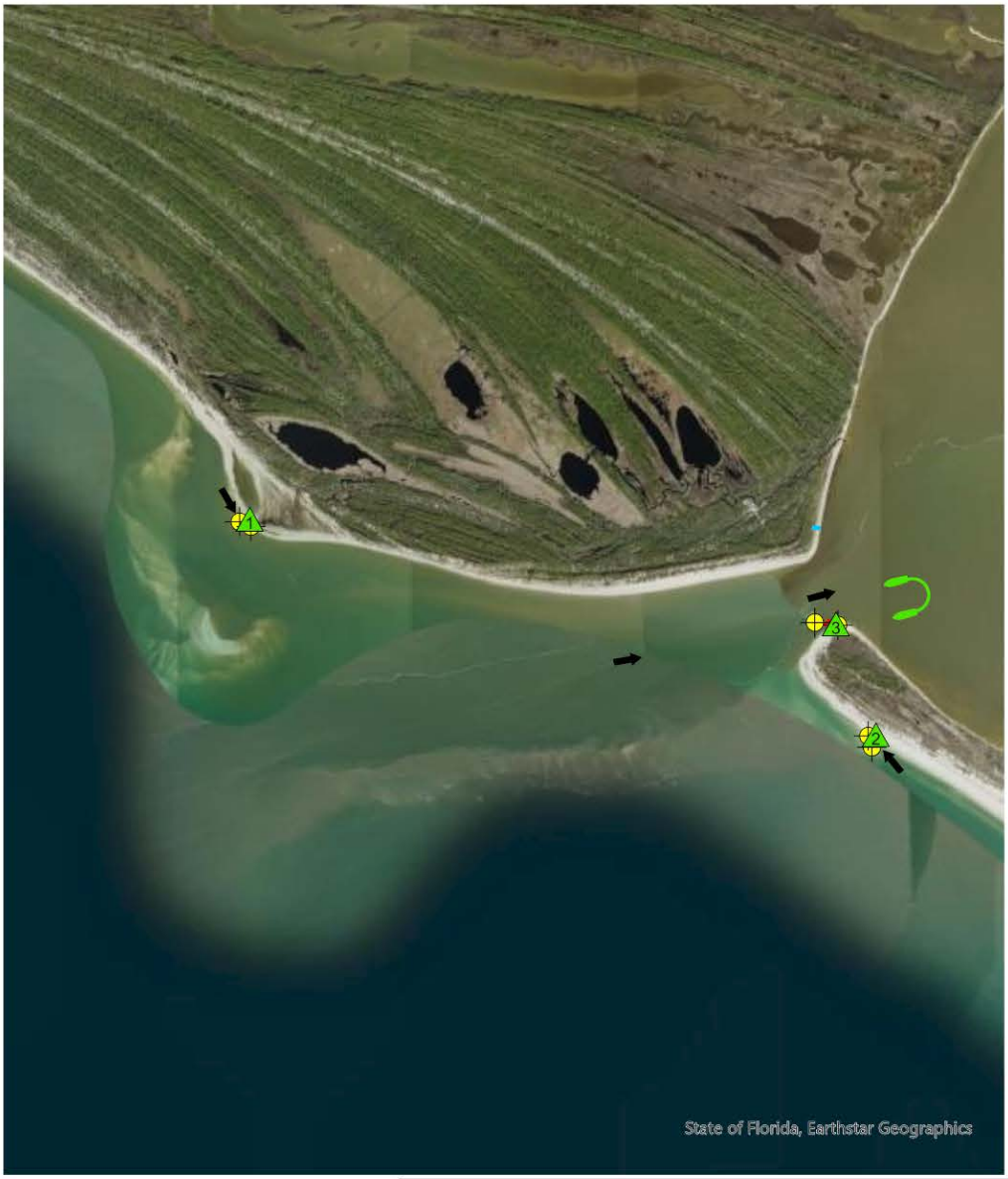
West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the beaches throughout the area. Shorebirds, including the Federally threatened Piping Plover and Red Knot, wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. This area is designated as Critical Habitat for the Federally endangered Gulf Sturgeon. Apalachicola Bay is an important area for oysters and other aquaculture. Marina facilities, boats, seawalls, revetments, docks, etc. in port towns such as Apalachicola and East Point, FL. Managed areas in this inlet include Apalachicola Bay Aquatic Preserve, Apalachicola National Estuarine Research Reserve, and St. Vincent National Wildlife Refuge, and Cape St. George State Reserve.

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 case of CP 1, the collection point is substantially west of the mouth of inlet because the marginal flood channel on the northwest side of the does not exist; therefore, boom will collect more oil on the flood tide further west where deposition due to long shore drift and sediment dropout is occurring. Another collection point (CP 3) will be located at the tip of Little St. George Island where the minimal tide that does enter the bay is most likely to come in from the eastern portion of the inlet. The remaining oil that enters the inlet will be collected by a floating skimmer positioned in Apalachicola Bay. The ebb tide is too strong to attempt installing boom to direct the oil to the skimmer.

Other Comments: The literature indicates that West Pass (along with Indian Pass) drains a large percentage of Apalachicola Bay; therefore, ebb tide dominates especially in the western two thirds of the inlet (Twichell, 2010). This is important in that these strategies may not be needed during more common tidal conditions.

West Pass (Entrance to Apalachicola Bay)



N
W E
S

1:62,000

0 1500 3000 6000 9000 Feet

Legend

USCG Stations

Feature

Collection Point

Skimmer

Open Water Collection

Anchor Point

Path of Oil

Boom, Level

Deflection, Primary

Deflection, Secondary

Deflection, Tertiary

Dike

Protection, Primary

Protection, Secondary

Protection, Tertiary



Photograph of West Pass (Entrance to Apalachicola Bay) taken on 11 May 2022.

Collection Point #1 Description

Inlet: West Pass (Apalachicola Bay entrance), Franklin County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the west side of the inlet approximately 2.8 miles west of the mouth of the inlet. Boom extends out from the beach collecting oil moving with common littoral drift direction.

Latitude: 29° 38' 7.7" N **Longitude:** 85° 8' 55.0" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in the St. Vincent National Wildlife Refuge. Call 850-653 8808 for access information. Heavy equipment would have to be ferried to this site most likely from Indian Peninsula or Apalachicola.



West Pass (Entrance to Apalachicola Bay)

Scale: 1:12,800

Collection Point #2 Description

Inlet: West Pass (Apalachicola Bay entrance), Franklin County, Florida

Site Name: Collection Point #2

Relative Location: Outer beach on the east side of the inlet. Boom extends out into the marginal flood channel.

Latitude: 29° 37' 5.7" N **Longitude:** 85° 5' 28.0" W

Average Flood Currents: >1 kts **Maximum Flood Currents:** 3 to 4 kts

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in the Cape St. George State Reserve. Call 850-670-7700 for access information. Heavy equipment would have to be transported to this site most likely from Indian Peninsula or Apalachicola.



West Pass (Entrance to Apalachicola Bay)

Scale: 1:10,800

Collection Point #3 Description

Inlet: West Pass (Apalachicola Bay entrance), Franklin County, Florida

Site Name: Collection Point #3

Relative Location: Sand beach located on the east side of the inlet on Little St. George Island. Boom extends out into the marginal flood tide channel.

Latitude: 29° 37' 37.6" N **Longitude:** 85° 05' 41.1" W

Average Flood Currents: >1 kts **Maximum Flood Currents:** 3 to 4 kts

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in the Cape St. George State Reserve. Call 850-670-7700 for access information. Heavy equipment would have to be transported to this site most likely from Indian Peninsula or Apalachicola.



West Pass (Entrance to Apalachicola Bay)

Scale: 1:8,300

Inlet Summary Sheet

Site: Government Cut (St. George Island), Franklin County, Florida

Date Surveyed: May 12, 2022
Time Surveyed: 11:00-12:00

Ranking (Degree of Difficulty): C

Average Flood Current: 1.8 kts **Maximum Flood Current**: Not documented

Principal Resources at Risk:

West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the beaches throughout the area. Shorebirds, including the Federally threatened Piping Plover and Red Knot, wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. This area is designated as Critical Habitat for the Federally endangered Gulf Sturgeon. Apalachicola Bay is an important area for oysters and other aquaculture. Marina facilities, boats, seawalls, revetments, docks, etc. in port towns such as Apalachicola and East Point, FL. Managed areas in this inlet include Apalachicola Bay Aquatic Preserve, Apalachicola National Estuarine Research Reserve, and St. Vincent National Wildlife Refuge, and Cape St. George State Reserve.

Preliminary Protection Strategy:

Divert oil entering the inlet through what would be the marginal flood channels (if the jetty was not present) to collection points along the outer sand beaches (CPs 1 and 2). Protection boom will be installed around the jetty to prevent oil from entering the riprap. Within the western section of the main channel of Government Cut, a boom anchor will be installed and oil that moves west of the boom anchor will be guided via deflection boom to a collection point along the beach (CP 3). On the east side of the inlet, a boom anchor and deflection boom will be installed, and oil that moves east of the anchor will be collected along the beach (CP 4). Protection boom will be installed to prevent oil from moving in around the docks. Oil that moves between the two boom anchors will be directed to a floating skimmer (CP 5) approximately 1,650 feet northeast of CP 3.

Other Comments:

Government Cut (St. George Island)



N
W E
S

1:14,000

0 360 720 1440 2160 Feet

Legend

USCG Stations

Feature

Collection Point

Skimmer

Open Water Collection

Anchor Point

Path of Oil

Boom, Level

Deflection, Primary

Deflection, Secondary

Deflection, Tertiary

Dike

Protection, Primary

Protection, Secondary

Protection, Tertiary



Photograph of Government Cut (St. George Island) taken on 11 May 2022.

Collection Point #1 Description

Inlet: Government Cut (St. George Island), Gulf County, Florida

Site Name: Collection Point #1

Relative Location: Outer beach on the west side of the inlet. Boom extends out into what would be the marginal flood channel.

Latitude: 29° 36' 41.6" N **Longitude:** 84° 57' 32.9" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in the Cape St. George State Reserve. Call 850-670-7700 for access information. Heavy equipment would have to be ferried to this site most likely from Indian Peninsula Apalachicola or just across the inlet.



Government Cut (St. George Island)

Scale: 1:3,600

Collection Point #2 Description

Inlet: Government Cut (St. George Island), Gulf County, Florida

Site Name: Collection Point #2

Relative Location: Outer beach on the east side of the inlet. Boom extends out into what would be the marginal flood channel.

Latitude: 29° 36' 44.4" N **Longitude:** 84° 57' 25.6" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: There appears to be beach access from Schooner Landing Road at the western end of St. George Island. This section of the island is private St. George Plantation. For more information contact 850-927-2312.



Government Cut (St. George Island)

Scale: 1:2,800

Collection Point #3 Description

Inlet: Government Cut (St. George Island), Gulf County, Florida

Site Name: Collection Point #3

Relative Location: Beach located on the west side of the inlet. Boom extends from the boom anchor in the western portion of the of the channel directing the oil to the beach.

Latitude: 29° 36' 54.5" N **Longitude:** 84° 57' 41.1" W

Average Flood Currents: 1.8 kts **Maximum Flood Currents:** Not documented

Waves: Not documented

Shoreline Description: Sand beach

Access: This area is located in the Cape St. George State Reserve. Call 850-670-7700 for access information. Heavy equipment would have to be ferried to this site most likely from Indian Peninsula Apalachicola or just across the inlet.



Government Cut (St. George Island)

Scale: 1:2,300

Collection Point #4 Description

Inlet: Government Cut (St. George Island), Gulf County, Florida

Site Name: Collection Point #4

Relative Location: Beach located on the east side of the inlet. Boom extends from the boom anchor in the eastern portion of the channel directing the oil to the beach.

Latitude: 29° 36' 57.8" N **Longitude:** 84° 57' 31.9" W

Average Flood Currents: 1.8 kt **Maximum Flood Currents:** Not documented

Waves: Not documented

Shoreline Description: Sand beach

Access: There is beach access from the terminus of Leisure Lane on the west end of St. George Island. This section of the island is private St. George Plantation. For more information contact 850-927-2312.



Government Cut (St. George Island)

Scale: 1:2,300

Collection Point #5 Description

Inlet: Government Cut (St. George Island), Franklin County, Florida

Site Name: Collection Point #5; open-water skimmer

Relative Location: Floating approximately 1,650 feet northeast of CP 3.

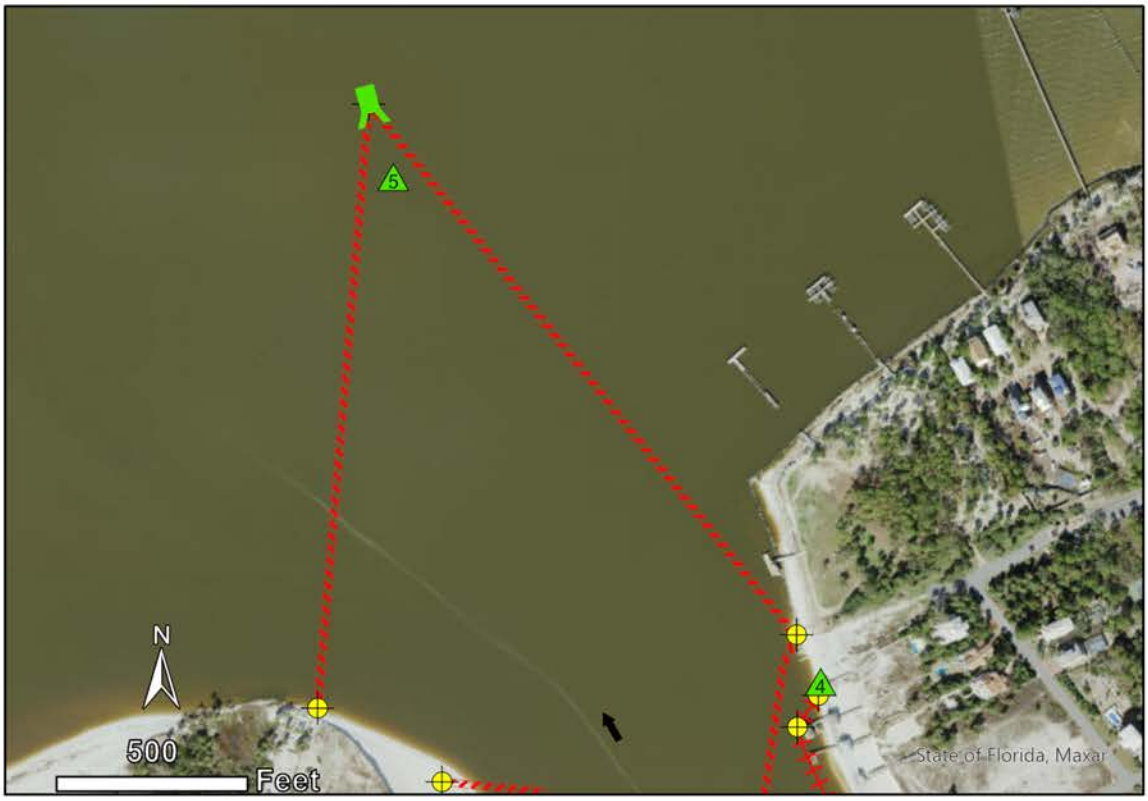
Latitude: 29° 37' 9.1" N **Longitude:** 84° 57' 42.9" W

Average Flood Currents: Not documented **Maximum Flood Currents:** Not documented

Waves: Not documented

Shoreline Description: No shoreline

Access: By watercraft.



Government Cut (St. George Island)

Scale: 1:5,500

Inlet Summary Sheet

Site: East Pass (St. George Island), Franklin County, Florida

Date Surveyed: May 12, 2022
Time Surveyed: 09:00-10:00

Ranking (Degree of Difficulty): A

Average Flood Current: Speed not documented

Maximum Flood Current: Speed not documented

Principal Resources at Risk:

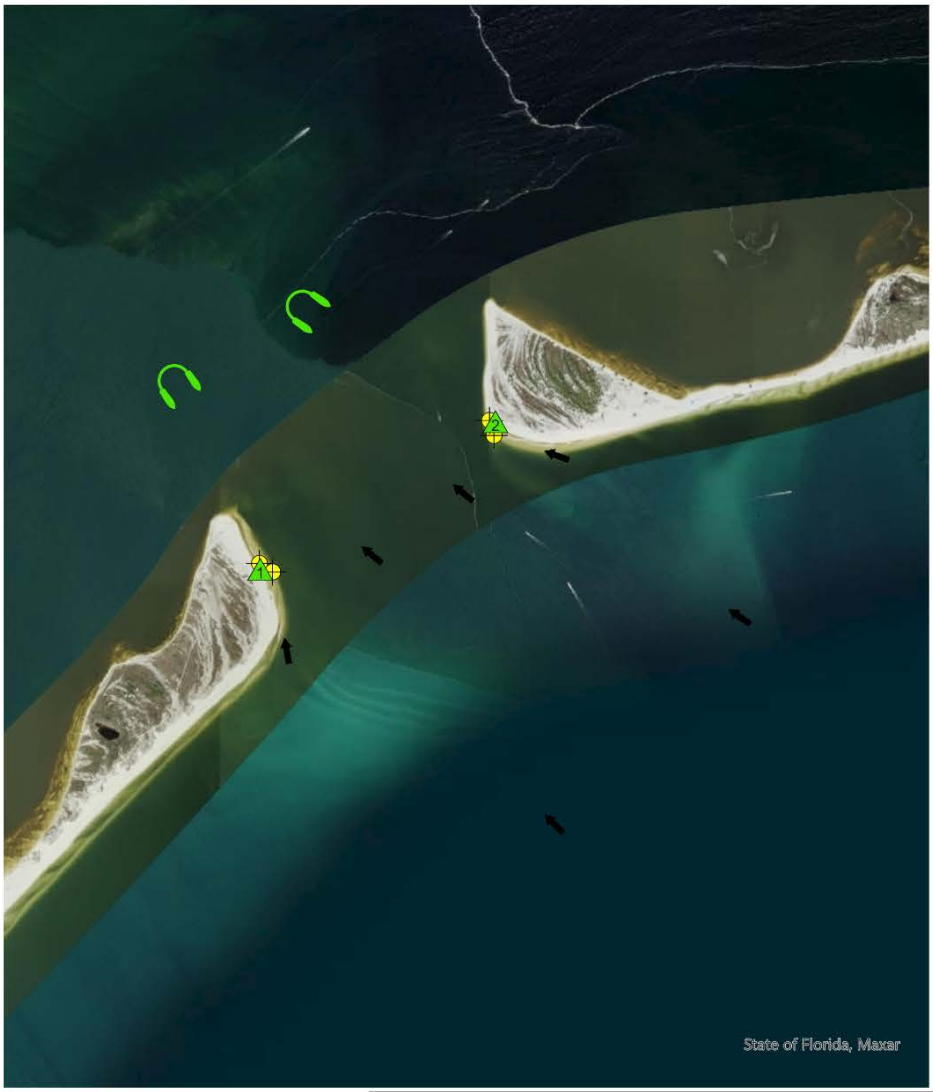
West Indian Manatees present. Loggerhead, Green, Kemp's Ridley and Leatherback Sea Turtles nest on the beaches throughout the area. Shorebirds, including the Federally threatened Piping Plover and Red Knot, wading birds such as the Wood Stork, Great Blue Heron, Great Egret, Cattle Egret, and seabirds. This area is designated as Critical Habitat for the Federally endangered Gulf Sturgeon. Apalachicola Bay is an important area for oysters and other aquaculture. Marina facilities, boats, seawalls, revetments, docks, etc. in port towns such as East Point and Carrabelle, FL. The West side of the inlet is Dr. Julian G. Bruce St. George Island State Park.

Preliminary Protection Strategy:

On the far eastern shore of St. George Island, boom anchor and deflection boom will be installed (CP 1) to collect oil entering the inlet through the western marginal flood channel. The same strategy will be implemented on the on the eastern side of the channel, on the western tip of Dog Island (CP 2). The remaining oil that enters through East Pass will be collected using two roving floating skimmers.

Other Comments: Due to the sheer size of the inlet and complicated cross currents, boom and boom anchors are not used to for this protection strategy with the exception being the two marginal flood channel collection points on either side of the inlet.

East Pass (St. George Sound)



N
W E
S

1:48,000

0 1000 2000 4000 6000 Feet

Legend

- USCG Stations
- Feature
  - Collection Point
  - Skimmer
- Open Water Collection
- Anchor Point
- Path of Oil
- Boom, Level
  - Deflection, Primary
  - Deflection, Secondary
  - Deflection, Tertiary
  - Dike
  - Protection, Primary
  - Protection, Secondary
  - Protection, Tertiary



Photograph of East Pass (St. George Island) taken on 11 May 2022.

Collection Point #1 Description

Inlet: East Pass (St. George Island), Franklin County, Florida

Site Name: Collection Point #1

Relative Location: Beach located on the west side of the inlet. Boom extends from the boom anchor directing oil to the beach.

Latitude: 29° 46' 10.1" N **Longitude:** 84° 41' 31.0" W

Average Flood Currents: Speed not documented, strong cross inlet currents

Maximum Flood Currents: Speed not documented, strong cross inlet currents

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: This area is located in the Dr. Julian G. Bruce St. George Island State Park. Call 850-927-2111 for access information. There is beach access from the East End Parking Lot within St. George State Park. Heavy equipment will need to be hauled approximately 1,650 feet along the beach.



East Pass (St. George Sound)

Scale: 1:4,500

Collection Point #2 Description

Inlet: East Pass (St. George Island), Franklin County, Florida

Site Name: Collection Point #2

Relative Location: Beach located on the northeast side of the inlet. Boom extends from the boom anchor directing oil to the beach.

Latitude: 29° 46' 45.6" N **Longitude:** 84° 40' 25.9" W

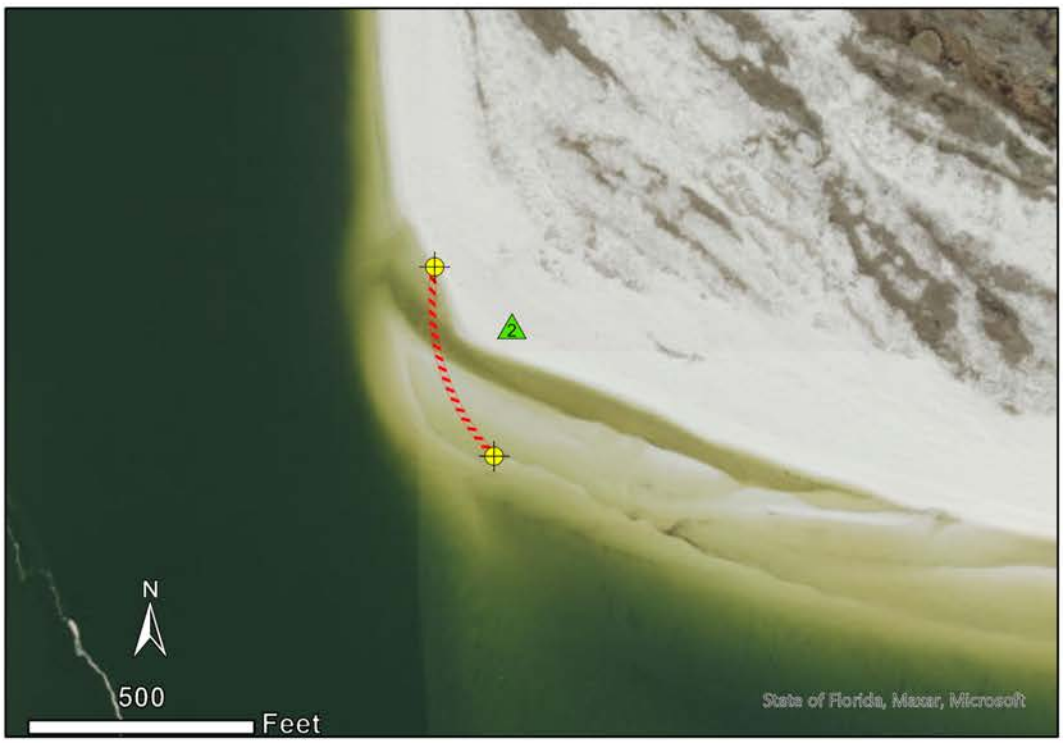
Average Flood Currents: Speed not documented, strong cross inlet currents

Maximum Flood Currents: Speed not documented, strong cross inlet currents

Waves: Maximum 5 ft

Shoreline Description: Sand beach

Access: Heavy equipment would need to be ferried to this site most likely from East Point or Carrabelle.



East Pass (St. George Sound)

Scale: 1:4,300