Ports and Waterways Safety Assessment Workshop Report

Tampa, Florida
15 – 16 May 2024

Providing Navigation Safety Information for America's Waterways Users

Released By:
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Executive Summary

Coast Guard Sector Saint Petersburg sponsored a Ports and Waterways Safety Assessment (PAWSA) workshop in Tampa, Florida, from May 15, 2024, to May 16, 2024. Twenty participants representing a range of waterway users, stakeholders, federal, state, local regulatory and public safety authorities met and collaboratively assessed navigational safety on the waterways adjoining Tampa Bay. Prior to the workshop, the Coast Guard Navigation Center (CG NAVCEN) facilitated a stakeholder engagement meeting on April 17, 2024, to enhance community outreach and prepare stakeholders for the formal workshop. This report provides a visual depiction of the study area and contains the full list of workshop participants and their associated organizations. The first day of workshop included discussions about port and waterway attributes and vessel traffic in relation to the sixteen Waterway Risk Factors (WRFs) in the PAWSA Waterway Risk Model, which is described in more detail in this report. The Baseline Risk Value (BRV) and Risk Characterization for each WRF were established based on participants' survey responses. BRV quantifies the overall risk, whereas Risk Characterization assesses the potential consequence, risk trend, risk tolerance, and effectiveness of existing mitigation strategies for a specific WRF. The metrics from the BRV and Risk Characterization were combined to quantitatively prioritize WRFs to inform discussions during the next phase of the workshop. During the second day, participants reviewed and validated the aggregated survey ranking of the WRFs and conducted follow-on discussions to identify and develop risk mitigation strategies. The five numerically highest WRFs ranked by participants are documented in the table below with their associated Waterway Risk Condition. This report contains a full list of prioritized WRFs with additional details.

Waterway Risk Condition	WRF
Waterway	Dimensions
Traffic	Congestion
Traffic	Volume of Commercial Traffic
Vessel Quality & Operation	Commercial Fishing Vessels
Vessel Quality & Operation	Recreational Vessels

The recommended mitigation strategies and participant observations documented in this report will meaningfully facilitate continued collaboration between the Coast Guard and waterway stakeholders to improve safe and efficient navigation within the Tampa Bay Marine Transportation System (MTS). The Director of Marine Transportation Systems (CG-5PW), CG NAVCEN, and CG Sector Saint Petersburg extend their sincere appreciation to participants for their contributions to the Tampa Bay PAWSA workshop.

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CHAPTER 1. GENERAL

A. Background and Purpose

1. The Director of Marine Transportation Systems (CG-5PW) is responsible for developing and implementing policies and procedures that facilitate commerce, improve safety and efficiency, and maximize the commercial viability of the Marine Transportation System (MTS). In the late 1990s, the Coast Guard convened a national dialogue group (NDG) comprised of maritime stakeholders to identify the needs of waterway users with respect to Vessel Traffic Management (VTM) and Vessel Traffic Service (VTS) systems. A major outcome of the NDG was the development of the Ports and Waterways Safety Assessment (PAWSA) process, which the Coast Guard established as the formal model for facilitating stakeholder discussion to identify VTM improvements and determine candidate VTS waterways. In 2020, Coast Guard Navigation Center (CG NAVCEN) modernized the PAWSA process to create a more flexible tool available to Sector Commanders to engage the maritime community for purposes of monitoring and improving the health of the MTS within their area of responsibility.

2. The current PAWSA process involves convening a select group of waterway users and stakeholders to facilitate a structured workshop agenda to meet pre-identified risk assessment objectives. A successful workshop involves the participation of professional waterway users with local expertise in navigation, waterway conditions, and port safety. Stakeholder involvement is central to ensuring that important environmental, public safety, and economic consequences receive appropriate attention as risk interventions are identified and evaluated. The workshop culminates in a written report that includes proposed risk mitigations developed by participants, which is made publicly available on the CG NAVCEN's website, https://www.navcen.uscg.gov/ports-and-waterways-safety-assessment-final-reports.

3. The PAWSA process strives to achieve the following objectives:

    a. Gather stakeholder input to identify major waterway trends, safety hazards, and potential mitigation strategies.

    b. Bolster public-private partnership and enhance cooperation across the MTS.

    c. Generate a stakeholder driven report that captures data gathered from the PAWSA to prioritize future projects impacting the MTS.

B. Methodology

1. Waterway Risk Conditions and Waterway Risk Factors. The PAWSA process is designed to convert qualitative experience, observations, and opinions of participants into quantitative assessments. This method utilizes numerical comparison among sixteen Waterway Risk Factors (WRFs) to facilitate consensus among participants to better inform conversations regarding risk mitigation strategies within an identified study area. The Waterway Risk Condition categories and associated WRFs are outlined in Table 1 and further defined in Appendix B.

Waterway Risk Conditions	**Navigation**	**Vessel Quality & Operation**	**Traffic**	**Waterway**
WRFs	Winds	Large Commercial Vessels	Volume of Commercial Traffic	Dimensions
	Currents and Tides	Small Commercial Vessels	Volume of Recreational Traffic	Obstructions
	Visibility Restrictions	Commercial Fishing Vessels	Waterway Use	Visibility Impediments
	Bottom Type	Recreational Vessels	Congestion	Configuration

Table 1- The four Waterway Risk Condition categories and sixteen WRFs.

2. Waterway Risk Model. The PAWSA Waterway Risk Model defines risk as the product of the probability of an unwanted event and the consequences resulting from that event. Figure 1 provides a visualization of the relationship between the probability of an unwanted event for each Waterway Risk Condition and the impact of the risk in terms of Immediate and Subsequent Consequences. Appendix B provides an explanation of Immediate and Subsequent Consequences as defined by the PAWSA Waterway Risk Model.

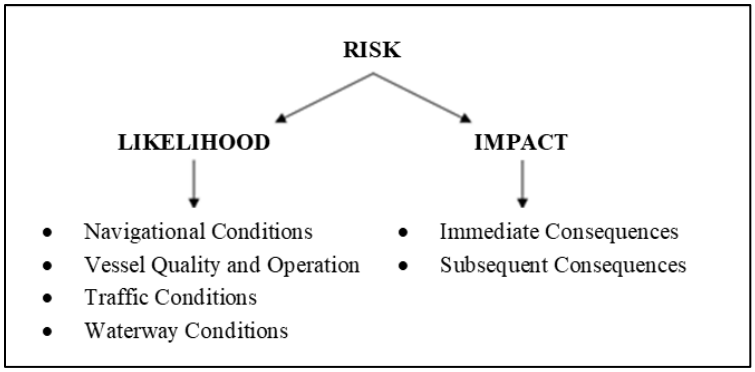

Figure 1- Relationship between risk, likelihood, and impact.

3. WRF Survey. During day one of the workshop participants are led through individual discussions for each WRF identified in Table 1. Each discussion concludes with the completion of a three-part participant survey that establishes the Baseline Risk Value (BRV) and Risk Characterization for each risk factor. Following completion of all surveys, the WRFs are numerically prioritized by BRV and Risk Characterization from greatest to least. At the beginning of the second day of the workshop, the order of the risk factors are presented to participants for validation and consensus to prioritize mitigation strategy discussions and development. A description of the methodology to calculate the BRV and Risk Characterization is provided in the following sub-sections.

   a. BRV. This value is calculated using numerical values attained from Part One and Part Two of the survey that are then input into the formula outlined in Figure 2.

      (1) Part One. The first section of the survey asks participants to evaluate the Risk Level of a specific risk factor based on four options specific to each individual WRF. Risk Levels are presented as written options to participants. Each written option has an associated numerical value between one and four based on their likelihood. Appendix B contains a list of the WRFs and the associated Risk Level options with their attributed numerical value.

      (2) Part Two. The second section of the survey asks participants to assign the Impact Level for Immediate and Subsequent Consequences associated with each risk factor. Appendix B contains the list and definition of Immediate and Subsequent Consequences.

         (a) The Impact Level of Immediate and Subsequent Consequence are presented as three choices for each WRF. The choices correlate to the numerical values shown in Table 2.

Impact Level of Consequence	**Numerical Value**
None or hardly any impacts	0
Moderate impact	0.5
Impacts are likely severe	1

Table 2- Impact level of consequences with associated numerical value.

         (b) The numerical values for Risk Level from Part One and Impact Level from Part Two of the survey are used in the formula outlined in Figure 2 to calculate the associated BRV for each WRF. The BRV numerically ranges between zero and eight, with zero representing low BRV and eight representing high BRV.

$$\text{BRV} = (\text{Risk level}) \times \left(\frac{\sum \text{Immediate Consequences}}{4} + \frac{\sum \text{Subsequent Consequences}}{4} \right)$$

Figure 2- Risk Value formula.

b. Risk Characterization. Risk Characterization is ascertained from Part Three of the survey. It provides additional context to the BRV generated from Part One and Part Two of the survey and is mainly used by facilitators to better guide participant discussion.

(1) Part Three. The third section of the survey asks participants to evaluate Risk Characterization in terms of the Current Risk Level, Risk Trend, and Current Mitigations. Table 3 provides the associated available selections for each Risk Characterization Category. Questions to ascertain Risk Characterization are standard for all WRFs. The answers to these questions are calculated by plurality, wherein the option that was most frequently selected by participants serves as the prevalent group consensus for each question. In the event a plurality cannot be determined, PAWSA facilitators examine the raw data and determine the most appropriate selection.

Risk Characterization Category	Available Selections
Current Risk Level	We could benefit by accepting more risk
	The level of risk is acceptable, keep the status quo
	Unacceptably high risk
Risk Trend	Increasing
	Decreasing
	Staying the same
Current Mitigations	Acceptable
	Acceptable, but tenuous
	Unacceptable, we need more or better mitigations

Table 3- WRF Survey Part Three, Risk Characterization categories.

CHAPTER 2. TAMPA BAY PAWSA WORKSHOP

A. PAWSA Study Area

1. The geographical area for the Tampa Bay PAWSA included Tampa Bay from Tampa Bay Lighted Buoy "T" shoreward, including portions of the intercoastal waterway that cross Tampa Bay, Port Manatee, Big Bend Channel, Old Tampa Bay to the Gandy Bridge, Alafia River Channel, and all of Hillsborough Bay as depicted in Figure 3. The coordinates bounding the Tampa Bay study area were: 28.054N, 082.325W, and 27.506N, 083.027W. Graphic representations of this study area were used to facilitate discussion with participants. Additionally, geographically referenced comments were collected during the workshop and are documented as chartlets in Appendix D.

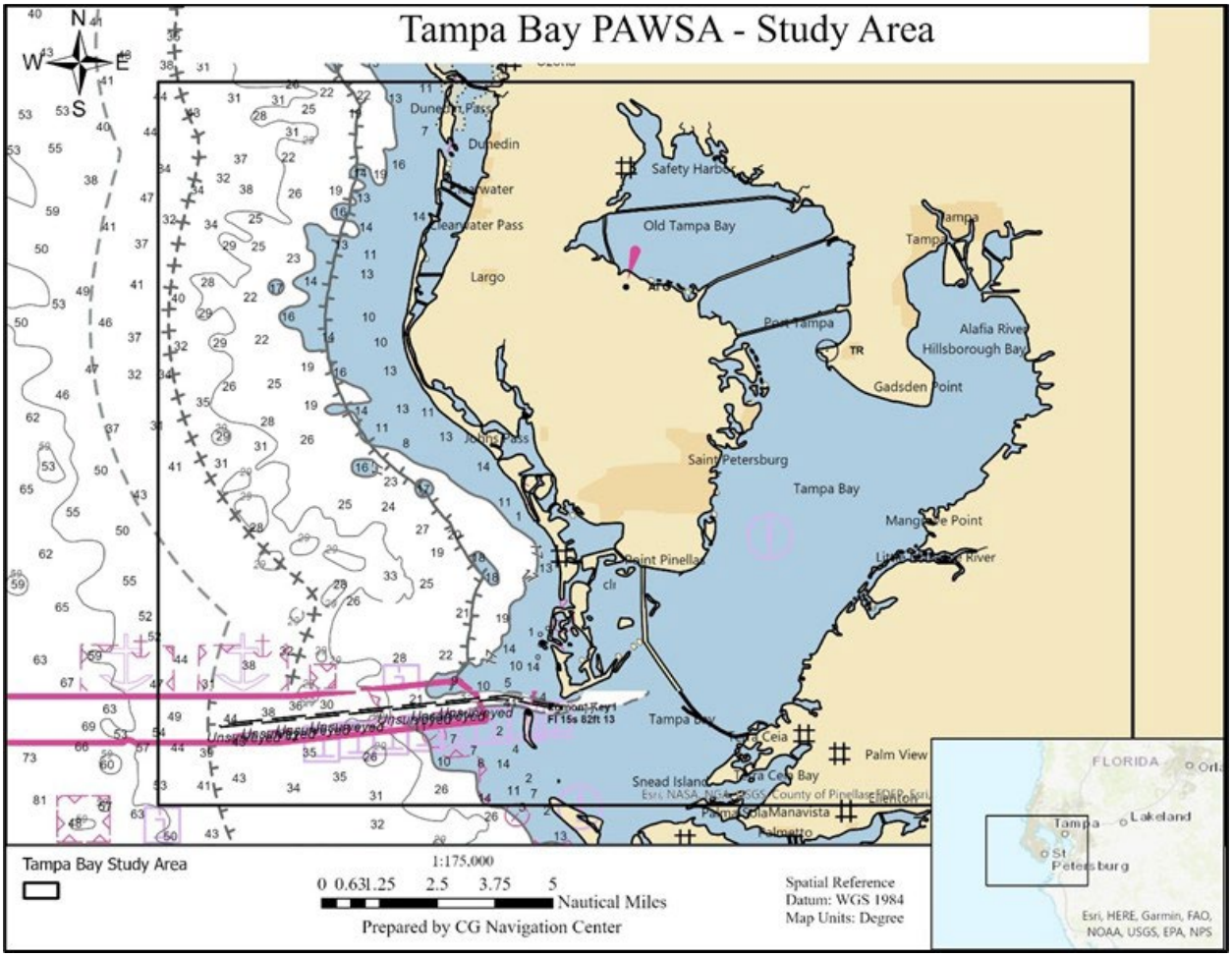

Figure 3- Tampa Bay PAWSA workshop study area.

B. BRV

1. The resultant BRV using the methodology described in Chapter 1.C for the Tampa Bay PAWSA workshop is depicted in Figure 4.

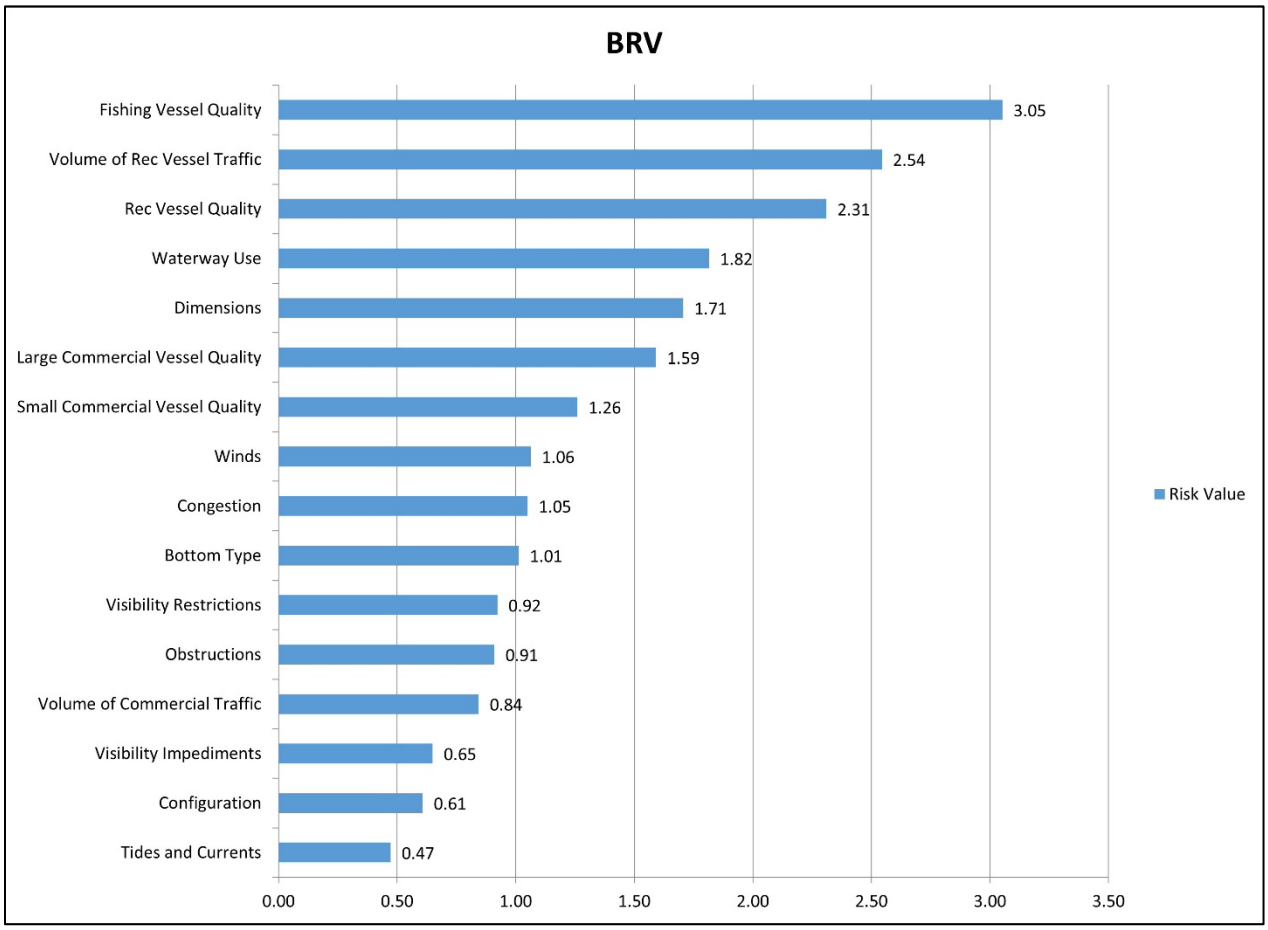

Figure 4- Tampa Bay PAWSA workshop WRF BRV.

2. The five highest priority WRFs and their associated Waterway Risk Condition for the Tampa Bay PAWSA prior to combining the BRV with the Risk Characterization results are documented in Table 4.

Waterway Risk Condition	WRF
Vessel Quality & Operation	Commercial Fishing Vessels
Traffic	Volume of Recreational Traffic
Vessel Quality & Operation	Recreational Vessels
Traffic	Waterway Use
Waterway	Dimensions

Table 4- Five highest priority WRF based on BRV.

C. Risk Characterization

1. The Risk Characterization for each WRF use the methodology described in Chapter 1.C for the Tampa Bay PAWSA Workshop is presented in Table 5.

WRF Risk Characterization				
Waterway Risk Condition	**WRF**	**Current Risk Level**	**Current Risk Trend**	**Current Mitigations Are**
Vessel Quality & Operation	Commercial Fishing Vessels	Unacceptably high risk	Increasing	Unacceptable, we need more/better mitigations
Traffic	Volume of Recreational Traffic	Unacceptably high risk	Increasing	Acceptable but tenuous
Vessel Quality & Operation	Recreational Vessels	Unacceptably high risk	Increasing	Unacceptable, we need more/better mitigations
Traffic	Waterway Use	Unacceptably high risk	Increasing	Unacceptable, we need more/better mitigations
Waterway	Dimensions	Acceptable risk, keep the status quo	Increasing	Unacceptable, we need more/better mitigations
Vessel Quality & Operation	Large Commercial Vessels	Acceptable risk, keep the status quo	Same	Acceptable
Vessel Quality & Operation	Small Commercial Vessels	Acceptable risk, keep the status quo	Increasing	Unacceptable, we need more/better mitigations
Navigation	Winds	Acceptable risk, keep the status quo	Same	Acceptable
Waterway	Congestion	Acceptable risk, keep the status quo	Increasing	Acceptable but tenuous
Navigation	Bottom Type	Acceptable risk, keep the status quo	Same	Acceptable
Navigation	Visibility Restrictions	Acceptable risk, keep the status quo	Same	Acceptable
Waterway	Obstructions	Acceptable risk, keep the status quo	Increasing	Acceptable but tenuous
Traffic	Volume of Commercial Traffic	Acceptable risk, keep the status quo	Increasing	Acceptable but tenuous
Waterway	Visibility Impediments	Acceptable risk, keep the status quo	Same	Acceptable
Waterway	Configuration	Acceptable risk, keep the status quo	Increasing	Acceptable
Navigation	Tides and Currents	Acceptable risk, keep the status quo	Same	Acceptable

Table 5- Tampa Bay PAWSA workshop WRF Risk Characterization

D. Validation WRF Prioritization.

1. The combined WRF BRV and Risk Characterization results are depicted below in Table 6. These results were presented to participants to validate the prioritization order of WRFs for mitigation strategy dialogue and development. The rows highlighted in green in Table 6 represent the highest priority WRFs for the Tampa Bay PAWSA workshop participants based on the prioritization validation discussion.

		Risk Characterization		
WRF	**BRV**	**Current Risk Level**	**Current Risk Trend**	**The Current Mitigations Are**
Commercial Fishing Vessels	3.05	Unacceptably high risk	Increasing	Unacceptable, we need more/better mitigations
Volume of Recreational Traffic	2.54	Unacceptably high risk	Increasing	Acceptable but Tenuous
Recreational Vessels	2.31	Unacceptably high risk	Increasing	Unacceptable, we need more/better mitigations
Waterway Use	1.82	Unacceptably high risk	Increasing	Unacceptable, we need more/better mitigations
Dimensions	1.71	Acceptable, keep the status quo	Increasing	Unacceptable, we need more/better mitigations
Large Commercial Vessels	1.59	Acceptable, keep the status quo	Same	Acceptable
Small Commercial Vessels	1.26	Acceptable, keep the status quo	Increasing	Unacceptable, we need more/better mitigations
Winds	1.06	Acceptable, keep the status quo	Same	Acceptable
Congestion	1.05	Acceptable, keep the status quo	Increasing	Acceptable but Tenuous
Bottom Type	1.01	Acceptable, keep the status quo	Same	Acceptable
Visibility Restrictions	0.92	Acceptable, keep the status quo	Same	Acceptable
Obstructions	0.91	Acceptable, keep the status quo	Increasing	Acceptable but Tenuous
Volume of Commercial Traffic	0.84	Acceptable, keep the status quo	Increasing	Acceptable but Tenuous
Visibility Impediments	0.65	Acceptable, keep the status quo	Same	Acceptable
Configuration	0.61	Acceptable, keep the status quo	Increasing	Acceptable
Tides and Currents	0.47	Acceptable, keep the status quo	Same	Acceptable

Table 6- Combined BRV and Risk Characterization results for all WRFs.

2. Following subjective evaluation, participants selected Commercial Fishing Vessels, Recreational Vessels, Dimensions, Congestion, and Volume of Commercial Traffic as the most significant WRFs that contributed to potential incidents in the Tampa Bay PAWSA study area. WRFs were ordered by the participant's criticality of concern. Table 7 presents WRFs in descending priority order from high to low. Mitigation strategies were discussed and developed in this order.

Waterway Risk Condition	WRF
Waterway	Dimensions
Traffic	Congestion
Traffic	Volume of Commercial Traffic
Vessel Quality & Operation	Commercial Fishing Vessels
Vessel Quality & Operation	Recreational Vessels

Table 7- Validated and prioritized WRFs listed from top to bottom.

E. Risk Mitigation Strategies

1. The validated list of WRFs was used to prioritize discussion and development of risk mitigation strategies. Facilitators directed participants to capture potential mitigation strategies on sticky notes, which were then consolidated and grouped to identify major themes. From this bank of action items, participants were encouraged to create specific, measurable, actionable, realistic, and timebound (SMART) goals as well as general goals. Both kinds of mitigation strategies developed by participants are represented in this report. Recommended mitigation strategies documented in this section received consensus among workshop participants. Mitigation strategies are documented in order of significance to participants.

2. Participant comments are listed in Appendix C of this report and are referenced throughout this subsection to provide support of documented developed mitigation strategies.

3. <u>WRF – Dimensions.</u>

    a. The limited availability of turnabouts, bailouts, deep draft emergency anchorages, and working anchorages, compounded by the constraints of one-way vessel traffic due to the narrow channel width/depth, significantly escalates safety concerns. Participants recommended the following additional mitigation:

        (1) Conduct additional surveys by the U.S. Army Corps of Engineers (USACE) and National Oceanic and Atmospheric Administration (NOAA) with a focus on expedited delivery of results to assess water depth outside the main channel to determine the suitability of establishing additional anchorages and bailout areas.

4. The Tampa Harbor Federal Navigation Project primarily directs funding and resources for dredging operations to deepen the inner anchorage and widen the channel to establish passing lanes in Gadsden and "B" Cut. Due to increased marine traffic and vessel density,

exclusive anchorage expansion in these areas is not sufficient to alleviate waterway congestion. Participants recommended the following additional mitigation:

(1) Partial reallocation of fiscal resources used to support the Tampa Harbor Federal Navigation Project to fund dredging operations and establish anchorages identified in the General Reevaluation Report and Environmental Impact Statement for the Tampa Harbor Navigation Improvement Study.

(2) Widen "A" and "B" Cut. Approval to widen "B" cut is pending from the commanding general of USACE. Expansion of "A" Cut requires congressional authorization.

(3) Prioritize the creation of bailout anchorages and passing lanes to enhance efficiency and minimize risk. Implement a 3-mile, 800-foot passing lane at Gadsden Point and "B" Cut. Establish an anchorage at Gadsden capable of accommodating two deep draft vessels with 40-foot drafts.

5. <u>WRF – Congestion.</u>

a. High volume of recreational vessel traffic and commercial maritime operations creates waterway congestion and port security concerns. Participants recommended the following additional mitigations:

(1) Install signage to clearly delineate security zones and enhance navigation awareness. Signage should be strategically positioned at key entry points to marinas, near high-traffic channels, and in critical areas of the waterway. The design of these signs should prioritize visibility, ensuring they provide clear guidance while minimizing any potential clutter or obstruction of the waterway.

(2) Continue working with the local Auxiliary flotilla to enhance the dissemination of information regarding boating safety training programs. Maintain a proactive presence at boat shows, dealerships, and boat ramps to engage with the community. Actively liaise with local news outlets to promote upcoming training course dates and details through commercial and social media outlets. Additionally, incorporate Auxiliary training brochures into the information packets provided to new recreational vessels owners to raise awareness and accessibility.

(3) Advocate for resources at marinas and rental boat areas that provide education regarding Navigation Rules and security/safety zone regulations and locations.

(a) Coast Guard Sector St. Petersburg Captain of the Port Policy Letter No. 01-17 dated 14 July 2017, defines a VOC as "a vessel carrying Especially Hazardous Cargos or of a class or type, with certain size or maneuvering characteristics, that requires special handling while transiting withing Tampa Bay." [1]

[1] A copy of Captain of the Port Policy Letter No. 01-17, titled *Approved Locations in Tampa Bay to Meet Opposing Vessels Transiting with Moving Security Zones,* can be requested from USCG Sector St. Petersburg.

Participants discussed options to amend or remove existing protocols to lessen the impact of one-way transit restrictions, limitations on meeting opposing vessels based on wind speed and visibility, and fixed arrival and departure windows for large cruise ships.

(b) Use the quarantine anchorage at Gadsden to stage smaller vessels and reduce tow lengths to mitigate the impact to VOCs.

(c) Implement recreational vessel regulations that require operators to have a minimum of ten years of maritime experience. Operators would be required to provide documentation or certification verifying their experience, such as a maritime training record, professional certifications, or a proven history of vessel operation. This ensures that all operators, regardless of age, demonstrate the necessary knowledge and expertise to safely navigate the waterway.

(d) Implement limited access areas for Ybor, Ybor Turning Basin, and Sparkman Channel to better regulate vessel traffic and mitigate congestion.

6. WRF – Volume of Commercial Traffic.

a. Heavy commercial traffic adversely impacts shorelines, seagrass, and natural ecological habitats. Participants recommended the following additional mitigations:

(1) Install continuously operational "real-time" air monitoring stations throughout Tampa Bay, for purpose of monitoring air quality data to track and assess trends.

(2) Explore integration of recommendations from the 2020 Habitat Master Plan update and the Comprehensive Conservation and Management Plan for Tampa Bay to support sustainable management of natural resources.

7. WRF – Commercial Fishing Vessels.

a. Participants observed an increase in inadequate radio responses and communications from commercial fishing vessel operators. Participants recommended the following additional mitigations:

(1) Consider revising the language in Code of Federal Regulations (CFR), 33 CFR 165.753 to extend the requirement for broadcasting a navigational advisory to all commercial fishing vessels operating within the Tampa Bay VTS area, regardless of size, to align communication standards for fishing vessels with the existing regulatory framework for inspected vessels.

(2) Leverage county ordinances to mandate "check-ins" with VTS for commercial fishing vessels more than 20 meters to enhance monitoring and compliance efforts.

b. There are insufficient available Commercial Fishing Vessel Safety Examiners (CFVEs) serving Coast Guard Sector St. Petersburg. There is also a lack of funding to support training and qualification of Coast Guard commercial fishing vessel inspectors serving the local unit. Participants recommended the following additional mitigation:

(1) Increase the number of CFVEs to ensure comprehensive and regular inspections of the commercial fishing vessel fleet throughout Tampa Bay, and allocate necessary funding to support ongoing training and qualification of these inspectors to maintain expertise and stay current with regulatory requirements.

8. WRF – Recreational Vessels.

a. There is an absence of general boater safety knowledge among recreational vessel operators that creates an increased risk to navigational safety. Participants recommended the following mitigations:

(1) Expand Florida boater safety requirements by developing mandatory recurring certification programs for operators of recreational vessels. This training requirement should enhance knowledge of recreational vessel operators, with a targeted goal of reaching seasonal boaters. Participants noted that an annual re-certification program should provide a blend of general boater safety information and regional knowledge of local waterway practices, specifically:

(a) Navigation Rules with an increased focus on Inland Navigation Rules;

(b) Local, state, and federal rules and regulations pertaining to safe operation of recreational vessels in Florida; and

(c) Handheld very high frequency (VHF) radio operations and communication best practices.

(2) Expand licensing requirements for recreational vessel operators, including an on-the-water training component, to improve recreational boater proficiency and safety.

(3) Undertake a social science study to identify incentives for behavioral change regarding the intentional non-compliant operation of small and uninspected passenger vessels.

(4) Fund a study to survey and establish the baseline knowledge of the average recreational vessel operator to develop more informed targeted educational initiatives.

Appendix A. Workshop Participants

Participant	Organization
Community Planning	
1. Mark Luther	University of South Florida & Port Studies
2. Jere White	Vessel Movement Committee
Cruises, Tours, and Charters	
3. Katie Falcon	Freedom Boat Club
4. Bill Kuzmick	Maritime & American Victory Ship
Federal Agencies	
5. Kis Comegys	Cooperative Vessel Traffic Service Tampa (USCG)
6. Michael Comess	Cooperative Vessel Traffic Service Tampa (USCG)
7. Jessica Lewis	Tampa Bay Estuary Program
Physical Infrastructure	
8. Sergio Alvarado	U.S. Army Corps of Engineers
Port Operations	
9. Steven Fehr	Ports America
10. Terry Fluke	Tampa Pilots Association
11. Ryan Kenna	Marathon Petroleum
12. Joan McGowan	Port of Saint Petersburg
13. Christian Miura	Port Tampa Bay
14. David St. Pierre	Seaport Manatee
15. Bill Strong	Marathon Petroleum
16. Matt Thompson	Port Tampa Bay
Public Safety and Emergency Management	
17. Ryan Balserio	Hillsborough County Sheriff Marine Unit
18. Jay Reese	Tampa Police Department Marine Unit
Towing Industry	
19. Justin Hillis	Seabulk Towing
20. Dwayne Keith	Marine Towing

Appendix B. Waterway Risk Model Terms and Definitions

A. Waterway Risk Conditions and WRF Definitions. The Ports and Waterway Safety Assessment (PAWSA) Waterway Risk Model utilizes sixteen WRFs categorized under four Waterway Risk Conditions. Definitions for each Waterway Risk Condition and their associated WRF are defined in this section.

1. Waterway Risk Condition - Navigation. The environmental conditions that affect vessel navigation, such as wind, currents, and weather.

    a. WRF -Winds. The difficulty in maneuvering vessels resulting from increased and unpredictable winds, particularly if the wind is from abeam.

    b. WRF - Tides and Currents. The difficulty in maneuvering vessels caused by water movement flow and speed, often affected by seasonal variations and sustained winds. Tide rips and whirlpools can be created by strong currents and affect the maneuverability of smaller vessels. The frequency of occurrence and the location of the strongest currents in the waterway are critical considerations (e.g., if current speed can exceed vessel speed, timing is critical when transiting the area).

    c. WRF - Visibility Restrictions. The natural conditions that may prevent a mariner from seeing other vessels, aids to navigation, or landmarks, such as fog, severe rain squalls, etc.

    d. WRF - Bottom Type. The material on the waterway bottom or just outside the channel, such as hard rock, mud, coral, etc.

2. Waterway Risk Condition - Vessel Quality and Operations. The quality of vessels and their crews that operate on a waterway. Each waterway has what are considered to be high risk vessels, such as old vessels, vessels with poor safety records, vessels registered in certain foreign countries, vessels belonging to financially strapped owners, vessels with inexperienced crews and operators, etc. When assessing risk, the following items should be considered (as appropriate) for each risk factor: maintenance, age, flag, class society, ownership, inspection record, casualty history, language barriers, fatigue related issues, and local area knowledge.

    a. WRF - Large Commercial Vessels. The quality of the large commercial vessel itself and the proficiency and quality of the crew. Large vessels are those ocean-going vessels, often in international trade, that usually are constrained by their draft to use dredged channels where such channels exist. Large vessels include such things as: oil tankers, container ships, break bulk cargo ships, and cruise liners.

    b. WRF - Small Commercial Vessels. The quality of the small commercial vessel itself and the proficiency and quality of the crew. Small vessels include all other commercial craft EXCEPT commercial fishing vessels. Examples

include tugs and towboats, offshore supply vessels, charter fishing boats, and small passenger vessels (inspected under 46 CFR Subchapters T and K), such as dinner cruises and ferries.

c. WRF - Commercial Fishing Vessels. The quality of the commercial fishing vessel itself and the proficiency and quality of the crew. These vessels are included because they are not required to undergo annual vessel inspections nor are the crewmembers required to hold USCG licenses; therefore, there may be a greater potential for increased incidents involving commercial fishing vessels.

d. WRF - Recreational Vessels. The quality of the recreational vessel itself and the proficiency and operating knowledge of the individuals who operate them. Recreational vessels include all boats used for noncommercial purposes (e.g., pleasure craft or craft used by indigenous people for transportation or subsistence fishing). They can be powered by an engine, the wind, or human exertion. Examples include yachts, personal watercraft (a.k.a., jet skis), and kayaks. Besides local knowledge, understanding of the rules of the road and inebriation also should be considered for this risk factor.

3. Waterway Risk Condition - Traffic Conditions. The number of vessels that use a waterway and their interactions.

a. WRF - Volume of Commercial Traffic. The amount of commercial vessel traffic using the waterway (i.e., the more vessels there are on the water, the more likely that there will be a marine casualty). Deep draft and shallow draft commercial vessels as well as commercial fishing vessels are included in this risk factor. Shoreside infrastructure is also addressed in this risk factor (i.e., can it handle the volume of commercial traffic within the waterway).

b. WRF - Volume of Recreational Traffic. The amount of non-commercial vessel traffic using the waterway. The volume may vary depending on the time of day, the day of the week, the season of the year, or during a major marine event.

c. WRF - Waterway Use. The interaction between vessels or boats of different sizes using the same waterway and their maneuvering characteristics. Conflicts occur as risk increases with each type of vessel's maneuvering characteristics and actions that are often different and unpredictable (e.g. commercial mariners and recreational mariners using deep draft vessels and shallow draft vessels within the same waterway).

d. WRF - Congestion. The ability of the waterway to handle the volume and density of traffic. Risk increases when a large number of vessels uses a small geographic area for an extended period of time. Risk also increases substantially when you get a larger than normal number of vessels together for a short time (e.g., fishing tournament or short season commercial fishery).

4. Waterway Risk Condition - Waterway Conditions. The physical properties of the waterway that affect vessel maneuverability.

    a. WRF - Visibility Impediments. The man-made objects (e.g., moored ships, condominiums, background lighting, etc.) or geographic formations (e.g., headlands, islands, etc.) that prevent a mariner from seeing aids to navigation or other vessels.

    b. WRF - Dimensions. The room available for two vessels to pass each other within the waterway.

    c. WRF - Obstructions. Floating objects in the water that impede safe navigation and could damage a vessel, such as ice, debris, fishing nets, etc.

    d. WRF - Configuration. The arrangement of a waterway, including elements such as waterway bends, multiple and converging channels, and perpendicular traffic flow.

B. WRF Survey. During the first day of the PAWSA workshop, facilitators guide participants through a discussion about each WRF. Following each dialogue, participants take a three-part survey that is used to prioritize the development and discussion of mitigation strategies during the second day of the PAWSA. The following sections provide the associated numerical values, selection options, and definitions for Part One and Part Two of the WRF Surveys that are utilized to calculate the BRV of each WRF.

1. Part One. This first section of the survey asks participants to evaluate the likelihood of a specific WRF based on four available selections. Likelihoods are presented as written options to participants. Each written option has an associated numerical value between one and four based on the likelihood of the condition. Tables 1- 4 in this appendix provide the four written options and associated point value for each WRF.

Waterway Risk Condition - Navigation	
WRF - Winds	
Selection Option	**Point Value**
Strong winds affect maneuverability less than twice a month and are well forecasted.	1
Strong winds affect maneuverability more than twice a month but are well forecasted.	2
Strong winds affect maneuverability less than twice a month but without warning.	3
Strong winds affect maneuverability more than twice a month and without warning.	4
WRF – Tides and Currents	
Selection Option	**Point Value**
Fast tidal and seasonal currents are weak.	1
Fastest tidal and seasonal currents are moderate.	2
Fastest tidal and seasonal currents are strong but do not affect maneuverability.	3
Fastest tidal and seasonal currents are strong and affect maneuverability.	4
WRF – Visibility Restrictions	
Selection Option	**Point Value**
Restricted visibility occurs less than 24 days a year.	1
Restricted visibility occurs more than 24 days a year but usually persists less than 6 hours.	2
Restricted visibility occurs more than 24 days a year but usually persists less than 24 hours.	3
Restricted visibility occurs more than 24 days a year and usually persists more than 24 hours.	4
WRF – Bottom Type	
Selection Option	**Point Value**
Deep water throughout the waterway; no channel is needed, vessel breakdown unlikely to result in grounding or allision.	1
Soft bottom with no hard obstructions.	2
Soft bottom with some hard obstructions.	3
Hard or rocky bottom.	4

Table 1- Selection options and point values for WRFs categorized under the Waterway Risk Condition – Navigation.

Waterway Risk Condition - Vessel Quality and Operation	
WRF – Large Commercial Vessel Quality and Operation	
Selection Option	**Point Value**
All of the large commercial vessels using the waterway are materially sound and are operated proficiently.	1
Most of the large commercial vessels using the waterway are materially sound and are operated proficiently.	2
Many of the large commercial vessels using the waterway are materially sound and are operated proficiently.	3
Some of the large commercial vessels using the waterway are materially sound and are operated proficiently.	4
WRF – Small Commercial Vessel Quality and Operation	
Selection Option	**Point Value**
All of the small commercial vessels using the waterway are materially sound and are operated proficiently.	1
Most of the small commercial vessels using the waterway are materially sound and are operated proficiently.	2
Many of the small commercial vessels using the waterway are materially sound and are operated proficiently.	3
Some of the small commercial vessels using the waterway are materially sound and are operated proficiently.	4
WRF – Commercial Fishing Vessel Quality and Operation	
Selection Option	**Point Value**
All of the commercial fishing vessels using the waterway are materially sound and are operated proficiently.	1
Most of the commercial fishing vessels using the waterway are materially sound and are operated proficiently.	2
Many of the commercial fishing vessels using the waterway are materially sound and are operated proficiently.	3
Some of the commercial fishing vessels using the waterway are materially sound and are operated proficiently.	4
WRF – Recreational Vessel Quality and Operation	
Selection Option	**Point Value**
All of the recreational vessels using the waterway are materially sound and operated proficiently.	1
Most of the recreational vessels using the waterway are materially sound and operated proficiently.	2
Many of the recreational vessels using the waterway are materially sound and operated proficiently.	3
Some of the recreational vessels using the waterway are materially sound and operated proficiently.	4

Table 2- Selection options and point values for WRFs categorized under the Waterway Risk Condition – Vessel Quality and Operation.

Waterway Risk Condition - Traffic	
WRF – Volume of Commercial Traffic	
Selection Option	**Point Value**
Light commercial traffic.	1
Moderate Commercial Traffic.	2
Heavy commercial traffic but waterway infrastructure handles load easily.	3
Heavy commercial traffic and vessels regularly have to wait for berths.	4
WRF – Volume of Recreational Vessel Traffic	
Selection Option	**Point Value**
Light recreational use of the waterway.	1
Moderate recreational use of the waterway.	2
Heavy recreational use of the waterway but seasonal.	3
Heavy recreational use of the waterway year-round.	4
WRF – Waterway Use	
Selection Option	**Point Value**
Predominately a single use waterway serving one interest.	1
Multiple use waterway but no conflicts occurring.	2
Multiple use waterway and some minor conflict occurring.	3
Multiple use waterway and major conflicts occurring.	4
WRF – Congestion	
Selection Option	**Point Value**
No congestion ever occurs in the waterway.	1
Congestion only occurs in small areas for limited times.	2
Congestion occurs regularly but flow of vessel traffic is not impeded.	3
Congestion occurs regularly and flow of vessel traffic is impeded.	4

Table 3- Selection options and point values for WRFs categorized under the Waterway Risk Condition – Traffic.

Waterway Risk Condition – Waterway Condition	
WRF – Visibility Impediments	
Selection Option	**Point Value**
No visual impediments on the waterway.	1
Visibility impediments that do not impact navigation.	2
Visibility impediments that sometimes impact navigation.	3
Visibility impediments that often impact navigation.	4
WRF – Dimensions	
Selection Option	**Point Value**
No waterway constrictions.	1
Waterway constrictions (width and depth) exist but never impact navigation.	2
Waterway constrictions (width and depth) exist and sometimes impact navigation.	3
Severe waterway constrictions often impact navigation.	4
WRF – Obstructions	
Selection Option	**Point Value**
No obstructions.	1
Some obstructions not affecting navigation.	2
Obstructions sometimes affect navigation.	3
Obstructions often affect navigation.	4
WRF – Configuration	
Selection Option	**Point Value**
Current waterway configuration is adequate for navigation.	1
Current configuration is inadequate but does not pose a safety concern.	2
Current configuration poses a safety concern.	3
Current configuration poses a significant safety concern.	4

Table 4-Selection options and point values for WRFs categorized under the Waterway Risk Condition – Waterway Condition.

2. Part Two. This portion of the survey asks participants to assign an Impact Level for Immediate and Subsequent Consequences for each WRF. Definitions for terms associated with Part Two of the Survey are provided in this section.

    a. Immediate Consequences. The instantaneous impacts of a vessel casualty (i.e., what happens right after a collision, allision, or grounding). These include the following events or categories –

        i. Personnel Injuries. The maximum number of expected casualties. People can be injured, killed, or need to be rescued.

        ii. Petroleum Discharge. The largest petroleum spill in the most probable worst-case scenario.

iii. Hazardous Materials Release. The largest chemical or hazardous material spill in the most probable worst-case scenario.

iv. Mobility. The infrastructure that is critical to the Marine Transportation System within the waterway (i.e., the significant structures upon which moving people and cargo through the marine transportation system depend). The waterway can be blocked and the shoreside Marine Transportation System can be disrupted, ultimately causing greater problems moving cargo through a port—both on the water and ashore.

b. Subsequent Consequences. The longer-term effects of a marine casualty that are felt hours, days, months, and even years afterwards, such as shoreside facility shut-downs, loss of employment, destruction of fishing areas, decrease or extinction of species, degradation of subsistence living uses, and contamination of drinking or cooling water supplies. These include the following events:

i. Health and Safety. The potential consequences to the community that lives or works on or near the waterway. Risk is increased when more people live or work in close proximity to a waterway.

ii. Environmental. The risks to wetlands and endangered species and how sensitive people are to the quality of their environment. The more sensitive, the more people will expect in terms of both preparedness and response effectiveness for any marine accident that threatens environmental quality.

iii. Aquatic Resources. Water dwelling life forms harvested for commercial or recreational reasons. Timing of a marine casualty could affect the seriousness of the consequences (i.e., some species are only in the waterway at certain times of the year).

iv. Economic. The extent of the impact if a particular waterway is closed for some period.

Appendix C. Participant Comments

A. Background.

1. This appendix documents participant observations and recommendations expressed during the workshop with respect to specific issues of concern within the study area. Discussion during the first day of the workshop was recorded and subsequently transcribed using professional services. Comments were compiled and categorized by most applicable Waterway Risk Condition and WRF.

B. Waterway Risk Condition - Navigation.

1. WRF – Winds.

a. The Big Bend, East Tampa, and Manatee channels are susceptible to high winds that create hazardous conditions and make navigation challenging for all types of vessels. This risk is more prevalent during seasonal thunderstorms.

b. Cruise ships, container ships, and gas carriers are especially susceptible to wind-induced difficulties. The substantial sail areas of these vessels intensify the challenges posed by strong winds. Pilots have reported that cruise ships have experienced significant difficulties when navigating in confined channels, like Spartan Channel, due to the wind's impact on steering and maneuverability.

c. Recreational traffic is typically restricted to designated areas within channels during high winds. Recreational vessels that leave these areas encounter difficulties navigating and increased meeting situations with commercial traffic that create safety concerns.

2. WRF - Tides and Currents.

a. Tides and currents are well forecasted. The port uses National Oceanic and Atmospheric Administration (NOAA) tide and current forecasting tools to plan and schedule vessel movements to minimize vessel traffic delays.

b. The area between SeaPort Manatee and Port Tampa Bay is susceptible to tides and currents that can create unsafe navigation conditions and operational delays for commercial vessel traffic.

c. Participants did not reach consensus regarding potential secondary environmental consequences of tides. Some participants noted that changes in tides may cause recreational boaters to operate in shallower areas where propeller scarring may damage seagrass and oyster beds or impact nesting shorebirds, throughout Tampa Bay.

3. WRF – Visibility Restrictions.

   a. Between November and March, fog is a prominent issue for Tampa Bay and can reduce visibility to less than a mile. Seasonal fog requires heightened coordination to manage vessel movements, especially during cruise ship arrivals and departures. The port has implemented protocols to adjust vessel schedules based on fog predictions, with an emphasis on ensuring equitable access for all ships during low-visibility conditions.

   b. Heavy seasonal rain and thunderstorms hinder the ability for vessels to safely navigate within the port. Advancements in radar technology have improved the ability to navigate through heavy rain. However, thunderstorms in the area are unpredictable and transient. The severity and unpredictability of these storms complicates efforts to suspend or adjust operations rapidly in response to changing conditions.

   c. Current mitigation strategies for visibility restrictions include the use of fog prediction tools and the establishment of operational zones within the port. The Coast Guard plays a crucial role in monitoring visibility and implementing protocols to manage vessel traffic in fog-prone areas. Vessels may be pre-positioned to enable prompt movement once visibility improves.

4. WRF – Bottom Type.

   a. The Egmont and Port Manatee Channels have significant lime rock formations within and adjacent to the channel. These rocky features, known as "can openers," are remnants of historical channel cuttings and pose a significant risk vessels.

   b. Most channels in Tampa Bay have sandy bottoms and require ongoing maintenance to manage sedimentation to ensure navigational safety. Regular assessments are necessary to address changes to bottom type that could impact navigation.

C. Waterway Risk Condition - Vessel Quality and Operations.

1. WRF - Large Commercial Vessels.

   a. Quality and operational standards for large commercial vessels vary significantly. Cruise ships and container vessels are generally well-crewed and operate at high standards. In contrast, bulk carriers, particularly from the early 1990s to 2000s, often exhibit material degradation, require more frequent maintenance, and have lower crew proficiency.

   b. Engine torque limiting devices installed on large commercial vessels for purposes of enabling emission regulation compliance impede the ability for vessels to make quick and evasive maneuvers. Reports were received that these devices have restricted vessel ability to adjust power and speed, and made it more challenging to navigate narrow channels and manage emergency situations.

c. The COVID-19 pandemic contributed to a decline in crew proficiency. Participants attributed this decline to increased crew turnover and reduced training opportunities during the pandemic. Conditions are gradually improving, but the industry continues to face challenges related to a shortage of experienced mariners and inconsistent crew performance.

d. Supply chain disruptions impact the availability of critical vessel parts and maintenance services. Delays in obtaining necessary components have affected vessel operations and safety. The increased lead times for parts and repairs are a concern for maintaining vessel readiness and addressing mechanical issues promptly.

2. WRF - Small Commercial Vessels.

a. Small commercial vessel operators create an increased risk of accidents and operational disruptions when navigating in close proximity to large commercial vessels and restricted areas.

b. Participants noted safety concerns with new vessel types that have unconventional features, such as hot tubs present on small passenger vessels.

c. Participants noted that the regulatory environment for small commercial vessels presents notable challenges. Many vessels operate without rigorous safety and operational standards, particularly smaller charter operations such as uninspected passenger vessels, which may evade regulatory scrutiny. The inconsistency in enforcement and varying levels of compliance among different types of small commercial vessels contributes to elevated risk levels.

d. The proficiency and quality of the crew operating small commercial vessels were recognized as critical risk factors among participants. Reports indicate that unlicensed operators often run charters without formal training or safety certifications. This issue is exacerbated by the lack of awareness among passengers regarding legal and safety requirements.

3. WRF - Commercial Fishing Vessels.

a. Participants noted that the quality of commercial fishing vessels is inconsistent. Some vessels operate without annual inspections or stringent maintenance due to the lack of Coast Guard oversight, which heightens the risk of vessel operating under unsafe conditions. Transient fleets, that operate seasonally or move frequently, intensify these risks due to inconsistent maintenance and oversight.

b. Many commercial fishing crew members are not required to hold a Coast Guard merchant mariner credential, which leads to variability in operational standards and safety practices. Participants additionally noted that the reliance on electronics by younger fishermen, combined with limited traditional navigation skills, further increases risk.

c. Transient and unregulated small commercial vessel operators, often running poorly maintained vessels, pose a risk to the local MTS. These operators may not adhere to safety regulations, making enforcement and communication challenging.

4. WRF - Recreational Vessels.

a. Participants noted that operator proficiency and quality of recreational vessels impacts operational safety in the port. The variability of recreational vessel quality and lack of comprehensive safety regulations presents safety concerns.

b. Participants additionally noted that many boaters operate vessels without proper training, necessary safety certifications, or knowledge of navigational rules. This is prevalent among pontoon boat and personal watercraft operators. Additionally, regulatory loopholes related to the operator age often exempt older boaters from mandatory safety education courses.

c. Recreational boaters have insufficient understanding of navigational rules and local waterway conditions. Knowledge gaps between recreational boaters and experienced mariners have created hazardous situations. The Tampa Bay Marine Industries Association, and similar organizations, provide water-resistant brochures containing essential navigation safety information to enhance recreational boater knowledge through the "Go Boating Florida" initiative.

d. Local and state safety measures in the Tampa Bay MTS have not kept pace with the increase in recreational boating activity.

e. Regulatory and enforcement challenges further complicate the management of recreational boating safety. As recreational boating activity grows, particularly in high-traffic areas, the enforcement of regulations becomes increasingly difficult. Concerns persist about inadequate enforcement resources, which limit the ability to address issues such as improper anchoring, wake-induced accidents, and pollution from vessel waste. Despite ongoing efforts from organizations and local authorities, the enforcement of regulations and implementation of educational programs remain inconsistent.

D. Waterway Risk Condition - Traffic.

1. WRF - Volume of Commercial Traffic.

a. There is a moderate volume of commercial vessel traffic in Tampa Bay comprised of a wide variety of vessels, including cruise ships, container ships, and tankers. The port can support the current volume of commercial vessel traffic. However, there is a need for increased anchorage areas.

b. The increasing size of vessels poses significant challenges to the existing waterway. The height limitations of bridges and the width of channels are becoming more restrictive as vessels continue to grow larger.

2. WRF - Volume of Recreational Traffic.

a. Recreational traffic in the Tampa Bay area is notably dense throughout the year. The waterway experiences a steady influx of recreational vessels without a distinct off-season. Peak periods, however, include various holidays and annual events, such as Gasparilla and boat parades during Christmas and Fourth of July.

b. The city's proactive approach to organizing marine events results in an incremental rise in the number of such events annually, which increased from 26 in 2021 to a projected 50 in 2024, intensifying traffic patterns during these periods.

c. Some participants noted that educational efforts are critical to improving compliance among recreational boaters, particularly in areas with unenforced speed zones designed to protect manatees and seagrass. Past compliance studies identified a lack of knowledge among recreational boaters regarding these zones. Initiatives to increase public awareness about navigational rules and environmental protection are ongoing but need continuous reinforcement to address knowledge gaps effectively.

d. Interactions between recreational vessels and commercial traffic pose additional risks. Recreational boaters sometimes impede commercial vessels due to a lack of awareness or understanding of maritime traffic rules. Although many recreational boaters move out of the way when encountering commercial traffic, the lack of formal education contributes to hazardous situations, especially when recreational vessels do not recognize or adhere to traffic patterns.

e. Though participants voiced differing opinions of the environmental impact, some participants noted that the increase in recreational traffic correlates with heightened environmental concerns. The presence of recreational vessels contributes to pollution, including plastics and nitrogen, which could over time impact navigational safety and ecological health.

3. WRF - Waterway Use.

a. Participants noted that the presence of seaplanes in the waterway poses a notable risk due to their unpredictable landing and takeoff behavior. Despite efforts to chart designated landing areas, recreational vessels frequently occupy these zones which can result in potentially conflicting waterway uses. The absence of effective communication between seaplanes and other waterway users increases the risk, as seaplanes often land without prior notice or warning to nearby vessels.

b. Recreational vessels often share waterways with commercial mariners, which has led to near misses due to differing maneuvering characteristics. Commercial vessels, which include large container ships, cruise liners, and tankers, have specific navigational needs and operate with restricted maneuverability compared to smaller

recreational boats. This disparity has led to hazardous interactions, especially in congested or poorly managed areas. The challenge is further compounded when recreational boaters are unaware of or disregard established traffic patterns, increasing the likelihood of collisions.

c. Seasonal variations significantly impact waterway safety. During peak periods, such as holidays or major marine events, the volume of recreational traffic increases dramatically. This surge in traffic consistently creates significant risks, particularly when it overlaps with commercial vessel routes. For example, boat parades and special events often draw large numbers of recreational boats into areas traditionally used by commercial traffic, resulting in heightened risk of collisions and navigational confusion.

d. The interaction between various vessel types, such as college rowing teams and recreational boats is growing waterway safety concern. Rowing teams, especially when operating during low visibility conditions or at night without proper lighting, face significant risks from fast-moving recreational boats. The lack of visibility for these smaller, human-powered vessels makes them vulnerable to accidents, particularly when they are not equipped with adequate safety equipment such as lights or reflective markings.

e. The presence of divers and snorkelers in areas used for recreational and commercial activities is a growing risk. These individuals do not use dive flags consistently, leading to potential conflicts with fast-moving boats. The absence of clear markers for divers makes it challenging for other waterway users to identify and avoid these submerged individuals, heightening the risk of accidents in the bay area.

4. WRF – Congestion.

a. Congestion is notably problematic at several key locations. The southern tip of Parker Island, for example, is frequently cited as a congestion hotspot. This area struggles with heavy traffic, particularly when multiple vessels are required to navigate within limited spatial constraints. The challenge is made worse by the fact that these congested areas often lack sufficient passing lanes for two-way traffic, increasing the risk of collisions and delays.

b. Locations designed for two-way traffic, where vessels must coordinate their movements carefully, are particularly prone to congestion. These areas require precise timing to ensure safe passage of inbound and outbound vessels. The congestion risk is heightened when recreational vessels, which do not typically communicate with the Tampa Cooperative Vessel Traffic Service (CVTS), share these narrow channels with larger commercial ships. The absence of coordination between recreational and commercial traffic in these restricted areas often leads to significant congestion issues.

c. The availability of pilots and the effectiveness of dispatch systems are crucial factors in managing waterway congestion. Currently, there is a shortage of pilots which is a concern for congestion, particularly during peak periods.

d. Traffic management measures, outlined in Coast Guard Sector St. Petersburg Captain of the Port Policy Letter No. 01-17, dated 14 July 2017[1], establish exclusion zones for VOCs. These policy measures contribute to increased waterway congestion due to limited areas for two-way vessel traffic between Mullet Key Channel Buoys 23/24 and Port Tampa Bay Berth 272.

E. Waterway Risk Condition – Waterway.

1. WRF – Dimensions.

a. A significant challenge in the port is the inadequacy of channel widths to accommodate the increasing size of modern vessels. This has resulted in a requirement for one-way traffic in certain areas, such as Port Sutton and East Bay, where the channel widths cannot support simultaneous passage of two large vessels.

b. The absence of designated turnout areas and anchorages increases the difficulty of navigating through narrow channels. The limited availability of such areas means that vessels cannot safely maneuver or wait for others to pass, which is particularly problematic for deep-draft vessels. The lack of these features contributes to congestion and potential safety hazards in the port.

c. Berths throughout the port, both public and private, were designed for smaller vessels with lower deadweight tonnage. As the size of vessels has increased, many of these berths have proven inadequate, leading to issues with proper mooring and increased susceptibility to surging. Sparkling Channel, for instance, is known for such problems, whereas other areas like Port Sutton and Manatee have relatively fewer issues, though they are still constrained by the design for smaller vessels.

d. Efforts to address these dimensional constraints, such as widening channels or creating additional passing lanes, are often hindered by economic considerations. The benefit-to-cost ratio for such projects typically falls short, particularly when compared to the costs of dredging and expanding existing channels. The Army Corps of Engineers evaluates these projects based on current and projected traffic, but they do not account for potential increases in vessel traffic that might exceed their forecasts.

e. Current deepening projects, aimed at increasing channel depths, do not include provisions for widening or creating additional passing lanes. This focus on deepening rather than widening reflects the prioritization of projects based on economic feasibility and projected needs. However, this approach may lead to increased

[1] A copy of Captain of the Port Policy Letter No. 01-17, titled *Approved Locations in Tampa Bay to Meet Opposing Vessels Transiting with Moving Security Zones,* can be requested from USCG Sector St. Petersburg.

congestion and difficulties in vessel navigation as traffic and vessel sizes both continue to increase.

2. WRF – Obstructions.

   a. Participants expressed a growing concern regarding derelict vessels, particularly those abandoned in or near navigable channels. It was noted that many vessels were abandoned due to financial difficulties following the COVID-19 pandemic. These vessels, often stripped of identifying plates and left unlit, impede safe navigation and have been challenging to remove due to the high cost. The Florida Fish and Wildlife Conservation Commission (FWC) has a fund to address this issue, but removing these vessels remains a complex and costly process.

   b. Fishing equipment such as crab pots and lobster traps are less frequent than in other regions; however, there are occasional issues with fishing gear disrupting navigation in the Tampa Bay area.

   c. The clearance of bridges, particularly the Skyway Bridge, is a significant concern among participants. The Skyway Bridge, the tallest bridge in the area, is crucial for accommodating large commercial vessels. As vessel sizes and cargo heights increase, current bridge clearances may no longer be sufficient. While solutions, such as costly bridge redesigns, have been discussed, no immediate actions have been taken. The risk of a potential collision, similar to past incidents in other regions, remains a concern and could severely disrupt navigation.

   d. Wreckage debris, including derelict vessels, also present significant hazards to navigation in the local waterway. These obstructions, typically resulting from storms or accidents, are a challenge to trace and remove, particularly when they originate from wrecks located farther upstream.

   e. Though participants had differing opinions of the environmental impact, it was noted that the Causeways in Tampa Bay and similar structures can impact natural tidal cycles and seagrass coverage, indirectly affecting navigational safety. While these issues primarily concern environmental health, there was a concern that they may also influence the navigability and overall safety of the waterway.

3. WRF – Visibility Impediments

   a. The presence of extensive background lighting, such as that found in port areas and near stadiums, is creating significant visibility challenges for mariners. Despite the high illumination levels provided by such lights, which generally enhance visibility in the port area, they are sometimes interfering with the visibility of critical Aids to Navigation (ATON). This interference is particularly problematic when background lights overwhelm the illumination of ATON, making it difficult for mariners navigating through winding channels and turns, where clear visibility of navigation aids is crucial.

b. Decorative lighting schemes used on bridges, such as those on the Skyway, pose challenges for mariners. For example, during certain holidays, bridges may use color schemes that disrupt depth perception and interfere with the visibility of ATON.

c. The operational effectiveness of ATON is crucial for safe navigation, particularly in ports with complex channel layouts. Significant safety concerns arise when ATON become inoperative due to maintenance or damage. The process of sourcing and repairing these lights has been time-consuming, leaving mariners reliant on functional ATON to safely navigate challenging waterways

4. WRF – Configuration.

a. Recent assessments have highlighted that the five federal anchorages within the port are not appropriately suited for the current traffic, particularly deep draft vessels. These anchorages are either too shallow or inadequately positioned, which significantly impacts their utility for contemporary shipping needs. This misalignment has been noted as a growing risk, especially with the increasing frequency of deep draft vessels entering the port. As a result, the potential for casualties due to inadequate anchorage options has escalated, with recent incidents including vessel groundings attributed to these limitations.

b. Participants noted that a lack of suitable anchorages has resulted in limited options for deep draft vessels for safe maneuvering or emergency anchoring. This deficiency poses a critical risk, as vessels with deep drafts may find themselves unable to safely navigate or secure a position in case of operational failures or emergencies. This risk is compounded by the port's shallow waters and the absence of designated bailouts or suitable turnarounds.

Appendix D. Geospatial Participant Comments

Facilitators captured participant observations that made specific geographic references. Those observations were then transferred to an ArcGIS online web-application to generate the chartlets reflecting the location and specific context of each comment. The chartlets are included below and represented as Figures 1-4.

Geospatial Comments	
Point	**Comment**
1	Security zones mandated for cruise ships encompass a 500-yard moving zone and a 200-yard moored zone and restrict vessel access to Ybor Channel when cruise ships are berthed at Terminals 3 and 6. Future commercial and residential development in North Ybor necessitates consideration to maintain the integrity of cruise ship security zones.
2	Seaplanes have been observed taking off and landing near vessel traffic in Seddon Channel and Ybor Turning Basin in Sparkman Channel.
3	Absence of height-to-waterline markers at Beneficial Drive Bridge creates navigational challenges for pleasure boats and increases the likelihood of vessel damage and bridge strikes.
4	During weekends, there is significant vessel congestion and close quarters interaction between commercial vessels and recreational boaters in Seddon Channel Turning Basin.
5	During early morning and dusk, navigation of Seddon Channel to Sparkman Channel is periodically obstructed by college and rowing teams that often operate without adequate lighting. This disrupts the flow of maritime traffic and creates safety concerns in the waterway.
6	Convergence of commercial vessels, recreational boats, and human-powered craft (HPC) at the junction of Sparkman and Seddon Channel near the southern tip of Harbour Island has increased waterway congestion.
7	There is a need for more robust enforcement measures in Old Tampa Bay in the vicinity of Courtney Campbell Causeway due to an observed increase in illegal small and uninspected vessel passenger operations.
8	The Alafia River Channel near Mosaic Riverview is narrow to navigate and enables high occurrences of commercial and recreational vessel meeting situations.
9	Participants recommended to establish a three-mile long passing lane that spans a width of 800 feet and an anchorage that can accommodate two deep-draft vessels in the vicinity of Gadsden Point.
10	Participants recommended to establish a three-mile passing lane spanning 800 feet in “B” Cut.
11	Hazardous rock formations along B Cut adjacent to the entrance of Port Manatee Channel, present navigational risks to maritime traffic.

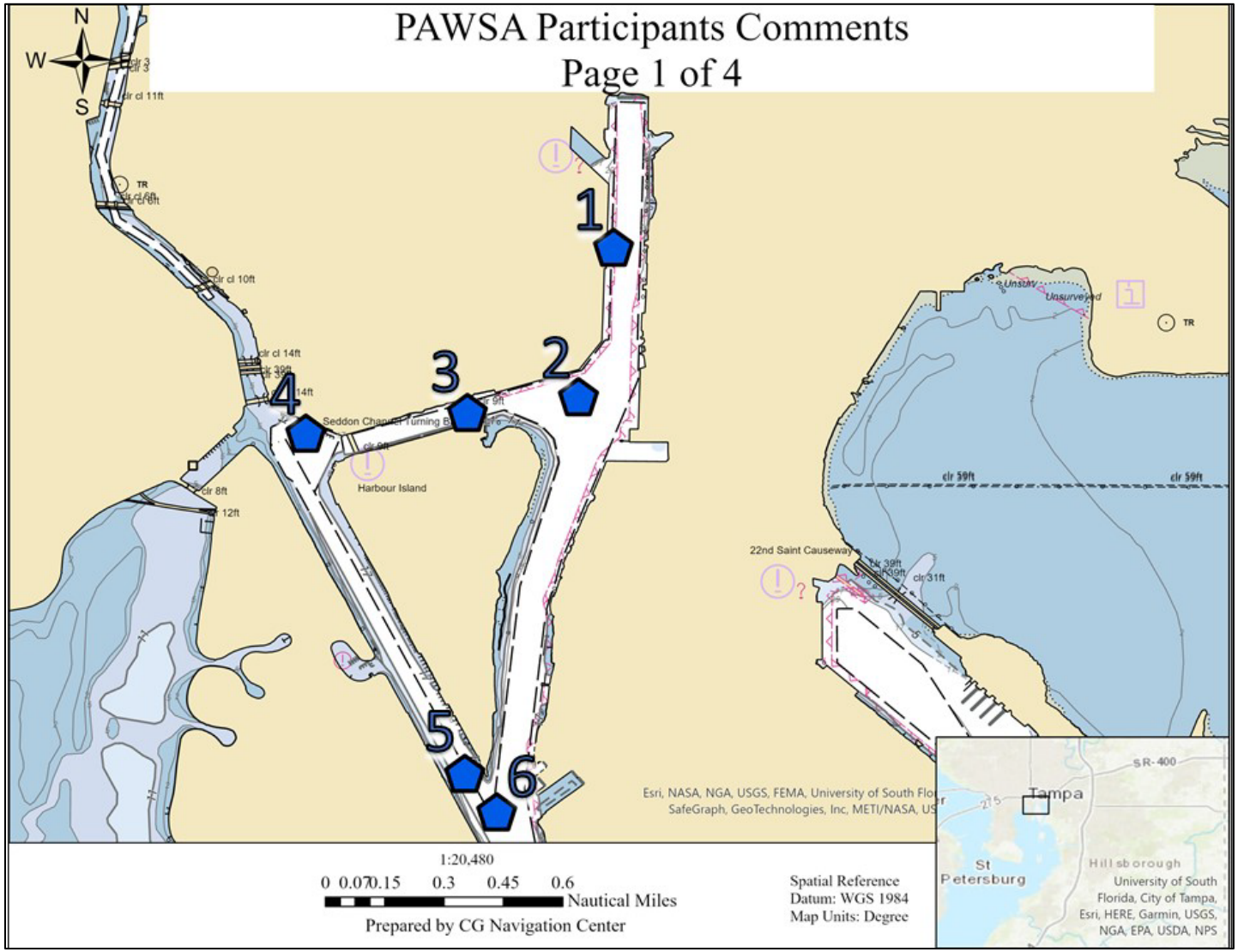

Figure 1- Mapped location of geospatial participant comments 1-6

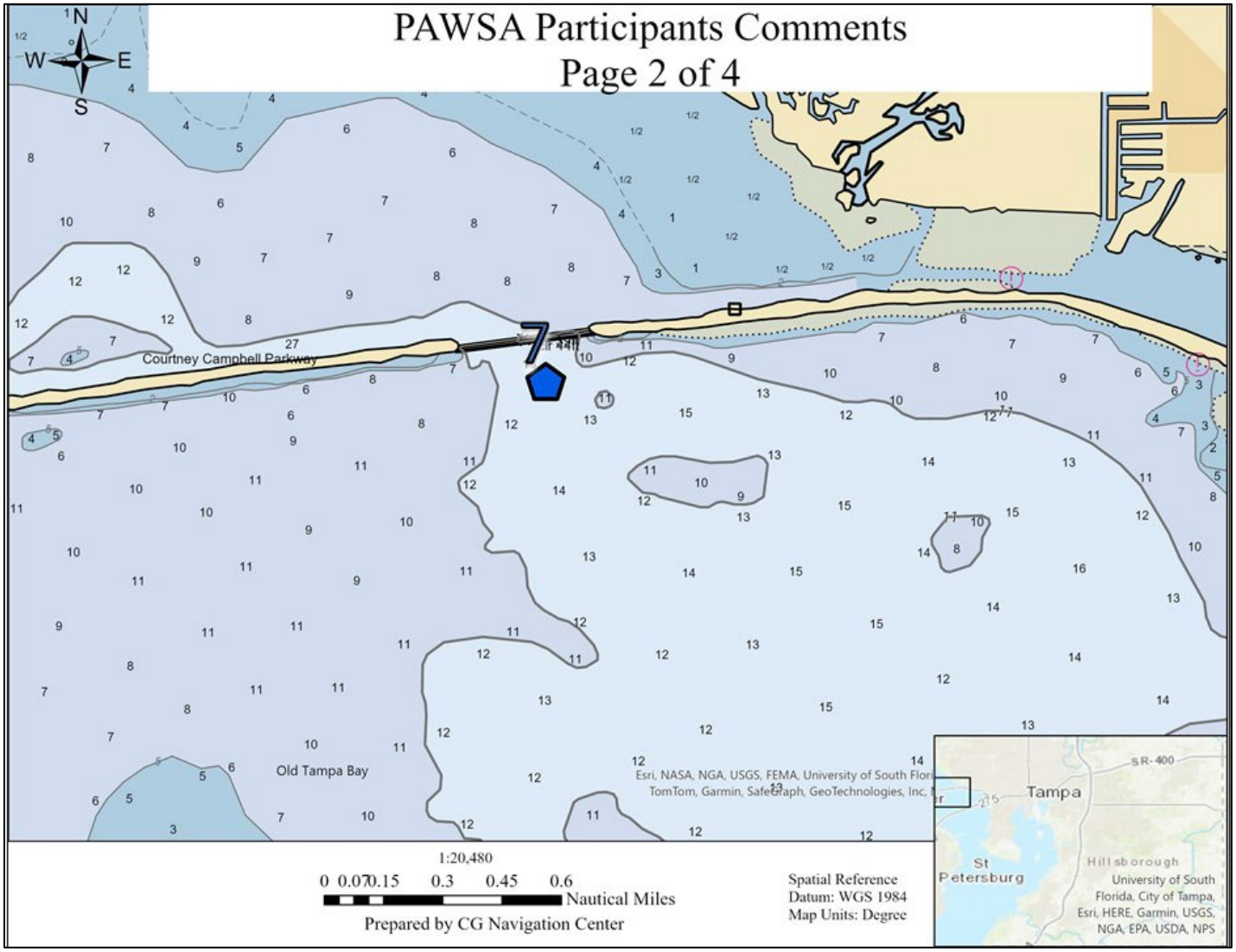

Figure 2- Mapped location of geospatial participant comment 7

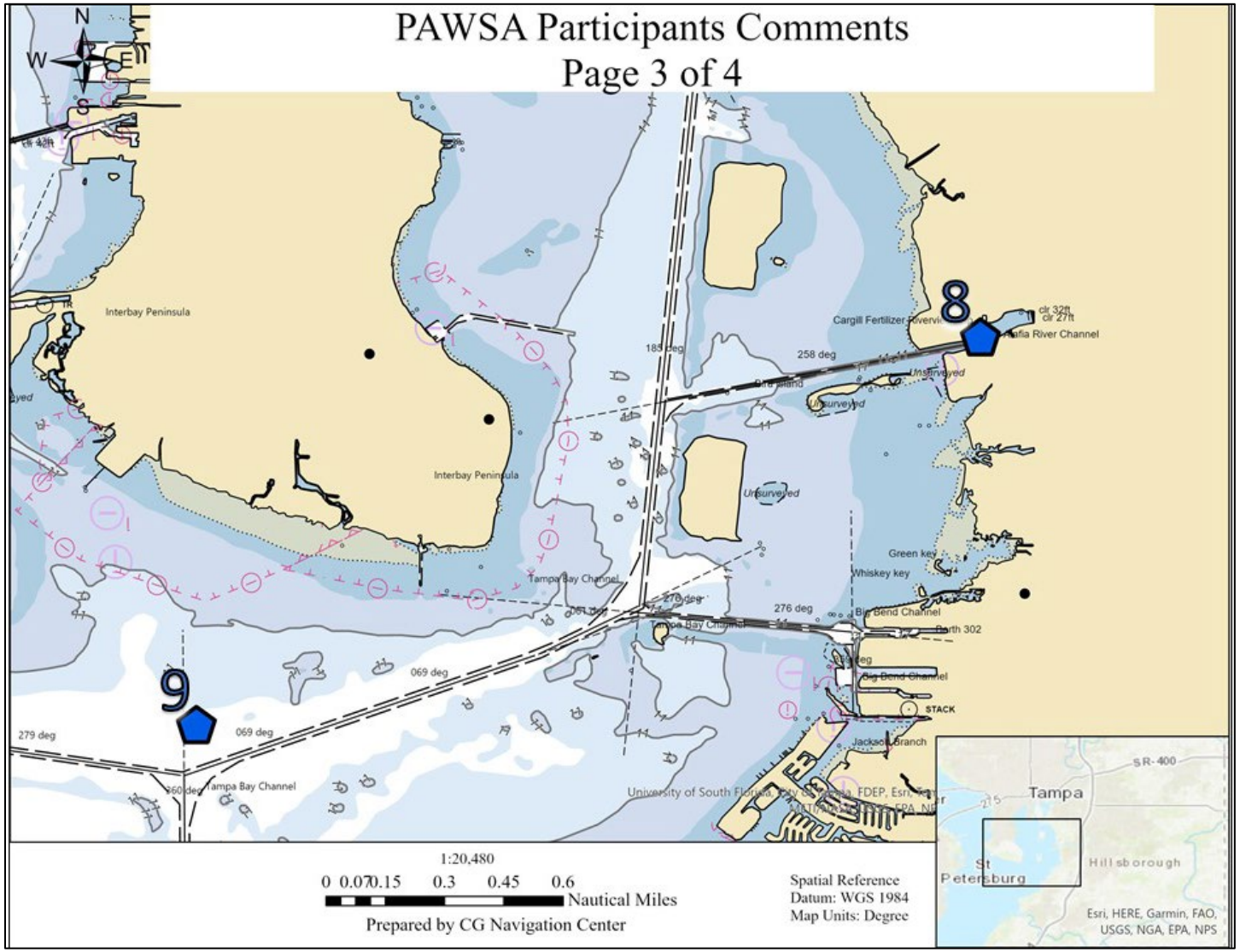

Figure 3- Mapped location of geospatial participant comments 8-9

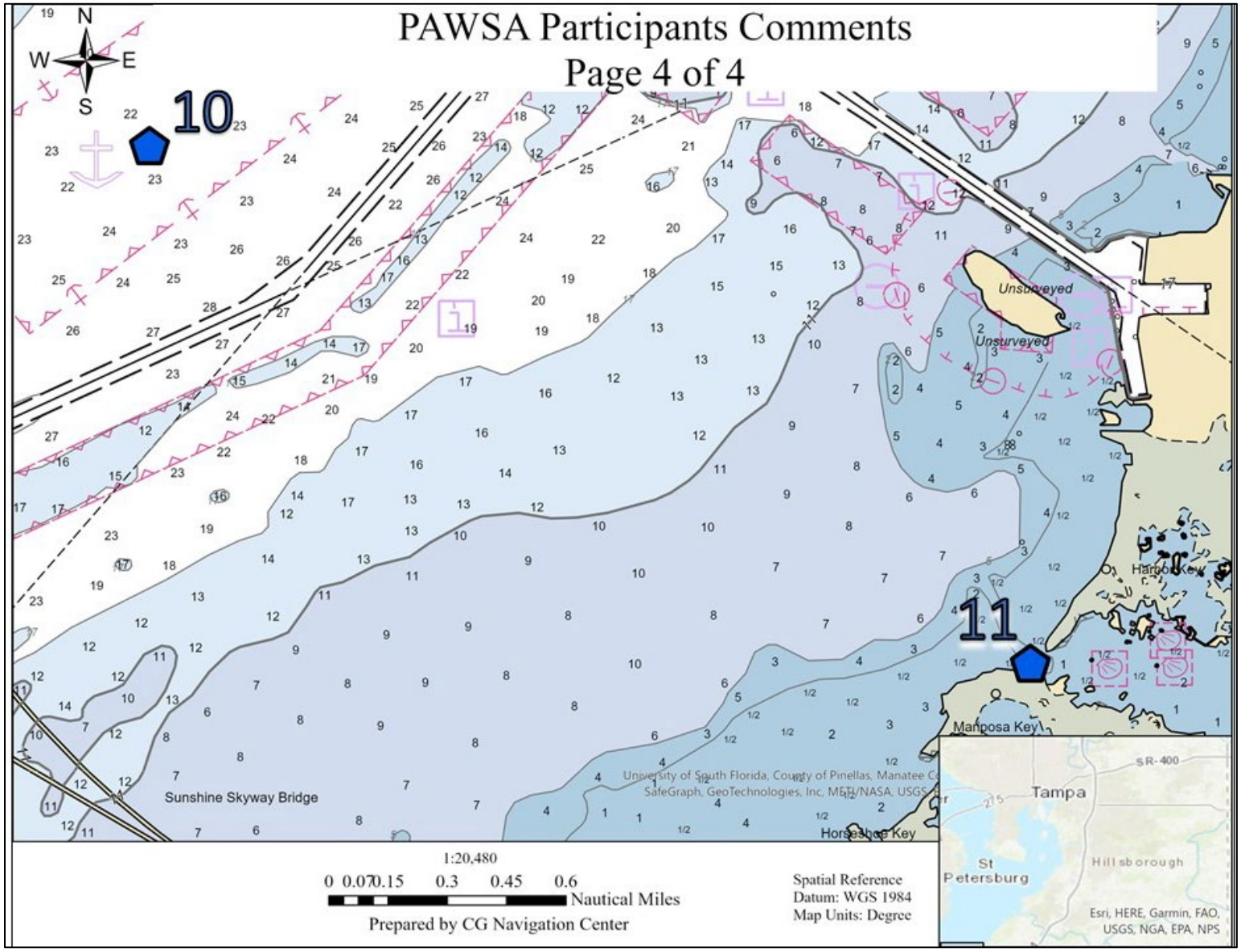

Figure 4- Mapped location of geospatial participant comments 10 and 11