

Ports and Waterways Safety Assessment Workshop Report

Sabine-Neches



**United States Coast Guard
Marine Transportation Systems Directorate**



**Providing Navigation Safety Information
for America's Waterways Users**

Table of Contents

	Page
Purpose.....	3
PAWSA Waterway Risk Model and Workshop process	4
Sabine-Neches PAWSA Workshop.....	5
Section 1: Sabine-Neches PAWSA - Assessment Area.....	6
Section 2: Baseline Risk Levels.....	9
Section 3: Team Expertise Cross – Assessment	10
Section 4: Existing Risk Mitigations	11
Section 5: Additional Risk Intervention Strategies.....	13
Appendix A Workshop Participants	
Appendix B Participant Comments on Trends in the Port and Existing Risk Mitigations	
Appendix C Additional Risk Intervention Strategies	
Appendix D Navigation Charts with Participant Observations	
Appendix E References	
Appendix F Abbreviations and Acronyms	
Appendix G Sabine-Neches PAWSA – Waterway Profile Information	
Appendix H Sabine-Neches PAWSA – Traffic Statistics	

Purpose

The Ports and Waterways Safety Assessment (PAWSA) Waterway Risk Model, and the *PAWSA workshop process* is a disciplined approach designed to identify major waterway safety hazards, estimate risk levels, evaluate potential mitigation measures, and set the stage for the implementation of selected risk reduction strategies.

The process involves convening a select group of waterway users and stakeholders and facilitating a structured workshop agenda. A successful workshop requires the participation of professional waterway users with local expertise in navigation, waterway conditions, and port safety. In addition, stakeholders are included in the process to ensure that important environmental, public safety, and economic consequences are given appropriate attention as risk interventions are identified and evaluated.

Oversight of the PAWSA program is provided by the United States Coast Guard (USCG), Marine Transportation Systems Directorate. The MTS director is responsible for developing and implementing policies and procedures that facilitate commerce, improve safety and efficiency, and inspire dialogue with ports and waterway users with the goal of making waterways as safe, efficient, and commercially viable as possible.

The current PAWSA workshop grew out of a congressional directive for the Coast Guard to have a systematic approach to determine the need for a Vessel Traffic Service (VTS) in each port. Now with well-established VTS's throughout the nation, the workshops' focus has broadened, aiming at taking a collaborative approach to mitigation strategies for various port-wide safety concerns.

The long-term goals of the PAWSA process are to:

- 1) Provide input when planning for projects to improve the safety of navigation,
- 2) Further the Marine Transportation System (MTS) goals of improved coordination and cooperation between government and the private sector, and involving stakeholders in decisions affecting them,
- 3) Foster development and/or strengthen the roles of Harbor Safety Committees within each port, and
- 4) Support and reinforce the role of Coast Guard Sector Commanders/Captains of the Port (COTP) in promoting waterway and VTM activities within their geographic areas of responsibility.

65 ports/waterways have been assessed or reassessed using the PAWSA process. The risk assessment process represents a significant part of joint public-private sector planning for mitigating risk in waterways. When applied consistently and uniformly in a number of waterways, the process is expected to provide a basis for making best value decisions for risk mitigation investments, both on the local and national level. The goal is to find solutions that are effective and meet the needs of waterway users and stakeholders.

PAWSA Waterway Risk Model and Workshop process

The PAWSA Waterway Risk Model includes variables dealing with both the causes of waterway casualties and their consequences. In the Waterway Risk Model, risk is defined as a function of the probability of a casualty and its consequences. The diagram below shows the six general risk categories, and corresponding risk factors, that make up the Waterway Risk Model.

Waterway Risk Model					
Vessel Conditions	Traffic Conditions	Navigational Conditions	Waterway Conditions	Immediate Consequences	Subsequent Consequences
Deep Draft Vessel Quality	Volume of Commercial Traffic	Winds	Visibility Impediments	Personnel Injuries	Health and Safety
Shallow Draft Vessel Quality	Volume of Small Craft Traffic	Water Movement	Dimensions	Petroleum Discharge	Environmental
Commercial Fishing Vessel Quality	Traffic Mix	Visibility Restrictions	Bottom Type	Hazardous Materials Release	Aquatic Resources
Small Craft Quality	Congestion	Obstructions	Configuration	Mobility	Economic



- **Vessel Conditions** – The quality of vessels and their crews that operate on a waterway.
- **Traffic Conditions** – The number of vessels that use a waterway and how they interact with each other.
- **Navigational Conditions** – The environmental conditions that vessels must deal with in a waterway.
- **Waterway Conditions** – The physical properties of the waterway that affects vessel maneuverability.
- **Immediate Consequences** – The instantaneous impacts to the port as a result of a vessel casualty.
- **Subsequent Consequences** – The longer-term impacts felt days, months, and even years afterwards.

Workshop activities include a series of discussions about the port/waterway attributes and the vessels that use the waterway, followed by completion of workbooks to establish baseline risk levels, evaluate the effectiveness of existing risk mitigations, and identify additional risk intervention strategies to further reduce risk in the port / waterway. Workbook 1 is used to numerically evaluate the baseline risk levels using pre-defined qualitative risk descriptions for pre-defined risk factors. Workbook 2 is used to assess the expertise of participants with respect to the risk categories in the model. Those expertise assessments are used to weight inputs obtained during the other steps in the workshop process. Workbook 3 is used to evaluate how effective the existing mitigation strategies are at reducing risks, and to determine if the risks are well balanced or not. For those risk factors where risk is judged to be not mitigated sufficiently by existing policies, participants use workbook 4 to identify additional risk intervention strategies and then evaluate how effective those new strategies could be at reducing risks.

Sabine-Neches PAWSA Workshop

A PAWSA workshop to assess navigation safety within the Sabine-Neches waterways was held in Port Arthur, Texas on 12-13 February, 2020. The workshop was attended by 29 participants representing waterway users, stakeholders, environmental interest groups, and Federal, State and local regulatory authorities. The purpose of the workshop was to bring waterway users, stakeholders and members of the Sabine-Neches maritime community together for collaborative discussions. The sponsor of the workshop was Coast Guard Marine Safety Unit (MSU) Port Arthur.

Participants discussed the quality of vessels and their crews that operate on the waterway; the volume of commercial, non-commercial and recreational small craft vessel traffic using the waterway, navigational and waterway conditions that mariners encounter when transiting the assessment area, and the potential environmental impacts that could result from a marine casualty or incident on the waterway.

Over the two-day workshop, the participants discussed and then numerically evaluated 24 risk factors in the PAWSA Waterways Risk Model.

Baseline risk levels were first evaluated using pre-defined qualitative risk descriptions for each risk factor. Participants then discussed existing risk mitigation strategies, evaluated how effective those mitigation strategies were at reducing risk, and then determined if the risks were managed sufficiently. For those risk factors that were not managed well by existing mitigations, or where there was no consensus on whether risks were managed well by existing mitigations, the participants engaged in further discussions and completed workbook 4 to identify additional risk mitigation strategies and evaluated how effective those new strategies could be at reducing risk. The results of the baseline risk level survey, existing risk mitigation strategies, additional risk intervention strategies, and participant comments and observations are outlined in this report.

The primary goal of a PAWSA workshop is to improve coordination and cooperation between government agencies and the private sector. A PAWSA workshop is intended to involve stakeholders in decisions affecting them, and provide the Coast Guard and members of the waterway community with an effective tool to evaluate risk and work toward long-term solutions tailored to local circumstances.

In support of these goals, this report should be viewed as a starting point for continued dialogue within the Sabine-Neches maritime community. The Coast Guard will use this PAWSA report, together with other information, to determine whether, and to what extent, regulatory or other actions are needed to address navigation safety risk. Any rulemaking efforts will follow Coast Guard public notice and comment rulemaking procedures to allow for public participation in the process.

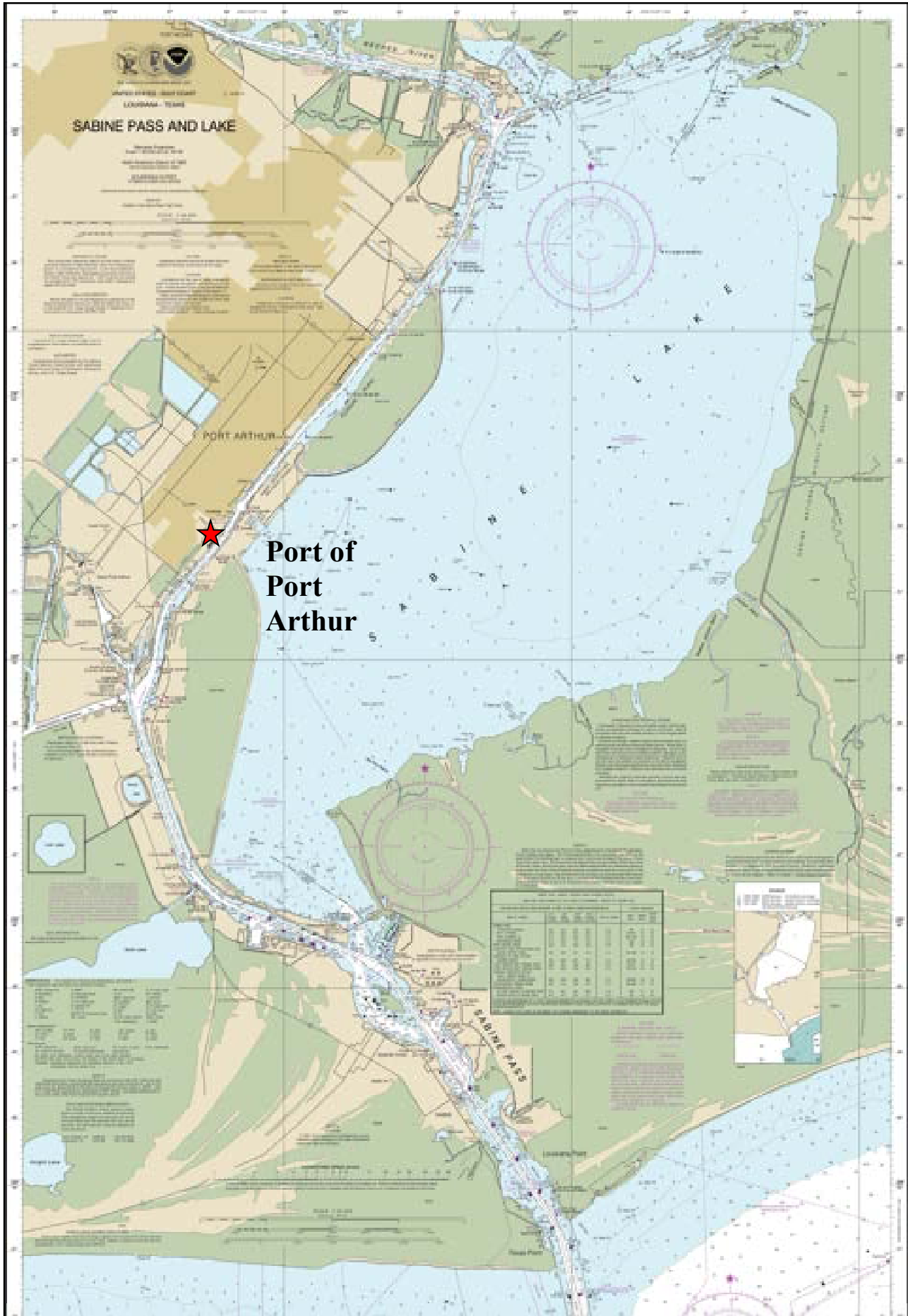
The United States Coast Guard, Marine Transportation Systems Directorate and MSU Port Arthur, extend a sincere appreciation to the workshop participants for their contributions to the Sabine-Neches PAWSA workshop. Their expertise was critical to the success of the workshop, and their recommendations will greatly assist the Coast Guard as it continues to work with all Sabine-Neches stakeholders to further improve safe and efficient navigation within the Sabine-Neches waterways.

Section 1: Sabine-Neches PAWSA - Assessment Area

The geographic bounds of the waterway assessment area extends from 093 28' W longitude on the eastern boundary to 094 03' W longitude on the western boundary. The northern boundary extends to 30 9' N latitude and the southern boundary extends to 29 24' N latitude. The assessment area includes the Ports of Beaumont, Orange, and Port Arthur.

Nautical charts 11331, 11341, 11342, and 11343 were displayed for reference and to annotate geographic locations associated with participant comments and observations; the below segment excerpts from the annotated charts are included as appendix D to this report.





Section 2: Baseline Risk Levels

The first step in the workshop was the completion of workbook 1 to determine a baseline risk level value for each risk factor in the Waterway Risk Model. To establish the baseline risk levels, participants discussed each of the 24 applicable factors in the Waterway Risk Model and selected a qualitative description for each risk factor that best described the conditions in the assessment area. These qualitative descriptions were converted to discrete values. What results is the baseline risk level for each risk factor.

On those scales, 1.0 represents low risk (best case) and 9.0 represents high risk (worst case), with 5.0 being the mid-risk value. Risk values highlighted in red (values at or above 7.7) denote very high baseline risk levels. Risk values highlighted in green (values at or below 2.3) denote very low baseline risk levels.

The table below shows the baseline risk level values for all risk factors evaluated by the workshop participants.

Baseline Risk Levels					
Vessel Conditions	Traffic Conditions	Navigational Conditions	Waterway Conditions	Immediate Consequences	Subsequent Consequences
Deep Draft Vessel Quality	Volume of Commercial Traffic	Winds	Visibility Impediments	Personnel Injuries	Health and Safety
4.4	8.6	2.6	5.7	2.4	7.9
Shallow Draft Vessel Quality	Volume of Small Craft Traffic	Water Movement	Dimensions	Petroleum Discharge	Environmental
5.0	3.2	4.4	8.4	9.0	8.7
Commercial Fishing Vessel Quality	Traffic Mix	Visibility Restrictions	Bottom Type	Hazardous Materials Release	Aquatic Resources
8.8	5.3	8.3	3.9	9.0	5.6
Small Craft Quality	Congestion	Obstructions	Configuration	Mobility	Economic
7.3	7.4	4.6	8.7	9.0	9.0

Section 3: Team Expertise Cross-assessment

The second step in the workshop was the completion of a team expertise cross-assessment (workbook 2). The team expertise cross-assessment was conducted early in the workshop process and was used to weigh the relative strengths of each team with respect to the six risk categories. The results of the team expertise cross-assessment was used to weight the inputs that each team provided in the other workbooks completed during the workshop.

After being presented with the concepts underlying the model, each participant team was asked to discuss (among themselves) how their background and experience aligns with the model. They then verbally presented their self-assessment to the other teams. These presentations gave all teams a sense of where everyone thought they were strong – or perhaps not so strong. After all teams had spoken, each team then evaluated whether they were in the top, middle, or lower third of all teams present with respect to knowledge and expertise in the six risk category areas. The participants assessed their own and all the other participant teams' level of expertise for each of the six risk categories in the Waterway Risk Model.

The table below breaks down the participants' expertise for each risk category.

Team Expertise -- Distribution			
Risk Category	Top 1/3	Mid 1/3	Lower 1/3
Vessel Conditions	31%	46%	24%
Traffic Conditions	27%	55%	18%
Navigational Conditions	43%	36%	22%
Waterway Conditions	29%	44%	27%
Immediate Consequences	33%	34%	32%
Subsequent Consequences	13%	52%	35%
All Categories Average	29%	44%	26%

Section 4: Existing Risk Mitigations

The third step in the workshop was for participants to evaluate the effectiveness of existing mitigation strategies in reducing the risk level for each risk factor. Workbook 3 is used for two purposes. First, after the participants describe the risk mitigation strategies that already exist to help reduce the risk level for their waterway, workbook 3 is used to evaluate the effectiveness of those strategies in reducing the risk level for each factor in the model. What results is an expression of risk for each factor, which takes into account the participants' judgements about the degree to which risk is being adequately managed by existing mitigations. If, for any given risk factor, there is consensus (defined as 2/3 of the workshop participant teams in agreement) that existing mitigations do adequately deal with those risks, then that risk factor is dropped from further discussion.

For risk factors show in green (**Balanced**) there was consensus that risks were adequately managed by existing mitigations.

For risk factors shown in red (**Rising/No**) there was consensus that risks were not adequately managed by existing mitigations.

For risk factors shown in yellow (**Maybe**) there was no consensus that risks were adequately managed by existing mitigations.

Risk Factor	
Book 1 Score	Book 2 Score
Consensus Reached?	

Mitigation Effectiveness											
Vessel Conditions		Traffic Conditions		Navigational Conditions		Waterway Conditions		Immediate Consequences		Subsequent Consequences	
Deep Draft Vessel Quality		Volume of Commercial Traffic		Winds		Visibility Impediments		Personnel Injuries		Health and Safety	
4.4	4.1	8.6	6.1	2.6	2.6	5.7	4.8	2.4	2.3	7.9	6.8
Balanced		Balanced		Balanced		Balanced		Balanced		Balanced	
Shallow Draft Vessel Quality		Volume of Small Craft Traffic		Water Movement		Dimensions		Petroleum Discharge		Environmental	
5.0	5.5	3.2	3.2	4.4	4.0	8.4	7.8	9.0	7.3	8.7	7.8
Rising		Balanced		Balanced		Balanced		Balanced		Balanced	
Commercial Fishing Vessel Quality		Traffic Mix		Visibility Restrictions		Bottom Type		Hazardous Materials Release		Aquatic Resources	
8.8	8.9	5.3	4.9	8.3	6.2	3.9	3.7	9.0	7.4	5.6	4.9
NO		Balanced		Balanced		Balanced		Balanced		Balanced	
Small Craft Quality		Congestion		Obstructions		Configuration		Mobility		Economic	
7.3	6.7	7.4	6.9	4.6	4.0	8.7	7.1	9.0	7.1	9.0	7.8
Balanced		Maybe		Balanced		Balanced		Balanced		Balanced	

For the following 21 risk factors, there *was consensus that risks were sufficiently managed (Balanced)* by existing mitigations.

<u>Risk Factor</u>	<u>Risk Level with Existing Mitigations</u>
Economic	9.0
Hazardous Materials Release	9.0
Mobility	9.0
Petroleum Discharge	9.0
Configuration	8.7
Environmental	8.7
Volume of Commercial Traffic	8.6
Dimensions	8.4
Visibility Restrictions	8.3
Health Safety	7.9
Small Craft Quality	7.3
Visibility Impediments	5.7
Aquatic Resources	5.6
Traffic Mix	5.3
Obstructions	4.6
Deep Draft Vessel Quality	4.4
Water Movement	4.4
Bottom Type	3.9
Volume of Small Craft Quality	3.2
Winds	2.6
Personnel Injuries	2.4

For the following risk factor, there *was no consensus (Maybe)* that risks were, or were not sufficiently managed by existing mitigations.

<u>Risk Factor</u>	<u>Risk Level with Existing Mitigations</u>
Congestion	6.9

For the remaining two risk factors, there *was consensus that risks were NOT sufficiently managed (Rising/NO)* by existing mitigations.

<u>Risk Factor</u>	<u>Risk Level with Existing Mitigations</u>
Commercial Fishing Vessel Quality	8.9
Shallow Draft Vessel Quality	5.5

Section 5: Additional Risk Intervention Strategies

The last step in the workshop process was to complete workbook 4, wherein workshop participants propose additional risk interventions. Participants suggested additional risk intervention strategies, and then evaluated how successful the proposed strategies could be at lowering risk levels. Additional mitigations were discussed for those risk factors where there was consensus that risks were not adequately managed by existing mitigations (Rising/No) from the workbook 3 evaluation.

The table below shows the expected level of risk if taking the actions recommended by the participants.

Additional Interventions					
Vessel Conditions	Traffic Conditions	Navigational Conditions	Waterway Conditions	Immediate Consequences	Subsequent Consequences
Deep Draft Vessel Quality	Volume of Commercial Traffic	Winds	Visibility Impediments	Personnel Injuries	Health and Safety
Balanced	Balanced	Balanced	Balanced	Balanced	Balanced
Shallow Draft Vessel Quality	Volume of Small Craft Traffic	Water Movement	Dimensions	Petroleum Discharge	Environmental
	Balanced	Balanced	Balanced	Balanced	Balanced
5.5 3.6					
Commercial Fishing Vessel Quality	Traffic Mix	Visibility Restrictions	Bottom Type	Hazardous Materials Release	Aquatic Resources
	Balanced	Balanced	Balanced	Balanced	Balanced
8.9 5.8					
Small Craft Quality	Congestion	Obstructions	Configuration	Mobility	Economic
Balanced		Balanced	Balanced	Balanced	Balanced
	6.9 2.8				

The following shows the results of the workbook 4 evaluations for those risk factors that were identified as “Rising,” “NO,” and “Maybe” from the workbook 3 evaluation.

<u>Risk Factor</u>	<u>Risk Level with Existing Mitigations</u>	<u>Risk Level with Proposed Mitigations</u>
Shallow Draft Vessel Quality	5.5	3.6
Commercial Fishing Vessel Quality	8.9	5.8
Congestion	6.9	2.8

This Page Intentionally Left Blank

Appendix A

Workshop Participants

Participant	Organization
Arip Ismail	AET
Peter MacCallum	Associated Marine
Steve Mills	Cheniere LNG
Lance DeJohn	Gulf Copper
Danny Walker	Jefferson County Sheriff's Office
Trey Pearson	JBS Packing
Chris Deslatte	LHG Energy Transfer
David Peacock	Marine Fueling
Shane Merriman	Martin Midstream
Garrett Huffman	Motiva
Ricky Bodin	Port Arthur Fire Department
Randal Ogrydziak	Port of Beaumont
Larry Kelley	Port of Port Arthur
Larry Fountain	Sabine Neches Navigation District
Charles Tweedel	Sabine Pilots
Peter Kolp	Sabine Pilots
Chance Burge	Savage Services
Buddy Hicks	Seabulk Towing
James Robertson	Strategic Towing
Craig Marshall	Sunoco
Johnny Darcey	Texas General Land Office
Belynda Kinman	US Army Corps of Engineers Galveston
Tim White	US Army Corps of Engineers Port Arthur
Don Burns	US Army 842 nd Transportation Battalion
Scott Whalen	US Coast Guard
Harley Matlock	US Coast Guard
Harold Zurlo	US Coast Guard
Aaron Heniger	US Coast Guard
Brent Rahe	US Coast Guard

This Page Intentionally Left Blank

Appendix B

Participant Observations- Trends in the Port and Existing Risk Mitigations

The workshop participants are local subject matter experts; these comments capture their opinions and analysis, providing a general sense of the ideas discussed during the workshop. The comments provide various perspectives representing widely different interests and should not be construed to represent the views of or statements by the United States Coast Guard.

Deep Draft Vessel Quality

(Vessels 1600 Gross Tons and higher engaged in commercial trade)

Trends/Observations:

- The general consensus among the workshop participants is that the quality of deep draft vessels, especially tank vessels, is improving. One participant's comment is that the liquefied petroleum gas (LPG) vessels are all world class; have the most advanced technology; and have some of the best levels of crew competency.
- One participant's observation regarding ballast water treatment systems is that the quality has drastically improved over the past few years for domestic deep draft vessels.
- U.S. Coast Guard (USCG) detentions and port state violations¹ activities are among the first lines of defense for maintaining vessel quality. One thing that serves as a last line of defense is the regulatory requirement to report to the Coast Guard deficiencies that arise in equipment or crew. It was noted that this requirement can be beneficial in ensuring that training becomes safer.
- Vessel screening mitigations include the Ship Inspection Report (SIRE) program² sponsored by the Oil Companies International Marine Forum (OCIMF). There are also screenings jointly conducted between the Office of Foreign Assets Control (OFAC) and the Department of Justice (DOJ). These screenings look for pollution violators. DOJ screenings often focus on vessels with potential links to sanctioned countries.
- Terminals also conduct vessel screenings themselves. There are also independent surveyors, port captains, and receiver representatives who inspect vessels; these serve as another layer of inspection-related safety.
- There are also regulatory screenings in the form of International Ship and Port Facility Security (ISPS) exams and exams for regulatory compliance. The USCG uses the Port Control program to screen and conduct exams.
- One participant noted that vessel screenings in general are very subjective, as there are multiple ways to conduct them. An observation of note is that there are no standards across the industry for vessel screenings. This issue is a gap that presents risk.
- One participant noted that dry bulk cargo vessels do not receive the same level of scrutiny and vetting that tank vessels receive.

¹ USCG PSC regulations: <https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/Commercial-Vessel-Compliance/Foreign-Offshore-Compliance-Division>

² SIRE Inspection: <https://www.ocimf.org/media/84968/SIRE-Factsheet-May-2018.pdf>

- A participant offered that cranes are typically inspected once a year.
- There are general concerns with the new compliance requirements regarding low sulfur fuel. One participant remarked that many of the ships were not designed to burn this type of fuel; the issue of viscosity was specifically called out.
- Another concern that was voiced was the trend by which younger crews increasingly rely on only electronic navigation; many may have not developed the skills needed to effectively use paper charts.
- It was noted that there are some language barriers with many of the foreign crews. A common observation made by participants is that this issue is most typical among marine oilers and other non-licensed personnel. As a result, there are times when translators are needed for assistance. It was also noted that there are not as many foreign vessels as domestic vessels in the Deep Draft category. This helped put into perspective how frequently this issue occurred as a deep draft vessel quality issue.

Existing Mitigations:

- USCG screenings and Port Control Program
- SIRE Program
- OFAC and DOJ screenings
- Tanker Management Self-Assessment
- Terminal Screenings
- Standards of Training, Certification and Watchkeeping (STCW) for Seafarers (STCW)³
- Annual Crane inspections

Additional Mitigations:

- Risks are determined to be sufficiently managed by existing mitigations.

Shallow Draft Vessel Quality

(Vessels less than 1600 Gross Tons engaged in commercial trade)

Trends/Observations:

- A participant remarked that Title 46, Subchapter M – Towing Vessel Inspection Regulations⁴ includes tugs in trade, ship tugs, and day boats. However, there are still a large number of tugs that subchapter M does not cover. There are some shallow draft harbor tugs that achieve 90 to 100 percent compliance. It was noted that half of the 5,000 tugs in the port belong to two companies, and that vessels chartered to one of the big carriers that push red flag barges achieve high compliance. Lastly, it was noted by the participant that while smaller fleeting operations are improving, they still lag behind. Accordingly, some risk remains.

³ STCW, Standards of Training and Watchkeeping: <http://www.imo.org/en/OurWork/HumanElement/TrainingCertification/Pages/STCW-Convention.aspx>

⁴ USCG Subchapter M: <https://www.govinfo.gov/content/pkg/CFR-2016-title46-vol5/pdf/CFR-2016-title46-vol5-chapI-subchapM.pdf>

- A key observation is that there are lots of companies performing remarkably well with compliance. Other companies are improving their compliance, but still lag. For small companies that lag in compliance, it was noted that both deferred maintenance and the cost of implementation measures were the causes.
- General comments among participants suggest that there has been vast improvement in shallow draft vessel quality over the past few years. With all of the SIRE inspections and with the approval of subchapter M, tug barges have become inspected vessels. This includes internal and external inspections.
- It was noted that crew proficiency has also improved as a result of TMSA training. One participant commented that the training is also better documented than in the past.
- One participant noted upcoming changes to the SIRE program. The new program will provide operators a real-time snapshot of barge activity and an explanation from both the operator and inspector.
- There is a handful of Subchapter T boats that operate within the region. There are also some offshore supply vessels (OSVs) as well. Many of the OSVs are inspected, such as crew boats and work boats. Some of these also include integrated Subchapter K boats.
- One participant remarked that the greater number of inspectors for commercial tugs is making crews more knowledgeable and safety conscious.
- One positive trend is that many vessels now have new equipment and are being built to standards. There is a turnover schedule on equipment - as the industry standard demands.
- It was noted that shallow draft vessels do not have any inspection requirements. Also, the crews do not have any documentation; this includes construction crews.
- Hundreds of shallow draft construction vessels will be in the area in the next 5-10 years, coincident with the large influx of construction projects expected.
- One concern voiced was that of owners lacking the time to properly conduct the maintenance needed to improve vessel reliability.
- One problem that concerns inland barges is the ability for stakeholder to achieve common ground on vetting. One participant recommended more unity among the industry regarding docking requirements, especially now that these are inspected vessels.

Existing Mitigations:

- USCG inspections
- Third party oversight inspections
- USCG Title 46, Subchapter M – Towing Vessel Inspection Regulations
- Voluntary inspections

Additional Mitigations:

- See Appendix C

Commercial Fishing Vessel Quality

Trends/Observations:

- The commercial fishing vessel community in the assessment area numbers roughly between 150 – 200 vessels.
- It was stated that this area is the number one offloading port within the Gulf of Mexico for domestic product for shrimp.
- The fleet across the Gulf has been reduced by roughly 64 percent since 2005. Then, there were roughly 500 - 600 boats; now there are about 200. Many of the pilots, captains, and those responsible for the upkeep of these vessels have left the industry.
- One participant commented that the quality of commercial fishing vessels has improved due to the fleet being reduced.
- Others stated that many of the fishing vessel incidents are caused by owners not performing proper repairs. Regarding the current fleet, the proficiency levels of the crews are lacking. One participant noted that many of the vessel owners are not investing resources into ship quality or crew proficiency. It is typical for these vessels to be in very poor shape.
- There has not been a large number of incidents between shrimp boats and other ships. However, there are numerous reports of shrimp boat wrecks and of shrimp boat accidents involving jetties and offshore rigs.
- One participant noted that many of the crews of these vessels speak proficient English. However, the crews fail to respond to radio calls. The participant noted that there are ways to mitigate some of these issues, and ways to get them onboard with policy by laying out a common understanding of the requirements and the steps to complete them. It was proposed that this process needs to be facilitated to get everyone on the same program. Also of note is that the shrimp boat fleet understands the pain of getting fined. Imposing fines could mitigate many of the common issues.
- Another participant noted that among those commercial fishermen who remain in industry, vessel upkeep is being performed. These crews are making progress to bring the fleet up to inspection levels. Sometimes it takes an extra month or so to get to the qualifications that is required.
- In the last couple of years, there has been more enforcement action targeted towards fishing vessels. These vessels have not been fined yet, but they have been receiving letters of warning to abide by the Radiotelephone Act. There have been numerous responses from commercial fishing vessels, in which, most accepted the warning.
- Use of Automatic Identification System (AIS) has helped a lot with identifying particular fishing vessels in the channel that may not be maintaining a proper radio watch. Many of the commercial fishing vessels in the channel are typically in situations in which they may need to move but are not listening to the radio. AIS helps because vessels that hear their own name on the radio do typically respond to calls.

Existing Mitigations:

- Automatic Identification System

- USCG Subchapter M – Towing Vessel Inspection Regulations
- USCG Subchapter T and K - Passenger Vessel Inspection⁵
- Voluntary Dockside exams⁶

Additional Mitigations:

- See Appendix C

Small Craft Vessel Quality

Trends/Observations:

- The majority of small craft such as kayaks, jet skis, and paddle boarders mostly operates away from the ship channel. These are typically located across Sabine Lake in the shallow areas. One participant noted that there have not been many small craft incidents that involve other vessels. However, there is the occasional occurrence of jet-ski operators engaging in risky behavior. These incidents include riding the wake of a vessel or moving between two larger vessels.
- Regarding operator proficiency, one participant noted that some operators are clueless. The participant commented that many of these operators seem oblivious to their surroundings and single-mindedly focused on their destination. Other participants noted that some small craft operators seem ignorant of the Rules of the Road.
- Intoxication incidents usually increase during the summer.
- Lack of maintenance is another big problem that occurs mostly in the summer.
- One concern is that boater education is not a requirement. One of the participants noted that there should be a requirement for certification as well as training to operate within the commercial waterway.
- There are little to no requirements for obtaining or operating small craft. New owners demonstrate a lack any understanding about maneuvering near commercial traffic.
- It was noted that there are probably a large number of unreported incidents and near misses occurring daily that involve duck hunters, “14-footer” boats, and other high speed small craft.
- Texas Parks and Wildlife⁷ conduct vessel inspections on recreational boaters. They are typically on the waterway anywhere from 45 to 75 percent of the time depending on the location of the workload. When a call comes in reporting suspicious activity, it can get passed to the sheriff's department or USCG.
- There is an online boaters' education course which is required by operators 16 and older. A participant noted that it would be more beneficial if Texas Parks and Wildlife required a live, supervised course.

⁵ USCG Subchapter T: <https://www.govinfo.gov/content/pkg/CFR-2012-title46-vol7/pdf/CFR-2012-title46-vol7-chapI-subchapT.pdf>
 USCG Subchapter K: <https://www.govinfo.gov/content/pkg/CFR-2012-title46-vol4/pdf/CFR-2012-title46-vol4-chapI-subchapK.pdf>

⁶ Voluntary Dockside Exams: https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/CG-CVC/CVC3/policy/COMDINST_16711_14.pdf

⁷ Texas Park and Wildlife: <https://tpwd.texas.gov/>

- There is signage at boat ramps notifying boaters of local, municipal, state, or federal laws related to carriage and wearing of life jackets.
- The USCG Auxiliary has a safe boating program⁸ and will come out to conduct safety checks⁹. After such an inspection, if everything is in order, the vessel is stickered and may receive an insurance discount.

Existing Mitigations:

- USCG Auxiliaries Safe Boating Program
- Towing Services
- Communication with one another
- Texas Parks Wildlife Vessel Inspections
- Boat ramp signage regarding life jackets

Additional Mitigations:

- Risks are determined to be sufficiently managed by existing mitigations.

Volume of Commercial Traffic

Trends/Observations:

- The total number of daily transits varies between 150 to 200.
- It was stated that within the past few years, the number of ships has been increasing by roughly 200 plus ships annually.
- There is heavy traffic in the area where the Intracoastal Waterway (ICW) coincides with the Neches River. This area is probably one of the heaviest trafficked areas for commercial vessels.
- A large number of fishing vessels have been observed at Pleasure Island. It was stated that this area has a large number of near misses, and sometimes, waking incidents.
- Near the Neches River Bridge and upriver is a high risk area due to the combination of tugs and ships approaching and departing facilities.
- At the Neches River intersection with the Sabine-Neches channel is a heavy mix of ships and shrimping boats.
- The Sabine-Neches Waterway has a traffic operating protocol.
- Vessel Traffic Services (VTS) provides an abundance of useful data that helps manage the emerging traffic in the area. The data include the number of incidents, which, appear to indicate a positive trend. The data are available and archived.
- One of the subcommittees within the Southeast Texas Waterways Advisory Committee (SETWAC) is the navigation subcommittee.

⁸ USCG Auxiliary Vessel Safety Checks: <http://cgaux.org/vsc/>

⁹ Safety Requirements for Vessels: https://tpwd.texas.gov/fishboat/boat/safety/vessel_requirements/index.phtml

- Within the Harbor Safety Committee, committee chairs are timing out and there is a need for additional participation within the near future. One participant emphasized that increased participation will be crucial, given that there will be more deepening, more traffic, more facilities, and thus, additional risk.
- Participants agreed that cooperation among waterway users mitigates the traffic risk to acceptable levels. It was noted that communication and cooperation is necessary to continue to build, invest, and to bring more vessels to the area.
- Schedules are shared through the port coordination team (PCT). Schedules are also shared via an online system called Vessel Traffic Online. This system shows what is moving inbound, outbound, and shifting berths within the waterway. It also shows a projection of ship movements within 24, 36, and 48 hour windows.

Existing Mitigations:

- Traffic operating protocol for the Sabine-Neches Waterway
- Port Coordination Team
- Vessel Traffic Online schedule sharing
- Communication and cooperation among pilots
- Harbor Safety Committee

Additional Mitigations:

- Risks are determined to be adequately managed by existing mitigations.

Volume of Small Craft Traffic

Trends/Observations:

- The port is a recreational port for fishing and hunting. Traffic is heavy for duck season, which takes place during the winter months. There is year-round fishing near the LPG dock near Sabine along the channel. Within that area, many small craft that have just launched will then cross the channel. This happens at Mesquite Point.
- The types of vessels commonly seen change frequently throughout the seasons. Smaller aluminum boats predominate during duck season. Air boats are found occasionally. However, fishing boats are seen year-round throughout Sabine Lake. During the summer months, there is an influx of pleasure boats such as pontoon and ski boats. These frequently launch from Port Neches Park. One participant noted that there are a lot of near misses with these vessels, and that many of these incidents go unreported.
- It is common for fishing vessels to station themselves near various facility docks, which is problematic due to both the proximity to vessel traffic and the hazards posed by facility infrastructure. Keeping these vessels away from facilities for security reasons was viewed as critical.
- The fishermen tend to go further south near the lake area while the recreational boaters tend to go further north.
- During duck season, there is an increase in 14-foot vessels and smaller flat-bottom boats.

- There are not many reported accidents with recreational boaters. Some participants commented that sometimes there are waking incidents when ships pass recreational boats that are fishing.
- There have been cases of incidents with crabbing vessels. Most of the crabbers are coming out of the Rainbow Bridge or Bridge City.
- “Thunder on the Neches” is a boat race event that takes place every spring at Port Neches Park. The event takes place in the middle of the commercial ship channel. That specific section of the waterway is typically shut down for three days, from Friday to Sunday. This event limits the number of commercial vessel transits that can be made during daylight hours.
- When traffic is re-opened each day, it is critical to have boats already in position due to the small window of opportunity. Communication among vessels is viewed as critical during the event period. Overall, this usually works with minimal delay.
- It was noted that the entire event works due to the coordination among the VTS system, Pilots, and other vessel traffic – and is due to the cooperation of everyone else in the area who is involved. Per the Code of Federal Regulations (CFR), the area is permitted for this event. The USCG works with race officials, sponsors, city officials, and Jefferson County Patrol to ensure that the event is set up accordingly. Coordination is conducted to ensure proper permitting. The VTS and other key waterway stakeholders are notified of the event well in advance for planning purposes.
- From one participant’s perspective, internal communication is beneficial in sharing knowledge of high risk traffic areas.

Existing Mitigations:

- Internal Communication
- VTS

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

Traffic Mix

Trends/Observations:

- General comments convey that the traffic mix is varied. Types of vessels include general cargo ships and military cargos of roll on/roll off mechanized cargo. Deep draft vessels include gas and oil tankers and traditional tankers for crude oil refined products, chemicals, and natural gas.
- Considering the high number of movements and the varied mixture of vessel traffic, there remains a relatively low number of incidents in the waterway.

- The largest military outload port in the nation is located in Beaumont¹⁰.
- Communication between public and private terminals is good; this is essential for keeping the system operating.
- The Lone Star Harbor Safety¹¹ Committee publishes several resources for the various users of the waterway.
- Every eight to ten miles along the system there are multiple staging areas for barges. Barge traffic is nearly always present and mixing among the deep draft traffic.
- Because barge and ship traffic proceed at different speeds, opportunities for meeting and overtaking must be carefully planned, communicated, and executed - especially in narrow and congested areas. Scheduling is critical.
- Someone observed that the predominant pattern formerly held that that vessels arrived loaded and departed light. That trend is now mostly reversed. This is a good example of the major dynamic shifts occurring in the Sabine-Neches region.

Existing Mitigations:

- Internal Communication
- VTS
- Lone Star Harbor Safety Committee

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

Congestion

Trends/Observations:

- The general observation was that the Neches River intersection is one of the most congested locations in the area.
- The Neches intersection is the confluence of two rivers. The Neches River flows from the north out of Beaumont, and the Sabine River flows from the east out of Louisiana.
- One dangerous area is the Texaco Island intersection, where the ICW meets the main ship channel. Some participants noted this area is dangerous for both incoming and outgoing traffic.
- Another high risk areas noted is from Missouri Bend going eastbound, where there is a bridge located at the end of a large sweeping, challenging turn. Another high risk area for congestion is located between the schoolhouse and Texaco Island.
- During daylight savings time, there is a smaller window for the daylight-restricted ships to move. Even though this is taken into account, it sometimes still results in delays at the dock.
- There are fleeting services within one or two miles of each other.

¹⁰ Port of Beaumont: <https://www.portofbeaumont.com/about/>

¹¹ Lone Star Mariners Guide: http://www.houston-pilots.com/documents/pdf/mariners_guide91117b.pdf

- Port docks are usually see 90 percent utilization for dock capacity. A participant remarked that there are numerous vessel delays, whether due to weather, construction, availability of equipment, or channel issues. Such delays can severely impact facility operations.
- There are a large number of liquid terminals within the waterway, extending all the way to Port Arthur.
- A general comment about congestion addressed the importance of considering available resources when making decisions. This is especially important when the waterway is saturated. Resources include the number of piers and the availability of portside facilities. Such information is important in understanding local congestion.
- Since daylight hours are reserved for transits of the largest ships, there can be nighttime congestion among the relatively smaller vessels that then need to transit.
- One participant commented that transparency and information sharing builds trust within the port.
- The Local Emergency Planning Commission (LEPC) for Jefferson County and the VTS coordinate to ensure that ships are moving safely.
- Some commented that tugboats are used as a mitigation strategy for reducing congestion, as in many escort scenarios. There are usually 10 to 12 tugs present somewhere in the waterway.
- Facilities often coordinate with the VTS and the Pilots. However, it has been noted that this does not mitigate issues associated with the inland traffic.
- A participant stated that two brand new, state-of-the-art Azimuth Stern Drive tugs are currently being built. The participant elaborated that tugs of this type (as well as other modern equipment) are crucial, considering the gradually increasing size of ships visiting the waterway.

Existing Mitigations:

- LEPC
- VTS
- Tugboats
- Transparency and Communication Sharing
- COC Inspections

Additional Mitigations:

- See Appendix C

Winds

Trends/Observations:

- The Sabine-Neches waterways are well-forecasted locations. Overall, winds are fairly predictable. Typically, winds are northerly in the winter and southerly in the summer.
- Normally, tides vary less than a meter; however, tides here are weather dependent. Depending on prevailing wind conditions, tides can range from 1.5 to 2 meters; when this occurs, it normally lasts no more than one and a half days.

- Spring typically brings southerly winds. These are usually manageable, but can bring extra challenges. Southerly winds eventually taper into summer doldrums; then, wind conditions are benign. Occasional hurricanes, tropical storms, and tropical depressions impact sea-state conditions.
- Someone noted that water levels in the Gulf of Mexico tend to be slightly higher in the summer, which reduces some of the pressure associated with draft restrictions. However, this exacerbates the air gap problem posed by the increasing size of visiting ships – especially with regard to the low bridge in Port Arthur, and where extra-large tankers are involved.
- It was noted that during winter months, 12-24 hour gale conditions sometimes follow on the heels of a cold front and the associated fog.
- Any time there is abnormal weather, or conditions such as fog, a PCT call is conducted.
- Wind conditions pose problems for the towing community; this is a worse problem where empty barges are concerned.
- Risks due to high winds are mitigated with enhanced tug use.
- Crews of liquefied natural gas (LNG) vessels use matrices that account for relevant parameters and prescribe “hard limits” for navigating in wind conditions. Wind surface area is one such parameter.
- Because every ship has different levels of susceptibility to wind, the port is not too restrictive when it comes to wind limits. Instead of automatically canceling movements due to high winds, on-scene decisions take place between the master and the pilot.

Existing Mitigations:

- Weather Forecasting
- Physical Oceanographic Real-Time System (PORTS)¹²
- Tugs

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

Water Movement

Trends/Observations:

- Over the course of a year, currents are moderate; Sabine Pass averages 2 - 2.6 knots.
- The fastest seasonal currents are described as moderate and are observed to be between 2-5 knots.
- Challenging currents have been observed at various bridges within the area, such as the West Port Arthur Bridge.
- The area experiences severe currents after tropical storms, including after some unnamed storms.

¹² PORTS: <https://tidesandcurrents.noaa.gov/ports.html>

- There is a growing number of residential and business development projects on shore that are adjacent to the ship channel. However, there are currently no runoff mitigations; these will drain into the main navigation channel.
- There is also growth in residential development, which includes more runoff canals that drain into the channel. One participant noted that such drainage could negatively impact currents – especially where drainage ditches dump into the ICW to the west.
- Water movement is mitigated through the use of the port sensor system which provides real-time information to Pilots, the VTS, and other users. The information is also available to those who may not have access to the VTS.

Existing Mitigations:

- PORTS system

Additional Mitigations:

- Risks are determined to be we managed by existing mitigations.

Visibility Restrictions

Trends/Observations:

- Restricted visibility due to fog is frequent from November through the end of February with the heaviest period in late January and February. During that time a single fog event can last from 2 to 4 days. Restricted visibility is defined as periods of visibility restricted to less than a half nautical mile.
- As much as a million barrels of crude oil in a day flows through the various facilities in Sabine-Neches. Delays from restricted visibility impose heavy impacts to the various refineries and facilities that need to load or offload product, creating a significant logistical burden for industry partners.
- Upstream effects from restricted visibility are also felt by crude oil suppliers nationwide. Extended outages where vessels cannot reach facilities can saturate the supply line, causing shoreside holding tanks to fill up. This, in turn, slows pipeline throughput, which slows crude extraction
- During prolonged outages facilities will implement changes within the refinery process in order to extend capacity as far as possible. Implementing these adjustments poses future challenges to refineries and other facilities impacted by the delays.
- The National Weather Service provides a tailored fog report for the area.
- In September, marshes are often burned off in preparation for duck hunting season. A southeast or a southwest wind during burns will cause smoke to blanket the navigable waterway, restricting visibility. One participant noted that in some cases, the smoke can become worse than the fog events.
- It takes up to four days to normalize the system after a long period of restricted visibility.
- Technology enhancements such as video cameras allow sharing different video feeds to ascertain conditions in different parts of the waterway. The VTS utilizes cameras and an array of videos. The Jefferson County Sheriffs also maintain a camera system in different locations. Visibility is monitored in

most parts of the waterway and is shared with waterway users. Participating vessels receive visibility reports.

- Many pilots have started carrying portable Electronic Chart Display (ECDIS) units referred to as portable pilot units (PPUs). PPU's are tablets which have a self-contained GPS system with an internal gyro. It provides sub-meter accuracy, and has given the Pilots a better comfort factor in reduced visibility conditions.
- PPU's enhance the use of tractor tugs and their ability to control the headway of the ship and maintain steerage, which is helpful in low visibility.

Existing Mitigations:

- ECDIS units/PPUs
- Support Coordination Team Call
- NOAA Forecasts
- National Weather Service
- Shared video services

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

Obstructions

Trends/Observations:

- The general consensus is that obstructions are often experienced in this waterway. A common observation was that, in East Texas, obstructions are mostly the result of storm events which flow down the Neches River.
- Most obstruction appear unexpectedly; when this happens, the VTS is able to share information immediately upon notification. In the case of fixed obstructions, there is still a challenge in controlling traffic around them. Traffic patterns are one-way in and out; as such, depending on where it is located, a single obstruction can hold up the entire system until cleared.
- Some of the sporadic obstructions noted were 18-inch cypress trees, telephone poles, debris from upriver storm and flooding events, and schools of bait fish and shrimp that will clog sea strainers.
- Fixed obstructions include frequent shoaling, a submerged rock near the Big Hill water intake, and a marked sunken vessel near Orange.
- Occasionally during high winds, vessels will strike buoys within the ten-mile stretch at the Neches River intersection.
- The PCT shares word of short-notice obstructions in the waterway.
- There are very few salvage response vessels available within the area to help pull obstructions out of the water. Salvage response vessels from Houston and New Orleans are available, but sending vessels from these areas is costly and takes time; accordingly, they only mobilize for more severe incidents.

- Local harbor and river tug companies occasionally assist in tying up drifting derelict vessels, or in removing obstructions that are easily dealt with. However, this is not their primary mission; they have to decline from requests to handle more complex salvage work.
- Both the US Army Corps of Engineers (USACE)¹³ and Jefferson County Sheriffs have equipment for conducting sonar searches necessary for locating and identifying obstructions. This is necessary in order to provide the Gulf Intracoastal Canal Association (GICA)¹⁴ details on the nature of the obstructions.

Existing Mitigations:

- Port Coordination Team
- Salvage Response (from Houston and New Orleans)
- Local Fleeting Companies
- USACE Sonar Sites
- Jefferson County Sonar Sites

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

Visibility Impediments

Trends/Observations:

- Participants noted areas where there are physical visibility impediments. Most notably, sharp twists and turns (oxbows) on the upper Neches River. Many oxbows have been cut off to straighten the channel, but significant blind spots are still a concern on the remaining few. At oxbows bends mariners must rely on VHF radio communications and traffic updates to maintain situational awareness.
- There are also blind spots involving merging traffic in the areas where oxbows have been straightened. In these areas, recreational vessels and other small boats not outfitted with AIS or actively monitoring VHF radio communications are problematic.
- Participants also noted that, although large ships have a high vantage point on the bridge, Pilots and crews will not always be able to see everything in the blind bends.
- New facilities with LED lighting pose a problem with bright backlighting. Also, bright construction lights at areas under expansion cause visibility problems at night.
- It was noted that there are a few ATONs that are not as effective due to backlighting. Recent progress has been made in making improvements to mitigate this problem.
- After being reported as discrepant, most of the aids in the waterway are made operational again within a short amount of time. The typical discrepancy response time for ATON in the area is within 48 hours.

¹³ U.S. Army Corps of Engineers - Regulatory Policies: <http://www.usace.army.mil/Missions/>

¹⁴ GICA: <https://www.gicaonline.com/>

- Many mariners rely heavily on the VTS in cases where a vessel is not able to be contacted on VHF radio.
- The location of the ships and the largest tows are announced in VTS scheduled broadcasts. These are beneficial for smaller inland tows that might be a farther out and are not able to pick up AIS signals.

Existing Mitigations:

- Aids have 48 hours for discrepancy response factor
- VTS for Bridge to Bridge communications
- VTS Scheduled Broadcasts

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

Dimensions

Trends/Observations:

- The Gulf Gate Bridge has an air gap clearance of 136 feet. Current gas carriers with typical capacity of 83,000 cubic meters have only 2 feet of clearance when passing under at normal river conditions. Newer, larger vessels are closer to 150,000 cubic meter capacity, and are not able to clear the bridge without a collapsible mast. Companies wishing to draw these higher capacity vessels to the area are unable to do so.
- Although the channel stopped growing in the 1960s, ships continue to increase in size. There are now areas in the waterway where meetings of typically-sized vessels are no longer possible, due to channel width.
- The USCG, USACE, and Industry coordinate to ensure compliance with a local passing rule designed to mitigate the risks involved with vessels meeting in the narrow channel: If the beams of the ships meeting added together exceeds half the total width of the channel, then the vessels cannot meet. The smaller inland vessels do not fall under this rule, but often cooperate with deep draft vessels.
- Passing arrangements are very calculated. A lot of extra effort by operators and the VTS is put into considering meeting locations and decisions about which vessels can travel during day and night.
- Bank suction and ship interaction are frequent issues in narrow parts of the channel. When meeting, these hydrodynamic effects cause near misses 4 - 5 times per year (estimated). Also problematic is the tendency for passing ships to suck moored vessels away from the pier, straining their mooring lines. This is a particular problem in Port Arthur in the Sabine-Neches Canal.
- One participant commented that electronic navigation will play a significant role during future major storms. The PPU system has a functionality for Pilots to share markers, which can aid their ability to mark good water and obstruction-free areas in advance of buoy tender post-storm aid verifications - potentially leading to quicker port reopenings.

Existing Mitigations:

- Local meeting protocols
- Coordination on planned meeting locations and times.

- PPU Markers
- VTS Scheduled Broadcasts

Additional Mitigations:

- Risks are determined to be we managed by existing mitigations.

Bottom Type

Trends/Observations:

- Sabine Lake has a sandy bottom type. The bottom type within the upper river is mostly silt and mud. A few ships have gone aground in the mud in this area; however, it was noted that fractured hulls or cargo or tank breeches did not result.
- The upper Sabine River has shifting sand bars.
- There is a rock wall on the ten mile Sabine-Neches Canal on the Port Arthur side.
- There are several spots that are closely monitored for dredging because of frequent shoaling. The entrance to Sabine Pass is dredged every 18 months. The lower Neches Bend near Humble Island is dredged every three years at most. The junction area of the Port Arthur Ship Canal and Sabine Neches Canal is usually dredged every 12 to 18 months.
- Other areas that see frequent shoaling are just north of the Highway 82 (Martin Luther King Drive) Bridge along the Port of Port Arthur¹⁵, and near 1000 Foot Cut on Humble Island.
- Groundings frequently occur at the 1000 Foot Cut, and in the area just north of the Sabine River bypassing the Navy base.

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

Configuration

Trends/Observations:

- General comments on the channel's configuration is that it is too narrow and shallow.
- There is a bend located just east of the Highland Bridge where a number of incidents, collisions, and casualties have occurred.
- Some docks are very close to being within the federal waterway, which poses challenges to widening or deepening the channels. Although the general consensus favors widening the channel, configuration of facilities in the waterway restricts growth potential.

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

¹⁵ Port of Port Arthur: <https://portpa.com/international-cargo-shipping-the-port-of-port-arthur/>

Personnel Injuries

Trends/Observations:

- The maximum capacity of the local passenger vessels was estimated to be roughly 80-90 passengers.
- Several internal safety programs are in place by passenger vessel companies to mitigate risk to passengers. Vessels receive additional materiel and safety inspections above and beyond Coast Guard requirements.
- Offshore boat crews often conduct pilot ladder transfers which are extremely difficult during certain times of the year. However, deck hands and crews are experts at these procedures and undergo rigorous training.
- Someone noted that medical training above that which is required is encouraged and highly sought out by crews.
- There are relationships in place that help facilitate rapid response for injured personnel onboard vessels. This also includes having the capability to remove injured personnel them from the vessel, if needed.

Existing Mitigation

- Vessel maintenance
- Internal safety inspections
- Port Coordination for Rapid Response
- Defibrillators and first Aid Kits aboard vessels
- Medically trained Staff Onboard
- Medical Emergency extraction exercises
- Offshore Boat Crew Pilot Ladder Procedures/Training

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations

Petroleum Discharge

Trends/Observations:

- There are roughly 65 - 75 crude oil ships per month that transit this area. These vessels range in capacity from roughly 400,000 to 600,000 barrels. There are approximately 10 monthly transits of Liquefied Petroleum Gas (LPG) Tankers, and up to 30 monthly transits of Liquefied Natural Gas (LNG) tankers.
- Petroleum products of every time (and chemical by-products) are transported through the waterway.
- The Texaco Island area has the largest LNG export terminal in North America.
- Tanker vessels visiting the area are increasing in size. The waterway was designed with much smaller vessels in mind. Increasing the size of vessels without making waterway changes not only increases the probability of an incident, but also increases the potential release impacts.
- The National Response Center (NRC) tours facilities in the area annually. As part of the site visit, the NRC brings in the local Oil Spill Removal Organizations (OSRO). These site visits are also open to other entities including the USCG. Representatives from various major oil companies sometimes attend, often bringing their equipment, such as skimmer boats. This equipment is often demonstrated during site visits.

Existing Mitigations:

- Terminals booming ships
- Vessels carry spill kits
- Annual USCG Drills
- NRC and OSRO site visits

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations

Hazardous Materials Release:**Trends/Observations:**

- There is a large number of planned expansions of LNG facilities. Over the coming years, LNG carrier visits are expected to increase from 340 per year to 800 per year.
- There are several locations that receive particular types of chemicals. Ammonia is transported and received within the Port of Beaumont. The Martin Gas-Stanolind terminal receives shipments of sulfuric acid. Other areas where chemicals are shipped or received include Texaco Island, Valero, Motiva, and Huntsman.
- The ICW is a transit corridor for barge traffic carrying hazardous chemicals.
- Vessels carry fueling kits as extra precautions when taking on fuel. This is necessary to block scuppers and to catch anything that might leak from the connection.

Existing Mitigations:

- Terminals are booming ships
- Vessels carry fueling Kits
- Vessels carry spill kits
- Annual USCG Drills
- NRC Site Visits

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations

Mobility:**Trends/Observations:**

- The Texaco Island intersection is a major choke point. Participants commented that if this intersection were shut down, it would close both the ICW and the ship channel.
- If a major waterway closure were to happen there would be national-level and potentially global-level impacts because of the volume of petroleum that flows through the port.

- The Sabine-Neches Chiefs Association is the regional mutual aid group. Within that group, there is a Type 3 incident management team in which anyone can contact for help.
- The local authority from the Texas General Land Office (GLO) takes control of any major incident. GLO has a good track record for exercising and responding to incidents, and for doing a good job establishing Incident Command Teams that effectively employ assets and people.
- Various agencies and organizations within the region are well-versed and trained with the Incident Command System (ICS).

Existing Mitigations:

- Texas GLO local authority
- The Sabine-Neches Chiefs Association – Type 3 Incident Management Team
- Uniform and standardized ICS structure across multiple entities

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

Health and Safety:

Trends/Observations:

- The population of Port Arthur is 50,000 permanent residents, plus another 10,000 contractors who work, but do not live within the area.
- It was stated that nearly everywhere along the Neches River is highly populated; the Port of Beaumont has the highest density.
- The Metropolitan Statistical Area along the waterways is about 250,000 people. The 2010 decennial census for Port Arthur was recorded as 53,000.
- Participants noted there have been a large number of incidents within the ten mile stretch from Texaco Island through the City of Port Arthur. When incidents occur there, between 5,000 to 50,000 people, depending on the time of day, are immediately impacted.
- With a large number of expansions taking place, more people are moving into the downtown area. By the end of 2020, it is projected that Port Arthur may have 60,000 additional residents.
- In general, there is good communication between the community and the industry along the waterway.
- In the event of a required evacuation, local telephone notifications are sent to all residents. The Southeast Texas Alerting Network (STAN) is established, and the media is informed immediately.

Existing Mitigations:

- Evacuation Planning
- Local telephone notifications
- STAN network
- Neches Chiefs Association

Additional Mitigations:

- Risks determined to be well managed by existing mitigations

Environmental:

Trends/Observations:

- There are several areas within the region that are recognized as critical habitats. These include Stewts Island and the entire area near 1000 Foot Cut. Others include the Rose City Marsh, Adams Bayou, Cow Bayou, and the shrimp sanctuary on Pleasure Island.
- Bessie Heights Marsh is a protected wetland.
- There is a Texas Parks and Wildlife Reserve within the area.
- Everywhere from the Gulf all the way up to the Port of Beaumont and the Port of Orange is an environmentally sensitive area¹⁶.
- Local contingency plans¹⁷ have strategies in place for environmentally sensitive areas. When an incident occurs, the first response efforts focus on booming off sensitive areas down- or upstream of the site. After protection activities are handled, attention moves to cleanup.

Existing Mitigations:

- Response Plan for environmentally sensitive areas

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations

Aquatic Resources:

Trends/Observations:

- Aquatic resources harvested within the area include crabs and shrimp. Shrimping is conducted near the north end of the waterway.
- There is an oyster reef near the top of Pleasure Island, which is a community hub. Since this is a protected area, there is no harvesting or fishing; however, the entirety of Sabine Lake is commercially fished for crab. The Bay is also recreationally fished for a variety of species including flounder, speckled trout, redfish, croaker, and drum.
- There are commercial fishing operations within Black Bayou, Coffee Ground Cove, East Pass, and West Pass on the Louisiana side.
- There is a large amount of menhaden as well. During the season when menhaden arrive to feed, the smaller ones move into the Lake and cause problems by clogging the sea strainers of the larger ships.
- There are various areas for duck hunting located south of Sabine Lake on the Texas and Louisiana sides. There is a federal refuge for both duck hunting and geese hunting on the Louisiana side.

¹⁶ Environmentally Sensitive Areas: <https://www.glo.texas.gov/ost/responsemaps/texas/texasesi/sabinelake/index.html>

¹⁷ Area Contingency Plan: <https://www.glo.texas.gov/ost/acp/portarthur/msuportarthuracp.pdf>

- Texas Parks and Wildlife monitors water quality after hazardous chemical releases. After such incidents, water testing is conducted until it returns to an acceptable level within the area of the release.

Existing Mitigations:

- Notifications sent through ICS system
- Texas Park and Wildlife Water Monitoring/Testing

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations

Economic:

Trends/Observations:

- The daily approximate value of goods transported in and out of the region is \$300 – 330 million.
- This is a large area for break bulk commodities. Petcoke comprises the largest category of breakbulk cargo being exported. Approximately four to five million tons of petcoke are exported annually. Other bulk exports include grains and bulk sulfur. The sulfur extracted from the new fuel is prilled by Martin in Beaumont, and is shipped out for fertilizer to various locations around the world.
- The Port of Beaumont¹⁸ and the Port of Port Arthur¹⁹ handle a significant volume of forest products. The area imports a significant amount of toilet paper manufactured from wood pulp arriving from South America.
- Other products transported through these ports include metals, pipe and aluminum, home construction products, and other commodities.
- Cheniere is the largest daily consumer of LNG in the nation and the top consumer of US natural gas.
- The restrictions and closures that resulted from Tropical Storm Harvey shut the waterway down for over 27 days. This resulted in 831 million gallons of gasoline being lost as a result of not being produced or shipped. It resulted in 467 million gallons of diesel fuel that was not shipped. It also resulted in the lost opportunity for 166 million gallons of aviation fuel. All of this equated to an approximately \$3.6 billion loss in total revenue.
- The shutdown also limited refining capacity, which resulted in \$4.3 billion in additional costs to the nation over a ten-week period.
- Tropical Storm Harvey took out about 35 percent of the national refining capacity. A majority of that loss was refining capacity within the Sabine-Neches region. This had a huge impact on the supply of gasoline, cleaning products, and other chemical products – especially on the East Coast.

¹⁸ 2015 Economic Impacts of the Port of Beaumont: <https://www.portofbeaumont.com/wp-content/uploads/2019/07/Attachment-7-Economic-Impact-Study.pdf>

¹⁹ 2015 Economic Impact of the Texas Ports on the State of Texas and the United States: <http://www.texasports.org/wp-content/uploads/2017/04/NationalEconomicImpactoftheTexasPorts8-05-2016final.pdf>

- One participant pointed out facility considerations are also important. If a major incident stops waterway traffic, there needs to be innovative thinking about other available infrastructure that can be brought to bear for the transport of goods.
- To mitigate economic impacts, the Marine Transportation System Recovery Unit (MTSRU) prioritizes vessels for entrance to the port area. Impact assessments after an event are given to the MTSRU to assist the Captain of the Port in making a determination to reopen the port.

Existing Mitigations:

- MTSRU
- PCT Calls
- USCG Port Condition System
- Communications with Federal/State governments

Additional Mitigations:

- Risks are determined to be well managed by existing mitigations.

This Page Intentionally Left Blank

Appendix C

Workshop participants identified, discussed and evaluated additional risk intervention strategies to further reduce risks. The recommended additional risk intervention strategies should not be construed to represent the views of or statements by the United States Coast Guard.

Additional Risk Intervention Strategies (no particular order)

Congestion:

- Mitigation Strategy 1: In response to the lack of safe moorings on the east side of the ICW above Thousand Foot Cut, reduce congestion by creating safe mooring areas. Propose creating these mooring areas for shallow draft craft that are located on the east side near the ship channel intersection.
- Mitigation Strategy 2: In response to fleeting areas removing safe options for shallow draft vessels, reduce congestion by moving the fleeting area.
- Mitigation Strategy 3: Reduce the risk of collisions in Port Arthur by creating an inland route through Sabine Lake. This would separate inland traffic from deep water traffic.
- Mitigation Strategy 4: Enhance the channel efficiency by increasing channel width, increasing the number of possible vessel meeting/passing locations, and improving channel lighting configuration.
- Mitigation Strategy 5: Propose to implement a vessel traffic study or waterway traffic model to support increasing efficiency and reducing risk. Understand the linkages, current and future capacity, and resilience of the Sabine-Neches waterway.
- Mitigation Strategy 6: Enhance and increase the viability and capability of the VTS. Recent reductions in VTS funding have resulted in reduced ability to effectively coordinate traffic, and there has been an increase in congestion and marine casualties. Propose showcasing the value and risk reduction benefits of the VTS.

Shallow Draft Vessel Quality:

- Mitigation Strategy 1: Reduce the risk of collisions by separating inland traffic from deep water traffic.
- Mitigation Strategy 2: Enhance and increase the viability and capability of the VTS. Recent reductions in VTS funding have resulted in reduced ability to effectively coordinate traffic, and there has been an increase in congestion and marine casualties. Propose showcasing the value and risk reduction benefits of the VTS.
- Mitigation Strategy 3: Propose increasing the quality of uninspected vessels and proficiency of their crews by increasing training and vessel safety inspections or spot checks.

- Mitigation Strategy 4: Expand applicability of Subchapter M to additional classes of shallow draft vessels.

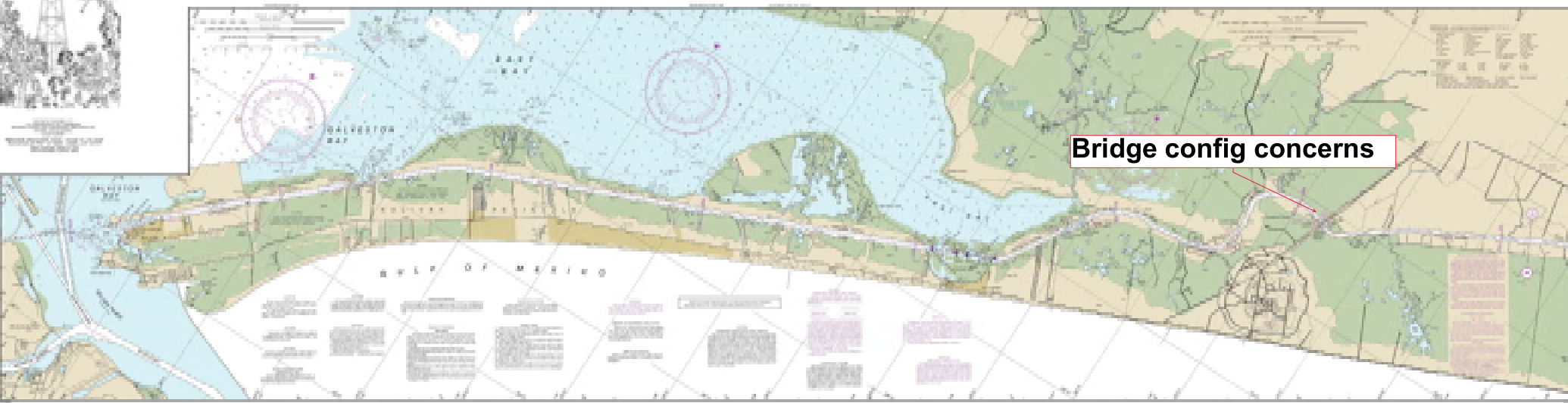
Commercial Fishing Vessel Quality:

- Mitigation Strategy 1: Improve fishing vessel materiel condition and crew quality by providing increased education and resource use.
- Mitigation Strategy 2: Propose that the USCG conduct quarterly random and unannounced inspections.
- Mitigation Strategy 3: Compel compliance through increased enforcement.
- Mitigation Strategy 4: Implement commercial fishing vessel operator license or certification requirements.

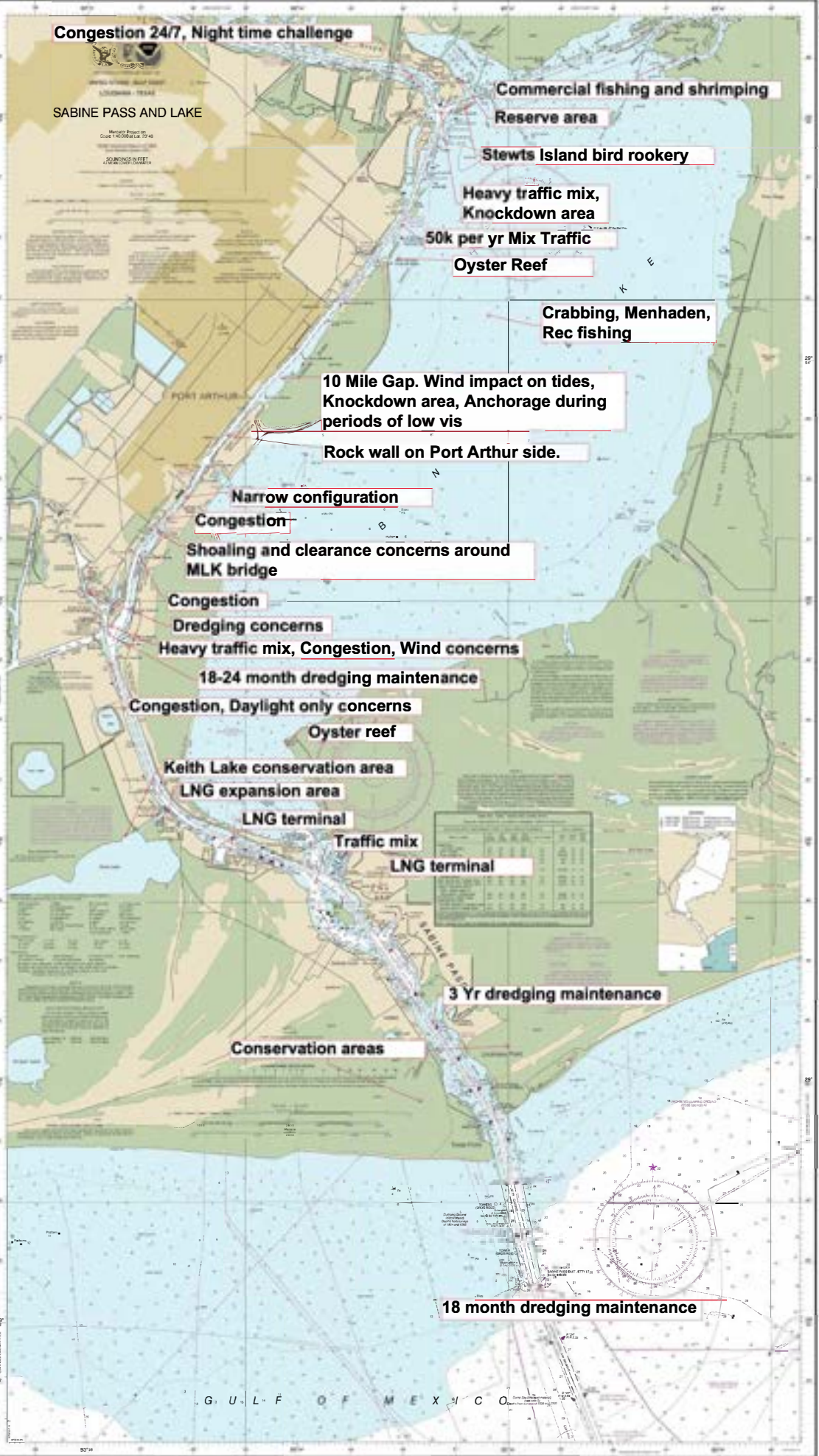
This Page Intentionally Left Blank



Submerged rocks



Bridge config concerns



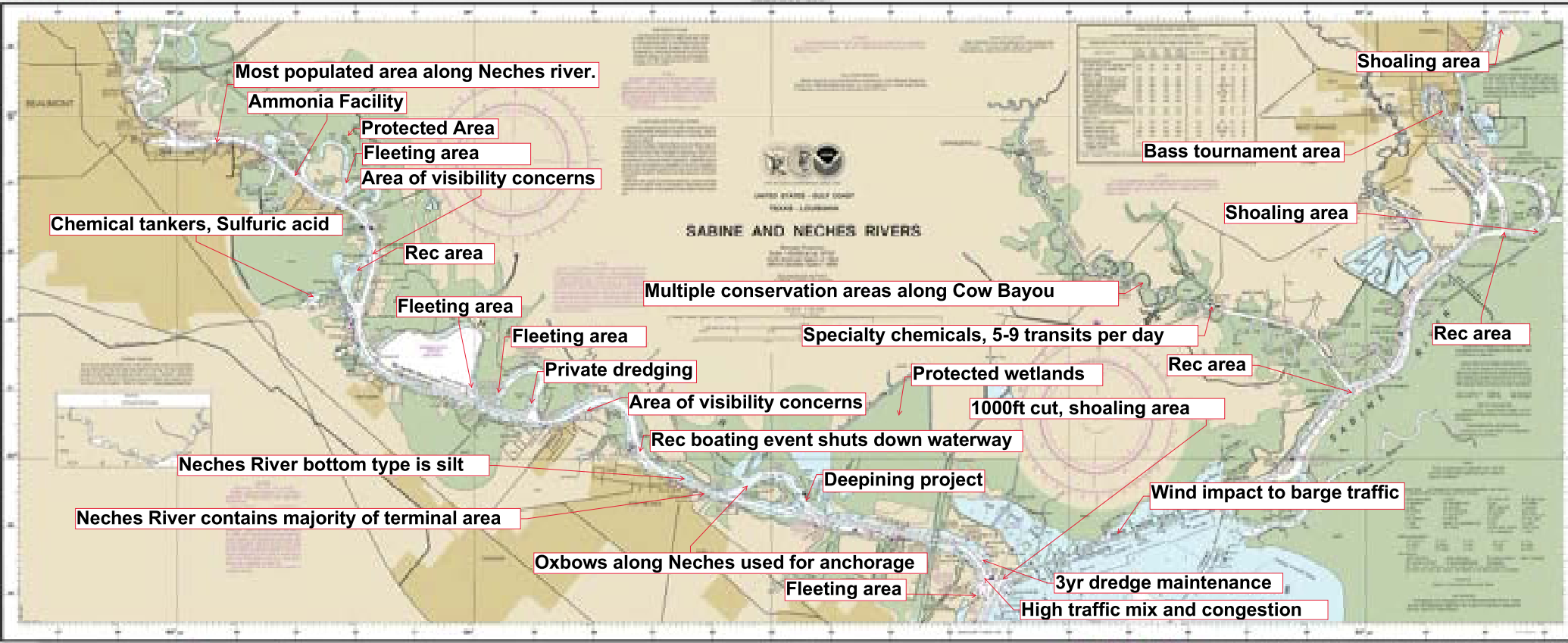
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

This chart will be available in a PDF (Portable Document Format) format. Printing PDF's may alter the chart's appearance. Registered users of the NOAA nautical chart website may print this chart for personal use only. This chart was distributed as a PDF (Portable Document Format) printing PDF's may alter the chart's appearance. Registered users of the NOAA nautical chart website may print this chart for personal use only.

This chart will be available in a PDF (Portable Document Format) format. Printing PDF's may alter the chart's appearance. Registered users of the NOAA nautical chart website may print this chart for personal use only. This chart was distributed as a PDF (Portable Document Format) printing PDF's may alter the chart's appearance. Registered users of the NOAA nautical chart website may print this chart for personal use only.

This chart will be available in a PDF (Portable Document Format) format. Printing PDF's may alter the chart's appearance. Registered users of the NOAA nautical chart website may print this chart for personal use only. This chart was distributed as a PDF (Portable Document Format) printing PDF's may alter the chart's appearance. Registered users of the NOAA nautical chart website may print this chart for personal use only.

SOUNDINGS IN FEET



11343

SOUNDINGS IN FEET

11343

THIS CHART IS A REPRODUCTION OF A CHART PUBLISHED BY THE U.S. COAST AND GEODETIC SURVEY. IT IS NOT TO BE USED AS A BASIS FOR LEGAL PROCEEDINGS. THE U.S. COAST AND GEODETIC SURVEY IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS. THE U.S. COAST AND GEODETIC SURVEY IS NOT RESPONSIBLE FOR ANY DAMAGE TO PROPERTY OR PERSONS ARISING FROM THE USE OF THIS CHART. THE U.S. COAST AND GEODETIC SURVEY IS NOT RESPONSIBLE FOR ANY DAMAGE TO PROPERTY OR PERSONS ARISING FROM THE USE OF THIS CHART.

This Page Intentionally Left Blank

Appendix E

References

American Canoe Association
<http://www.americancanoe.org/>

The American Waterways Operators
<http://www.americanwaterways.com/>

Economic Impacts of the Port of Beaumont: <https://www.portofbeaumont.com/wp-content/uploads/2019/07/Attachment-7-Economic-Impact-Study.pdf>

Economic Impact of the Texas Ports on the State of Texas and the United States:
<http://www.texasports.org/wp-content/uploads/2017/04/NationalEconomicImpactoftheTexasPorts8-05-2016final.pdf>

Environmental Protection Agency
<https://www.epa.gov/regulations-emissions-vehicles-and-engines/domestic-regulations-emissions-marine-compression>

Gulf Intracoastal Canal Association (GICA)
<https://www.gicaonline.com/>

International Convention of Standards of Training, Certification and Watchkeeping (STCW)
[http://www.imo.org/en/About/conventions/listofconventions/pages/international-convention-on-standards-of-training,-certification-and-watchkeeping-for-seafarers-\(stcw\).aspx](http://www.imo.org/en/About/conventions/listofconventions/pages/international-convention-on-standards-of-training,-certification-and-watchkeeping-for-seafarers-(stcw).aspx)

International Marine Contracting Association (IMCA) Standards
<https://www.imca-int.com/>

International Tanker Owners Pollution Federation (ITOP)
<http://www.itopf.com/>

Life Lines Brochure - Safety Tips That Could Save Your Life
http://www.americanwaterways.com/commitment_safety/lifelines.pdf

Lone Star Mariners Guide
http://www.houston-pilots.com/documents/pdf/mariners_guide91117b.pdf

National Oceanic and Atmospheric Administration, National Ocean Service
<https://oceanservice.noaa.gov/>

Offshore Vessel Inspection Database (OVID)
<https://www.ocimf-ovid.org/>

Oil Company International Marine Forum (OCIMF)
<https://www.ocimf.org/>

Port of Beaumont:

<https://www.portofbeaumont.com/about/>

Port of Orange:

<https://www.portoforange.com/about>

Port of Port Arthur

<https://portpa.com/international-cargo-shipping-the-port-of-port-arthur/>

PORTS

<https://tidesandcurrents.noaa.gov/ports.html>

Recreational Boating Safety - Accident Statistics

http://www.uscgboating.org/statistics/accident_statistics.php

Ship Inspection Report Program (SIRE)

<https://www.ocimf.org/sire/>

SIRE

<https://www.ocimf.org/media/84968/SIRE-Factsheet-May-2018.pdf>

State Specific Boating Safety Requirements

<http://www.americasboatingcourse.com/lawsbystate.cfm>

Texas General Land Office

<https://www.glo.texas.gov/ost/index.html>

Texas Park and Wildlife

<https://tpwd.texas.gov/>

U.S. Army Corps of Engineers - Regulatory Policies

<http://www.usace.army.mil/Missions/>

U.S. Army Corps of Engineers - Vessel Transit Statics

<http://www.navigationdatacenter.us/>

U.S. Coast Guard - Navigation Rules and Regulations

<http://www.navcen.uscg.gov/?pageName=navRuleChanges>

USCG PSC regulations

<https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/Commercial-Vessel-Compliance/Foreign-Offshore-Compliance-Division>

U.S. Coast Guard - Vessel Inspection Regulations

<http://www.ecfr.gov/cgi-bin/ECFR?page=browse>

U.S. Coast Guard - Vessel Traffic Services

<https://www.navcen.uscg.gov/?pageName=vtsLocations>

U.S. Coast Guard Auxiliary Requirements for Recreational Boats

<http://www.cgaux.org/boatinged/classes/2011/bss.php>

This Page Intentionally Left Blank

Appendix F

Abbreviations and Acronyms

ACP	Area Contingency Plan
AIS	Automated Identification System
ANPRM	Advance Notice of Proposed Rulemaking
ATON	Aids to Navigation
BWI	Boating While Intoxicated
BTM	Broadcast Notice to Mariners
COTP	Captain of the Port
EPA	Environmental Protection Agency
MARAD	Maritime Administration
MTS	Marine Transportation System
MTSRU	Marine Transportation System Recovery Unit
NDG	National Dialogue Group
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration
OSRO	Oil Spill Response Organization
PAWSA	Ports and Waterways Safety Assessment
PDF	Personal Flotation Device
PSC	Port State Control
PORTS	Physical Oceanographic Real-Time System
RNA	Regulated Navigation Areas
STCW	Standards of Training Certification of Watchkeeping
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
VHF	Very High Frequency
VMRS	Vessel Movement Reporting System
VTM	Vessel Traffic Management
VTS	Vessel Traffic Service

This Page Intentionally Left Blank

STATE OF THE WATERWAY - 2019



U. S. PORT RANKINGS 2018 (by total tonnage)

(Millions of Short Tons – 2018 ACOE data)



1	Port of S. Louisiana, LA	275.5	20	Duluth/Superior, MN/WI	35.1
2	Houston, TX	268.9	21	Huntington– Tristate	34.2
3	New York, NY and NJ	140.2	22	Tampa, FL	31.0
4	Beaumont, TX	100.2	23	Pascagoula, MS	27.3
5	Corpus Christi, TX	93.4	24	Richmond, CA	27.2
6	New Orleans, LA	93.3	25	Philadelphia, PA	26.6
7	Long Beach, CA	86.5	26	Seattle, WA	26.0
8	Baton Rouge, LA	82.2	27	Valdez, AK	25.8
9	Port of Virginia	71.7	28	Freeport, TX	25.4
10	Los Angeles, CA	67.8	29	Port Everglades, FL	25.0
11	Mobile, AL	58.6	30	Charleston, SC	24.8
12	Lake Charles, LA	56.9	31	Portland, OR	23.2
13	Plaquemines, LA	56.8	32	Tacoma, WA	22.8
14	Baltimore, MD	44.7	33	Pittsburgh, PA	21.5
15	Texas City, TX	42.6	34	Oakland, CA	19.3
16	Savannah, GA	41.2	35	Jacksonville, FL	17.9
17	Port Arthur, TX	39.8	36	Two Harbors, MN	17.2
18	Cincinnati-Northern, KY	38.5	37	Chicago, IL	16.8
19	St Louis, MO/IL	37.4	134	Orange, TX	1.2

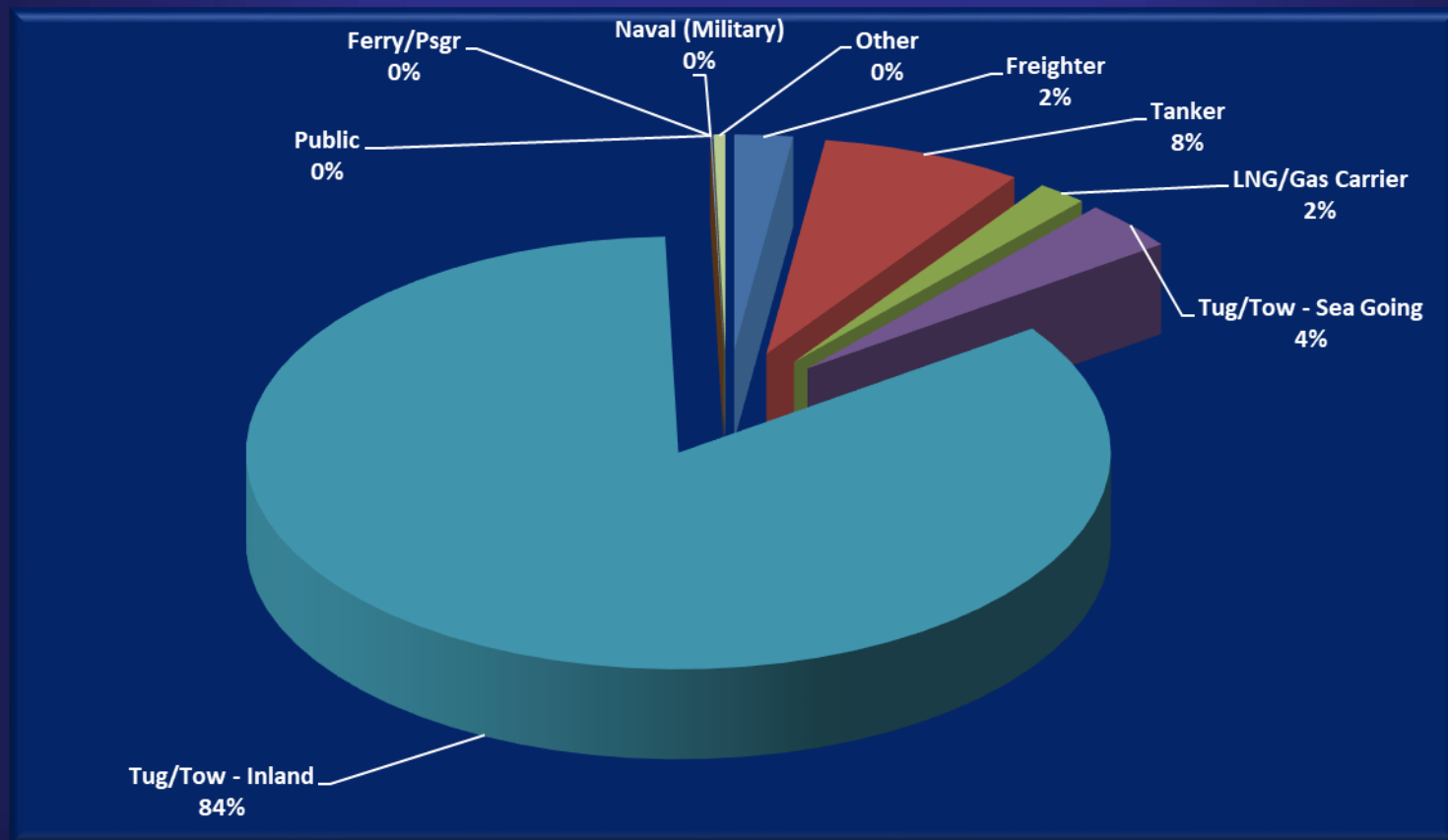
VTS Total Transits – 2019

	<u>2018</u>	<u>2019</u>	<u>%Change</u>
Tug / Tow	52,198	50,311	- 0.04 %
Tanker	4,698	4,326	- 0.08 %
Freighter	1,191	1,251	+ 0.05 %
Gas	925	1,069	+ 15.0 %
Other	350	281	- 20.0 %
Total	58,472	57,238	- 0.02 %

Total Transits 2010 – 2019



TRANSIT SUMMARY by Percentage – 2019



2019 TYPICAL DAY IN THE VTSA



	2018	2019	
TANKER TRANSITS	12.9	11.8	- .08 %
FREIGHTER TRANSITS	3.3	3.4	+ .03 %
GAS CARRIER TRANSITS	2.5	3.0	+ .20 %
TUG (Sea-Going)	5.4	5.7	+ .06 %
TOW TRANSITS	137.6	132.1	- .04 %
OSV / OTHER TRANSITS	0.95	0.80	- .16 %

INCIDENT SUMMARY – 2019



Incidents by Vessel Type

26	Ships
24	Inland Tows
1	Tugs
1	F/V
2	Misc. (e.g. Barges)
1	Facilities (TPC Fire)

55

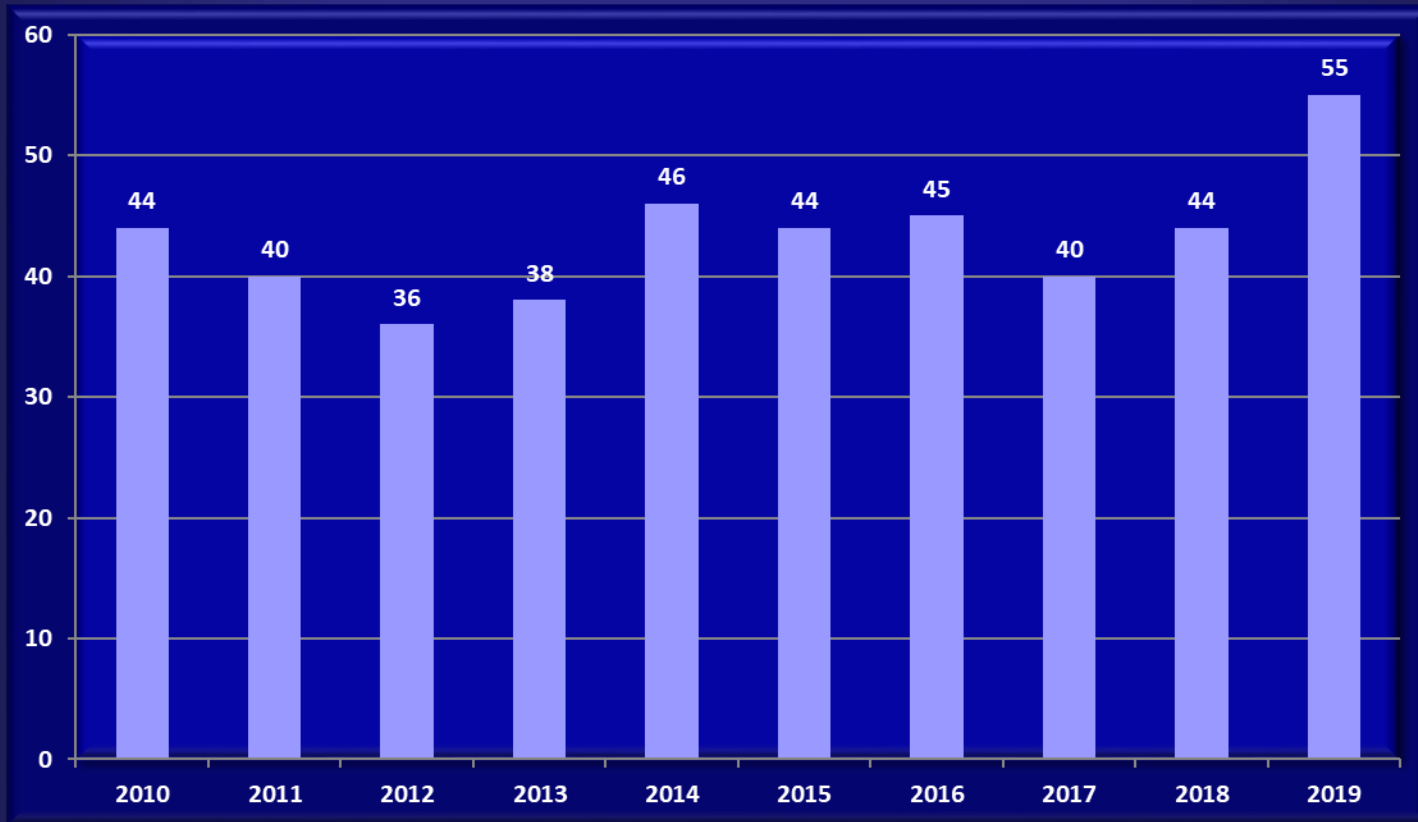
Incidents by Reported Cause

8	COLLISIONS	PY	2
	• ATB and OSV		
6	ALLISIONS		10
	• 2 Reported ATON Knockdowns		
	• 3 Bridge allisions (2 fenders / 1 AD)		
8	GROUNDINGS		3
	• 1 Tanker / 7 ITV		
21	MECHANICAL FAILURE		10
12	MISCELLANEOUS		19
	• 3 Wake Damage		9
	• 1 Breakaway		3
	• 4 Near Miss (2 FVs + 1 outside AOR)		6
	• 1 Fire		1
	• 1 Facility Fire		0

55

44

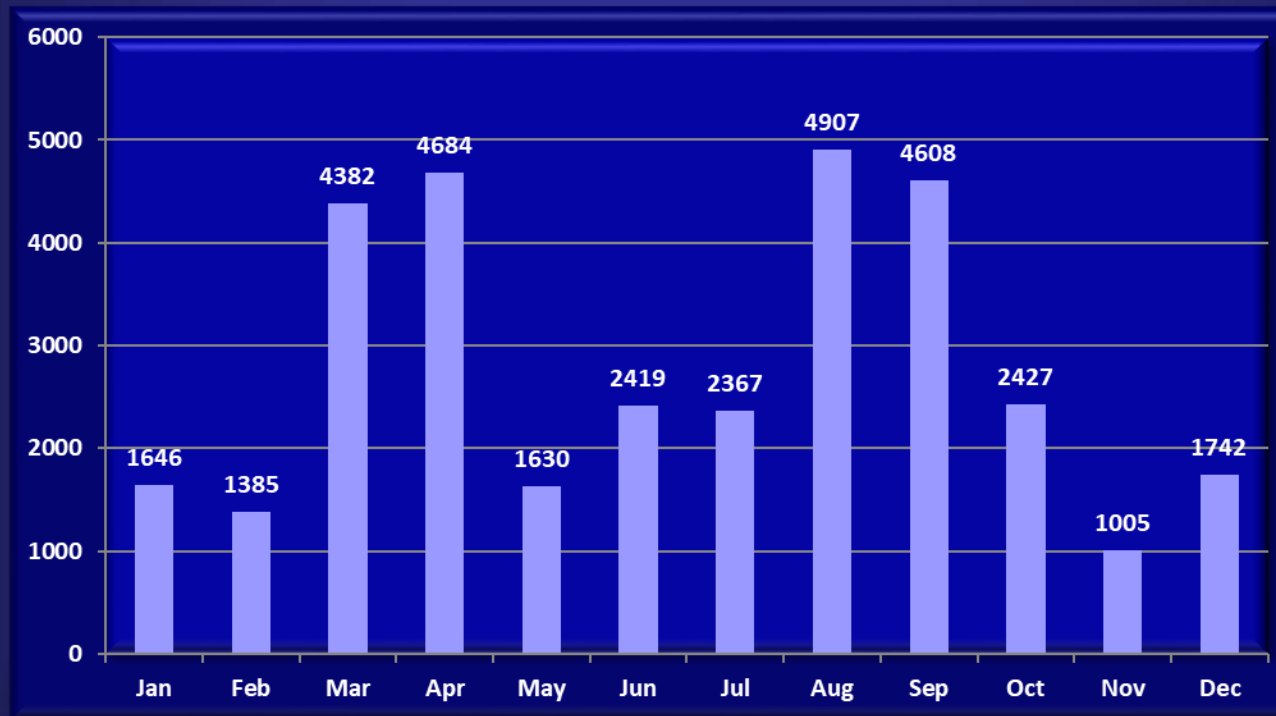
Total Incidents 2010-2019



Transits per Navigation Incident by Month 2019



(Allisions, Collisions, Groundings and Wake Damages only)



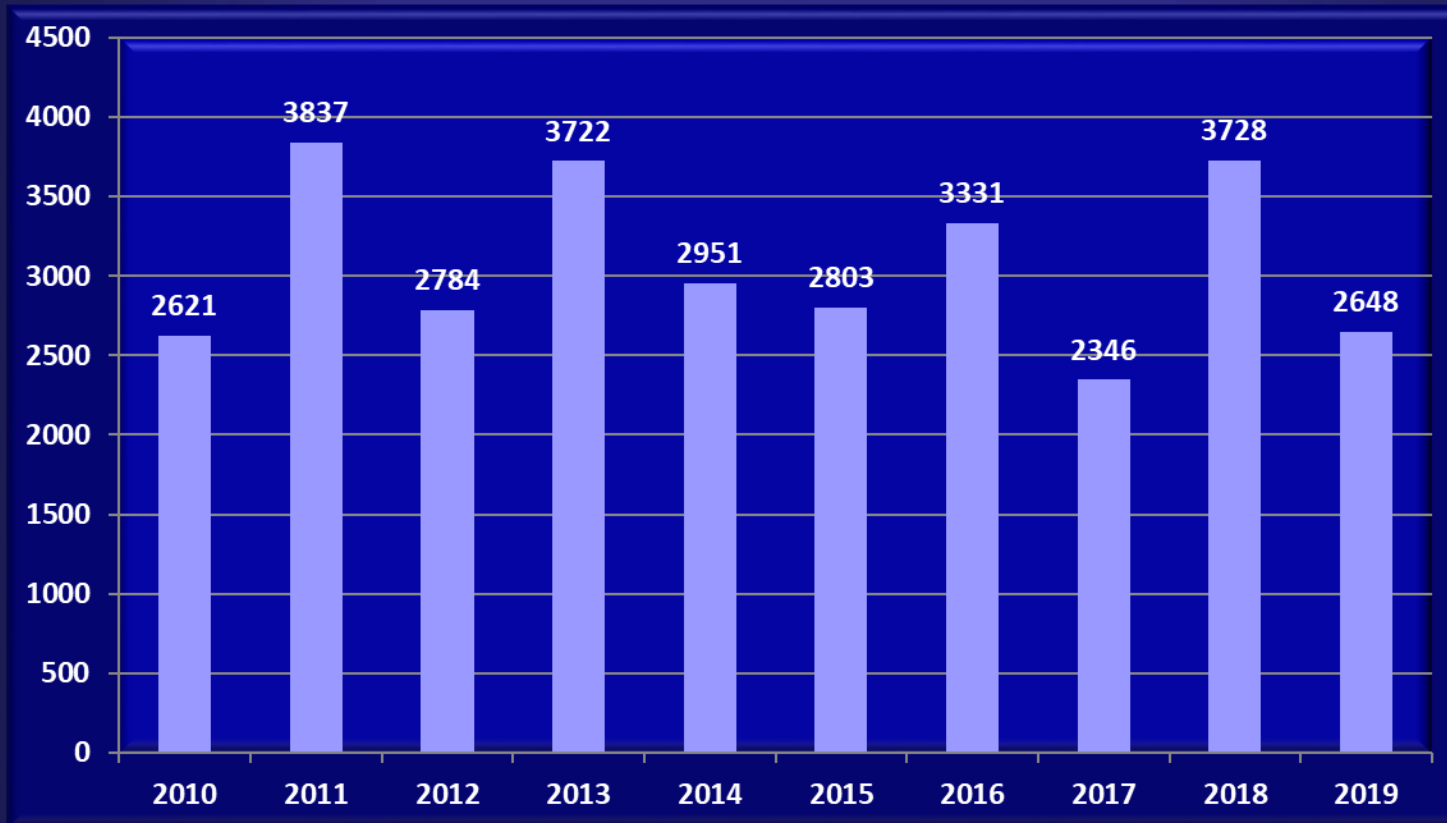
Ship Transits per Incident 2010-2019

(Allisions, Collisions, Groundings and Wake Damages only)



Tow Transits per Incident 2010-2019

(Allisions, Collisions, Groundings and Wake Damages only)

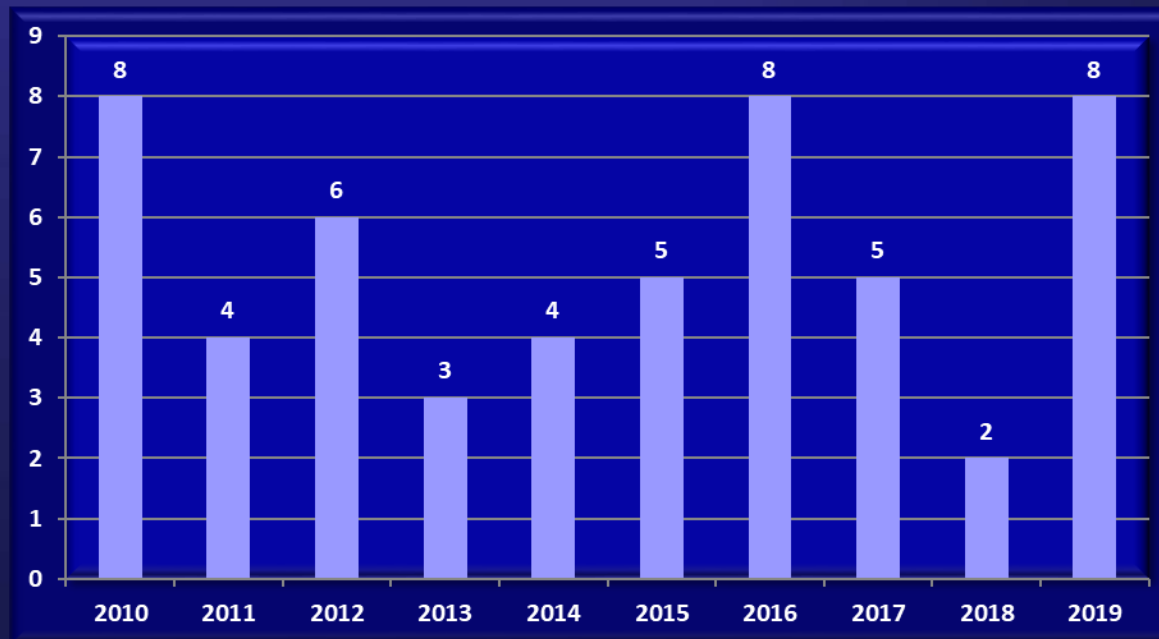


COLLISIONS



2019: 8 Total Collisions

- **6 Tows**
- **1 Ship**
- **1 Other**





Collisions 2019

ALLISIONS



2019: 6 Total Allisions

- **5 Tows**
- **1 Ship**





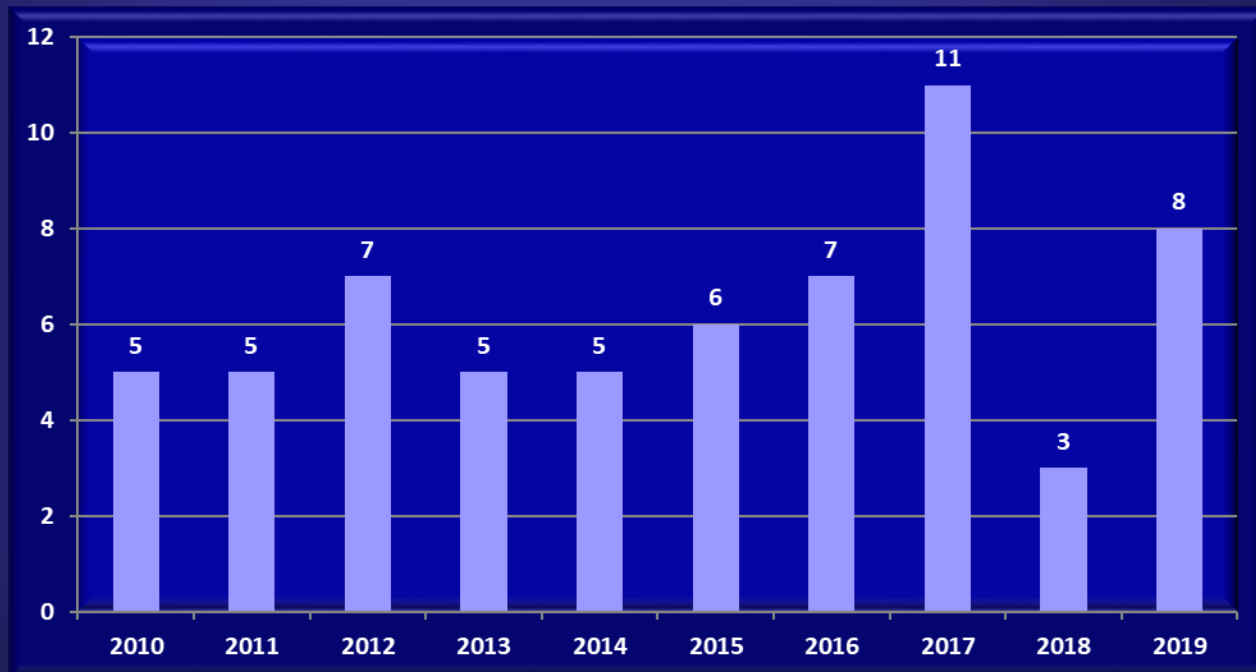
Allisions 2019

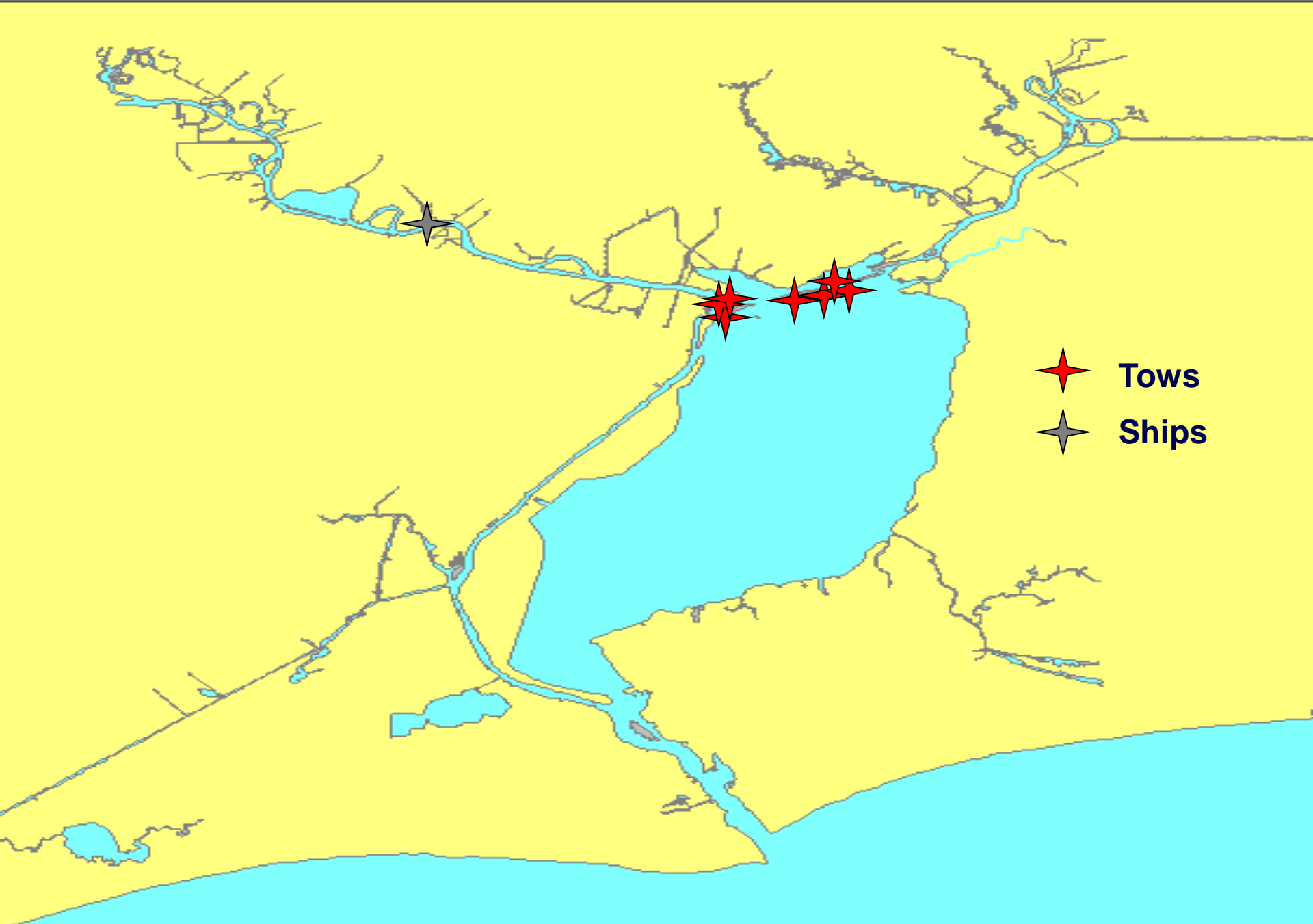
GROUNDINGS



2019: 8 Total Groundings

- **7 Tows**
- **1 Ship**



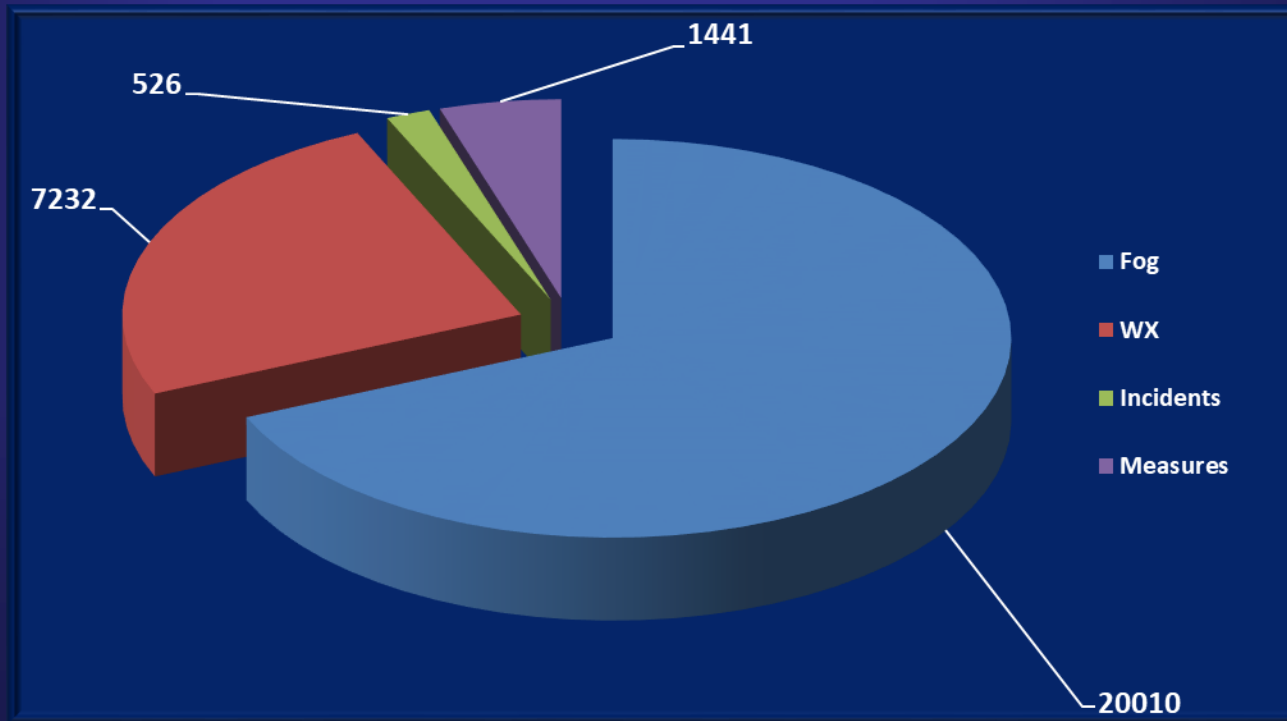


 **Tows**
 **Ships**

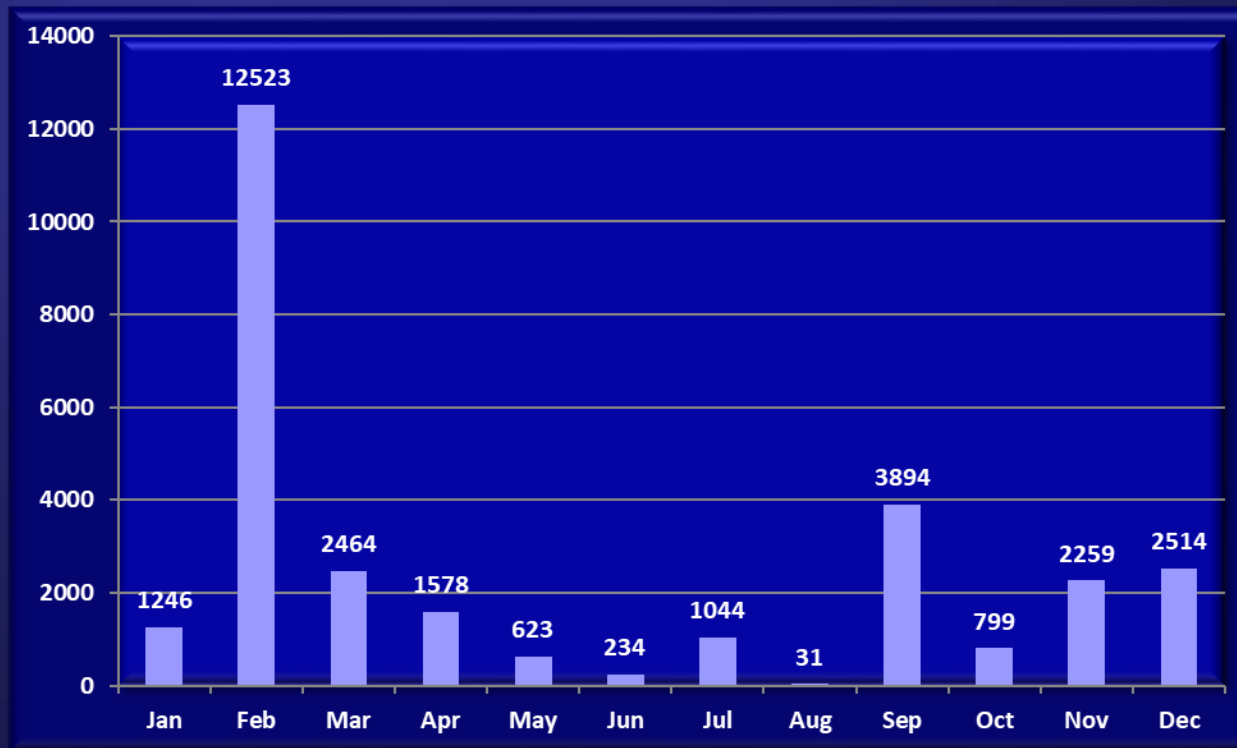
Groundings 2019



2019 Sabine-Neches Delays (in vessel hours)



2019 Total Vessel Delays by Month (in vessel hours)



2019 INCIDENT HIGHLIGHTS

- 4 Breakaways/Wake Damage:
 - 3 Wake Damage (+6 Wake Complaints)
 - 1 Breakaway
- 2 ATON Knockdowns (Reported)
- Increase in Equipment Failures
- 4 Near Miss Situations:
 - 1 Seaward of the SB Buoy
 - 2 F/V (1 impeding / 1 near miss of jetties)
 - 1 F/V at Sabine Pass Jetties
- 1 Significant Collisions:
 - ATB and OSV at Sabine Jetties

2020 CHALLENGES



- **Planning for Deepening Project.**
- **Planning for increased ship traffic including LHG transits.**

VTS/WATERWAYS CONTACTS



- **Scott Whalen, Director VTS Port Arthur,**
(409) 719-5086 scott.k.Whalen@uscg.mil
- **Douglas Hendrix, Operation/Training Manager,**
(409) 719-5083 douglas.g.hendrix2@uscg.mil
- **Vessel Traffic Center, Watch Supervisor 24hrs**
(409) 719-5070 msupportarthur-vtssup@uscg.mil
- **VTS Webpage –** <https://www.atlanticarea.uscg.mil/vtspportarthur/>
- **Homeport Website –** <http://homeport.uscg.mil>

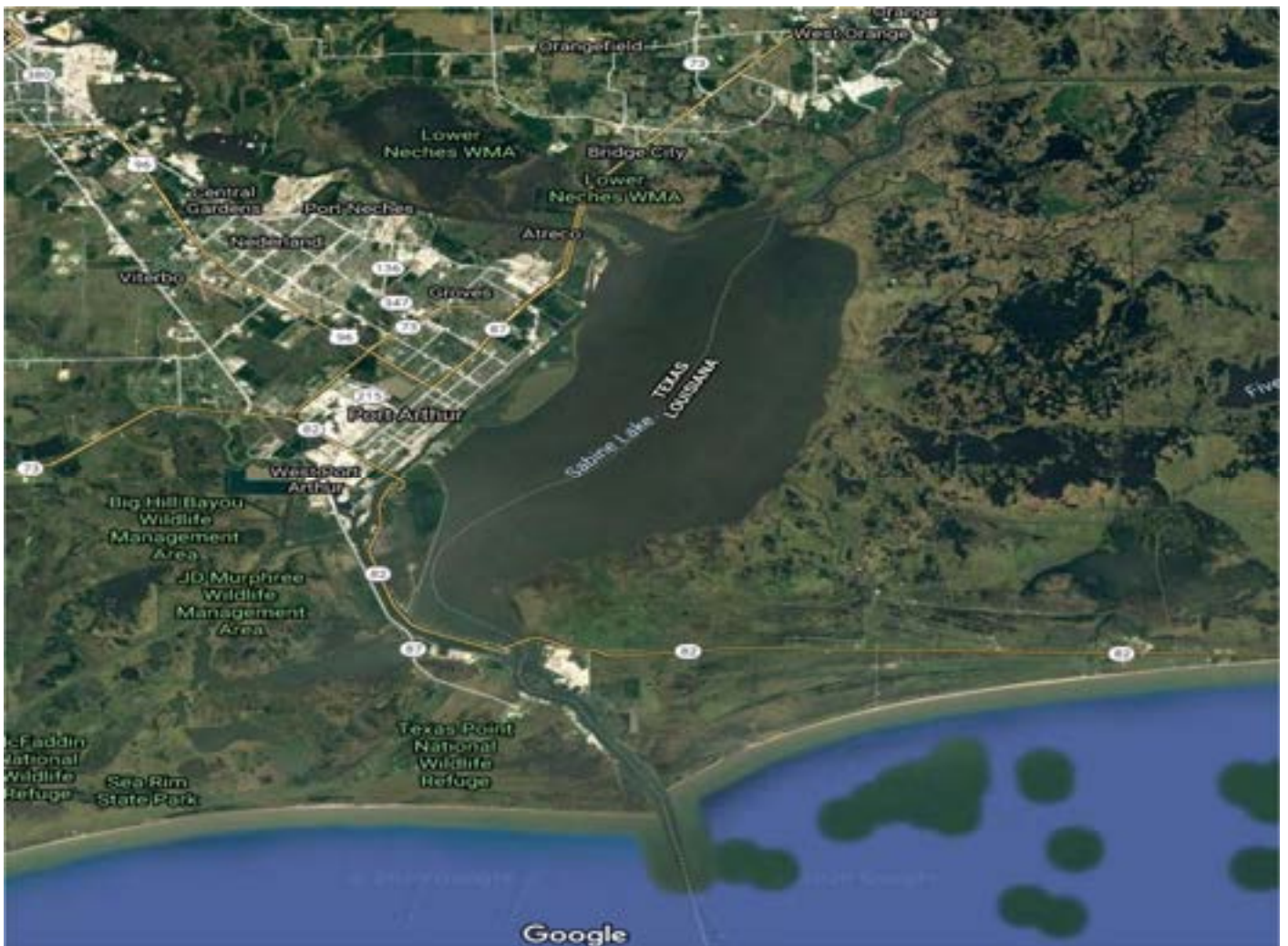


This Page Intentionally Left Blank



SABINE-NECHES WATERWAY PORTS AND WATERWAYS SAFETY ASSESSMENT (PAWSA)

Traffic Statistics (Nov 2018 – Oct 2019)



Prepared by the US Coast Guard Navigation Center

DESCRIPTION AND METHODOLOGY

Vessel Traffic Stats:

The graphs on page five is based on Vessel Traffic Service (VTS) data collected by the Port Arthur Vessel Traffic Center. VTS provides active monitoring in which a VHF-FM communications network forms the basis of most major services. Transiting vessels make position reports to a vessel traffic center by radiotelephone and are in turn provided with accurate, complete, and timely navigational safety information. The addition of a network of radars, AIS, and closed circuit television cameras for surveillance and computer-assisted tracking, similar to that used in air traffic control, allows the VTS to play a more significant role in marine traffic management.

The bar graphs of the monthly summaries illustrate traffic volume for each month by vessel category and provides a sense of seasonal variation for the Sabine-Neches Waterway area. The monthly summaries, annual summary, and total transits on page five can be used to compare traffic across vessel categories. The intent of providing this data is to better inform discussion at the PAWSA workshop.

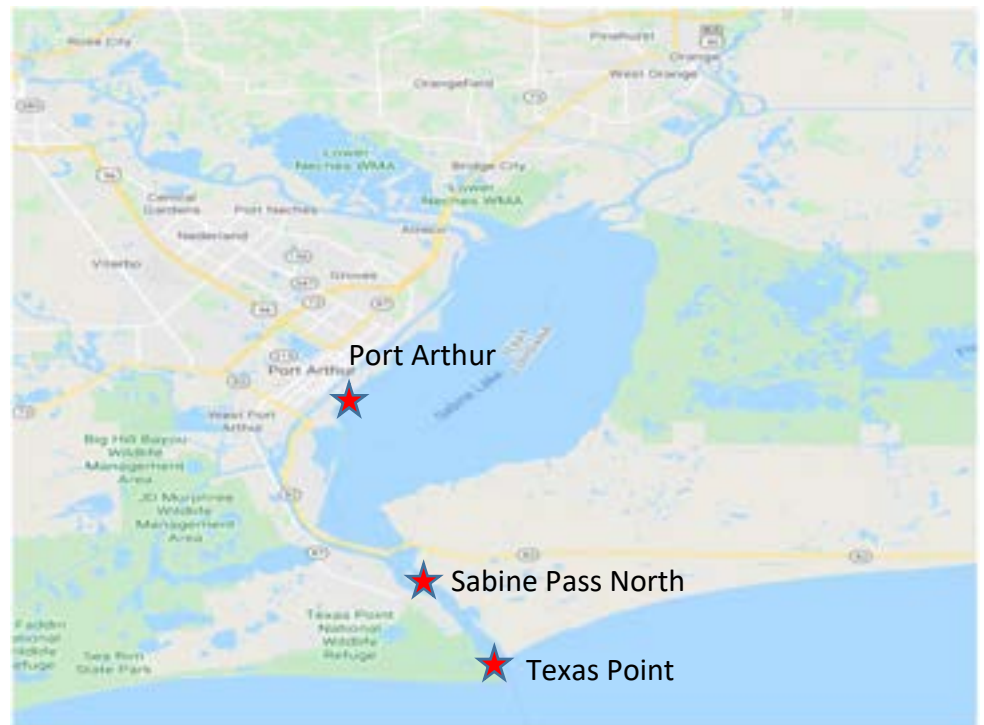
Vessel Traffic Density Maps:

Traffic data that was used to create the heat maps is pulled from the Nationwide Automated Information System (NAIS) which is collected by the US Coast Guard (USCG). Maps were created in ArcMap 10.5.1 by the USCG Navigation Center. The heat maps starting on page nine show all vessel traffic for the listed type over the course of a year. Densities are calculated by enumerating the length of transits per square mile $\frac{\text{Miles transited}(\text{year})}{\text{mile}^2}$, and is represented on a blue, yellow, red scale where low density is blue and high density is red. Vessel type is user defined. A *transit* starts when a vessel enters the area and ends when the vessel is unmoving for five hours or turns off their AIS transponder.

The category “Pleasure Craft and Other Vessels” includes pleasure craft, sailing vessels, high-speed craft, search and rescue craft, law enforcement craft, and other unspecified ship types. However, it also includes vessels that are broadcasting either the incorrect AIS code or an unknown ship type AIS code, such as a “0”. The “Other Commercial Vessels” category are ships transmitting ship type “Other” (90-99).

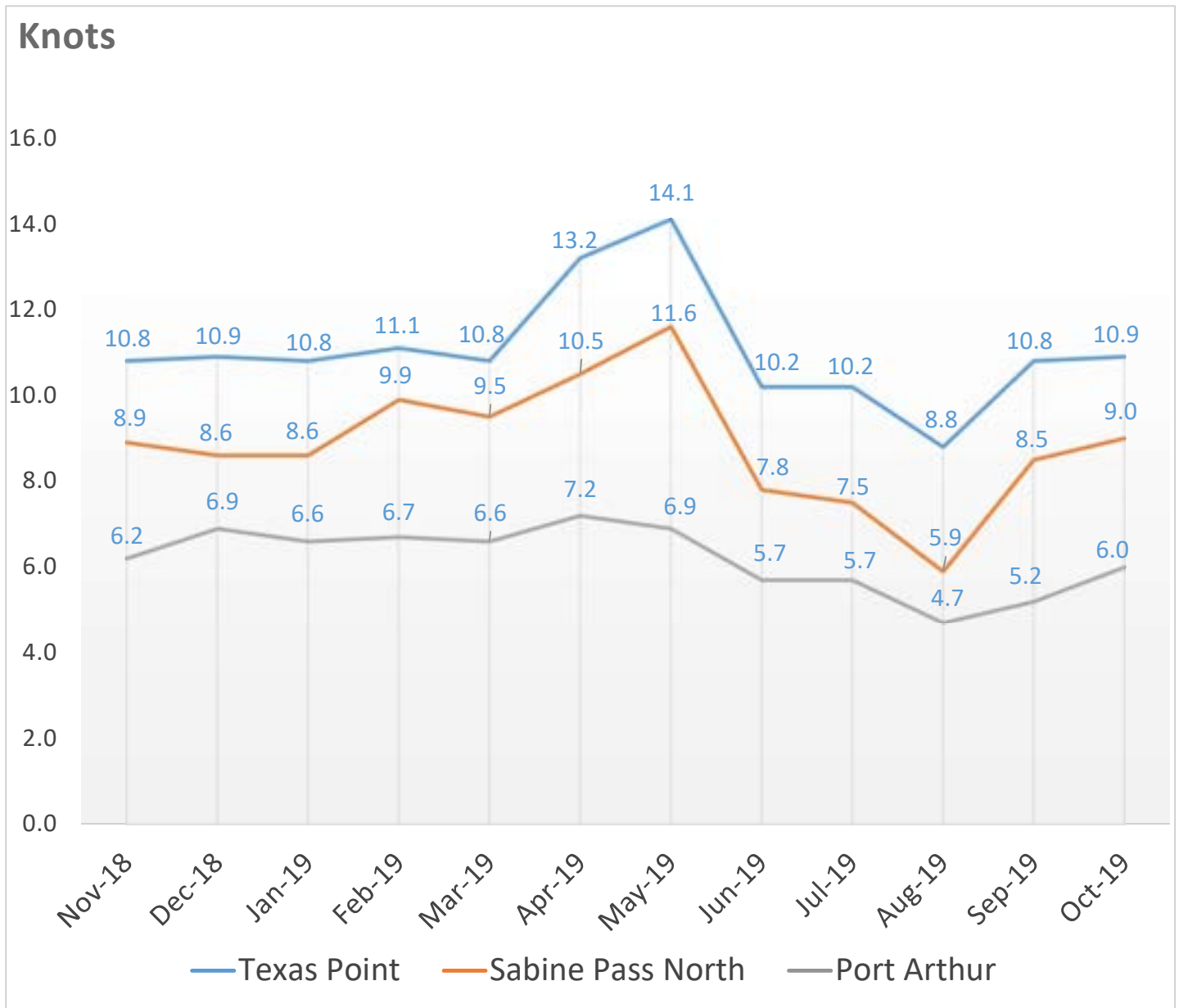
Weather Data:

Weather data was downloaded from NOAA’s National Data Buoy Center website (<https://www.ndbc.noaa.gov/>) for the three weather stations located at Port Arthur, Sabine Pass North, and Texas Point. This data range for weather pertains to the period from November 1st, 2018 – October 31st, 2019. The graph on the following page plots the monthly averages of wind speed (knots) for each of the three weather stations. Each station records and stores wind speed data in 6 minute aggregates for each month. The tables on page four break out the number of days in each month in which the wind speed was measured to have exceeded 20 knots at a given station. Lastly, page 3 lists the dense fog advisories issued by the National Weather Service for the Sabine-Neches region. These are issued when visibility is reduced to 1 nautical mile or less.



For more information please contact:
LT Marcus Fair
Waterways Risk Assessment &
Support Division
703-313-5873
marcus.l.fair@uscg.mil

Monthly Average Wind Speed



Number of Days with Dense Fog Advisories	
Month	No. of days each Month
Nov 2018	1
Dec 2018	4
Jan 2019	2
Feb 2019	17
Mar 2019	6
Apr 20 19	2
May 2019	0
Jun 2019	0
Jul 2019	0
Aug 2019	0
Sep 2019	0
Oct 2019	0

**Dense Fog Advisory data provided by the National Weather Service.*

Texas Point

Month	No. of Days Wind Speed > 20 Kn
Nov 2018	10
Dec 2018	9
Jan 2019	11
Feb 2019	12
Mar 2019	8
Apr 20 19	14
May 2019	19
Jun 2019	11
Jul 2019	8
Aug 2019	3
Sep 2019	10
Oct 2019	10
Total Over 1 Year	125

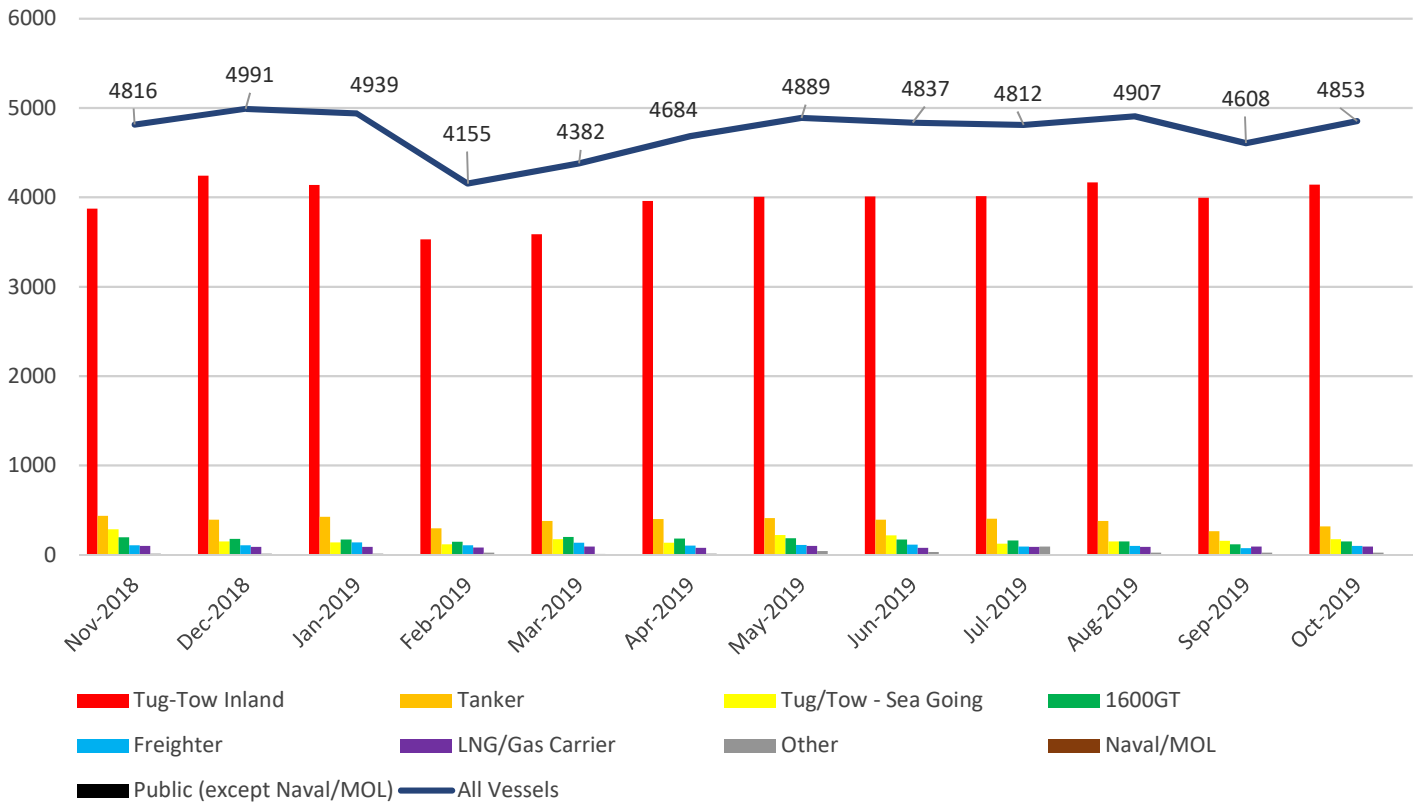
Sabine Pass North

Month	No. of Days Wind Speed > 20 Kn
Nov 2018	8
Dec 2018	5
Jan 2019	7
Feb 2019	7
Mar 2019	6
Apr 20 19	4
May 2019	13
Jun 2019	5
Jul 2019	5
Aug 2019	3
Sep 2019	7
Oct 2019	8
Total Over 1 Year	78

Port Arthur

Month	No. of Days Wind Speed > 20 Kn
Nov 2018	2
Dec 2018	2
Jan 2019	3
Feb 2019	0
Mar 2019	2
Apr 20 19	2
May 2019	3
Jun 2019	1
Jul 2019	1
Aug 2019	2
Sep 2019	0
Oct 2019	2
Total Over 1 Year	20

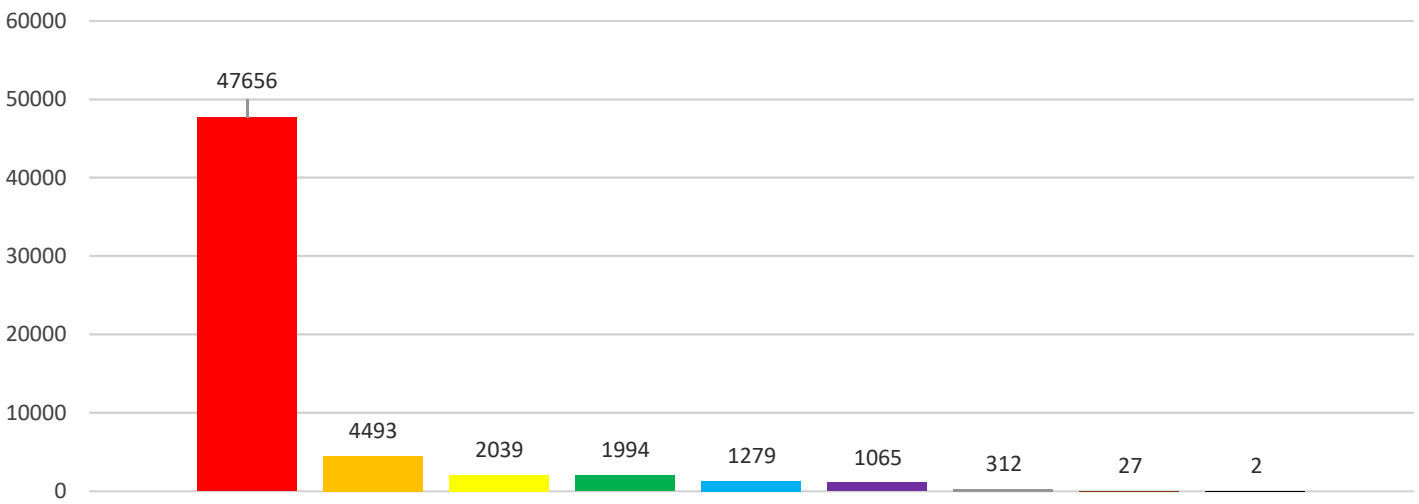
Monthly Summary



Traffic statistics on this page, except for the 1600 GT category, come from VTS data. Vessel tonnage was determined by registered tonnage of each vessel's Maritime Mobile Service Identity (MMSI). The category "Vessels over 1600 GT" applies to vessels of this tonnage spanning all categories.

*Vessels over 1600 GT are also included in other categories based on type. The 1600 GT percentage was calculated separately from the other percentages.

Annual Summary



STATE OF THE WATERWAY – 2019

(Excerpts)



VTS Total Transits – 2019

	<u>2018</u>	<u>2019</u>	<u>%Change</u>
Tug / Tow	52,198	50,311	- 0.04 %
Tanker	4,698	4,326	- 0.08 %
Freighter	1,191	1,251	+ 0.05 %
Gas	925	1,069	+ 15.0 %
Other	<u>350</u>	<u>281</u>	<u>- 20.0 %</u>
Total	58,472	57,238	- 0.02 %

2019 TYPICAL DAY IN THE VTSA



	2018	2019	
TANKER TRANSITS	12.9	11.8	- .08 %
FREIGHTER TRANSITS	3.3	3.4	+ .03 %
GAS CARRIER TRANSITS	2.5	3.0	+ .20 %
TUG (Sea-Going)	5.4	5.7	+ .06 %
TOW TRANSITS	137.6	132.1	- .04 %
OSV / OTHER TRANSITS	0.95	0.80	- .16 %

INCIDENT SUMMARY – 2019



Incidents by Vessel Type

- 26 Ships
- 24 Inland Tows
- 1 Tugs
- 1 F/V
- 2 Misc. (e.g. Barges)
- 1 Facilities (TPC Fire)

55

Incidents by Reported Cause

- 8 COLLISIONS
 - ATB and OSV
- 6 ALLISIONS
 - 2 Reported ATON Knockdowns
 - 3 Bridge allisions (2 fenders / 1 AD)
- 8 GROUNDINGS
 - 1 Tanker / 7 ITV
- 21 MECHANICAL FAILURE
- 12 MISCELLANEOUS
 - 3 Wake Damage
 - 1 Breakaway
 - 4 Near Miss (2 FVs + 1 outside AOR)
 - 1 Fire
 - 1 Facility Fire

PY

2

10

3

10

19

9

3

6

1

0

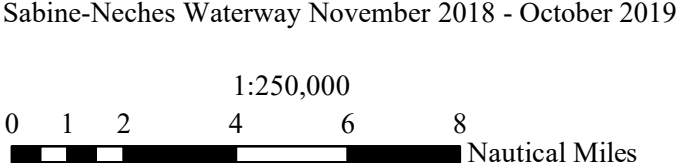
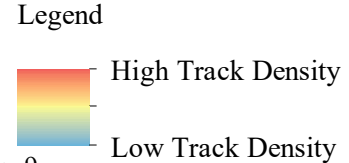
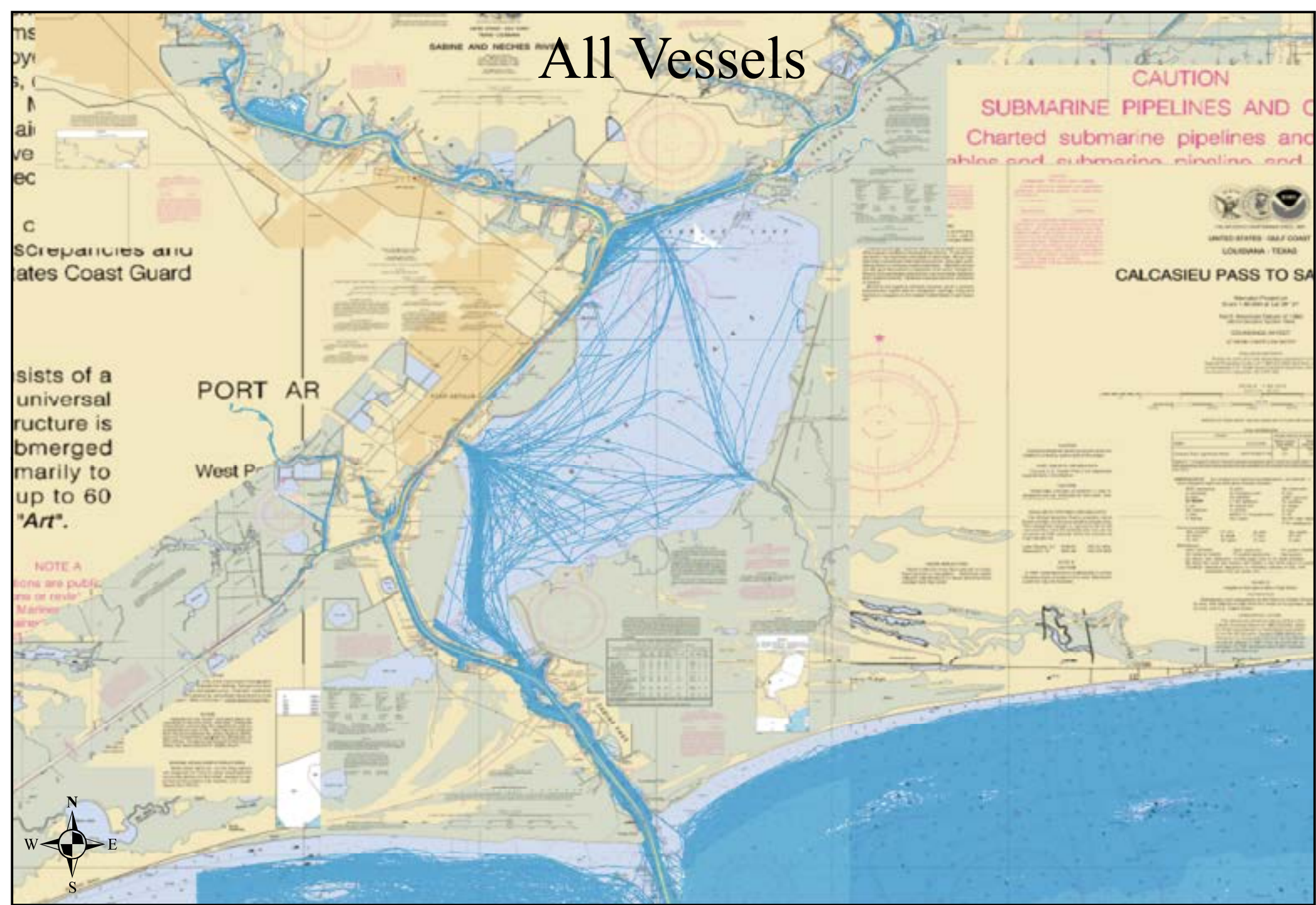
55

44

2019 INCIDENT HIGHLIGHTS

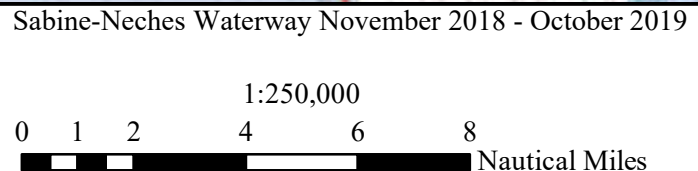
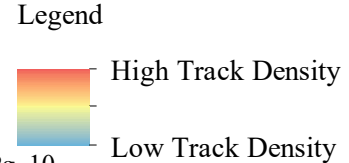
- 4 Breakaways/Wake Damage:
 - 3 Wake Damage (+6 Wake Complaints)
 - 1 Breakaway
- 2 ATON Knockdowns (Reported)
- Increase in Equipment Failures
- 4 Near Miss Situations:
 - 1 Seaward of the SB Buoy
 - 2 F/V (1 impeding / 1 near miss of jetties)
 - 1 F/V at Sabine Pass Jetties
- 1 Significant Collisions:
 - ATB and OSV at Sabine Jetties

All Vessels



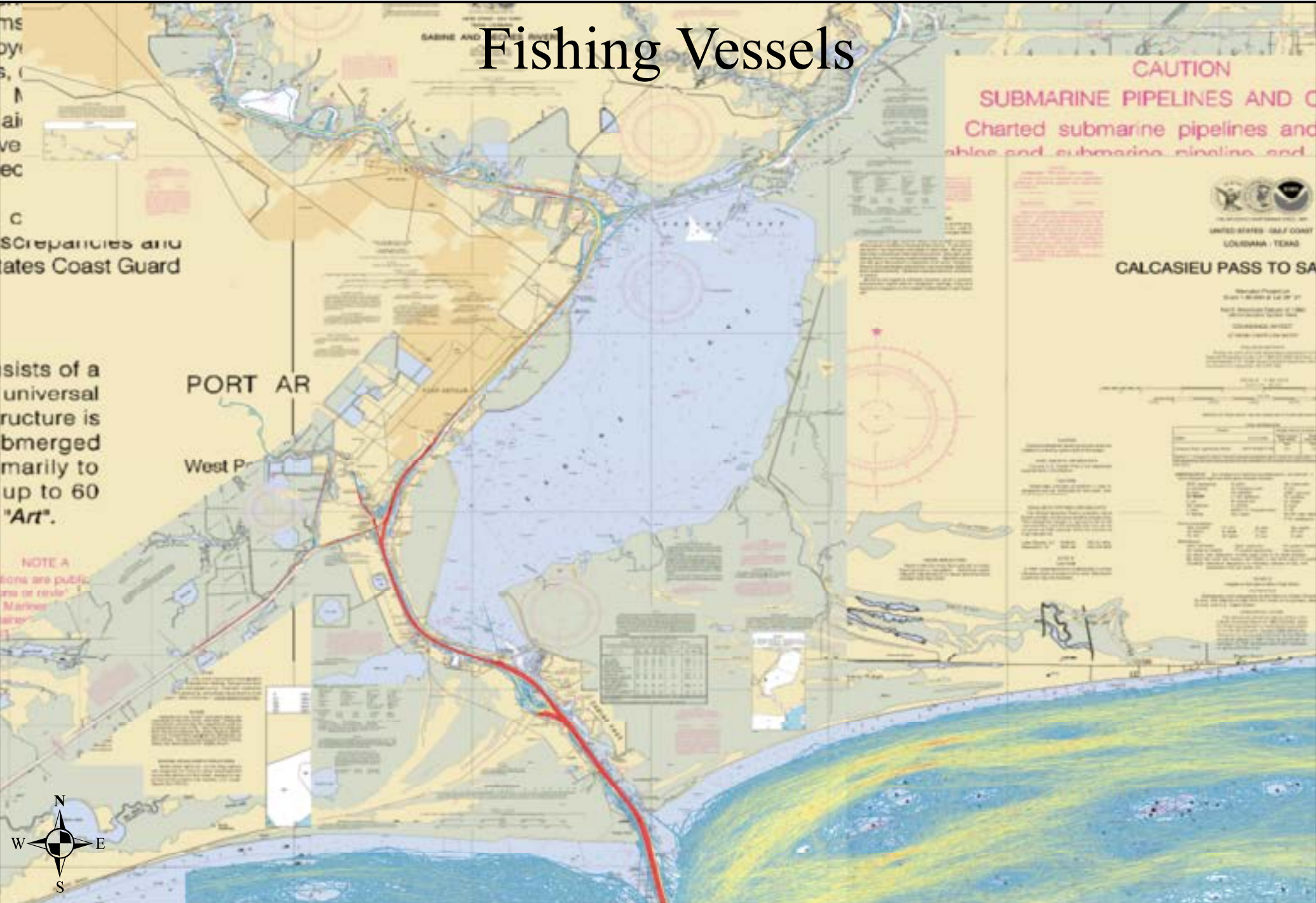
Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree
Data Source: NAIS
Prepared by Coast Guard Navigation Center

Cargo Vessels



Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Data Source: NAIS
 Prepared by Coast Guard Navigation Center

Fishing Vessels



Legend

High Track Density

Low Track Density

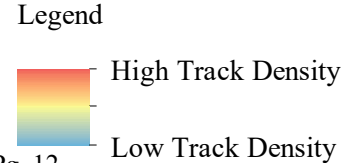
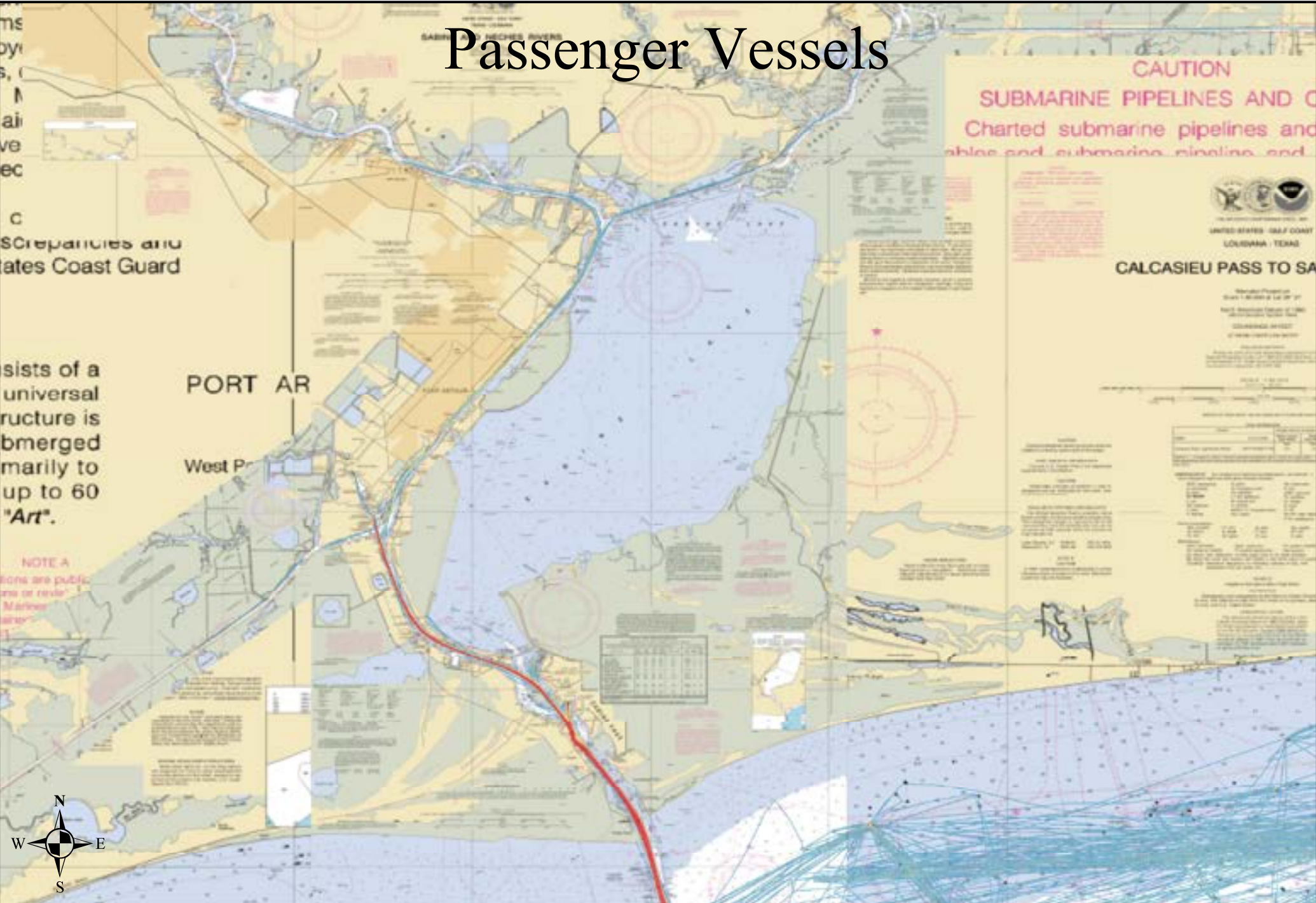
Sabine-Neches Waterway November 2018 - October 2019

1:250,000

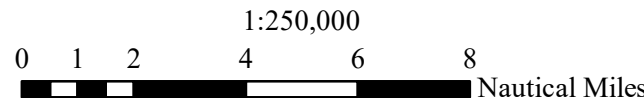
0 1 2 4 6 8 Nautical Miles

Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Data Source: NAIS
 Prepared by Coast Guard Navigation Center

Passenger Vessels

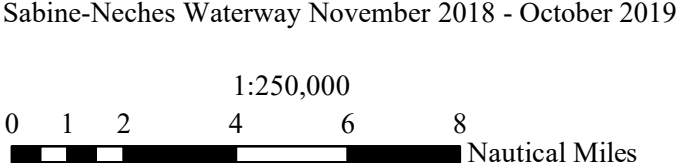
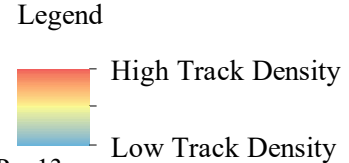


Sabine-Neches Waterway November 2018 - October 2019



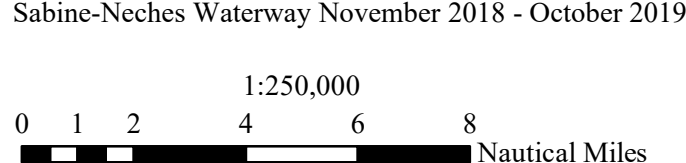
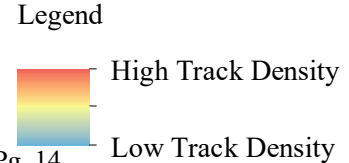
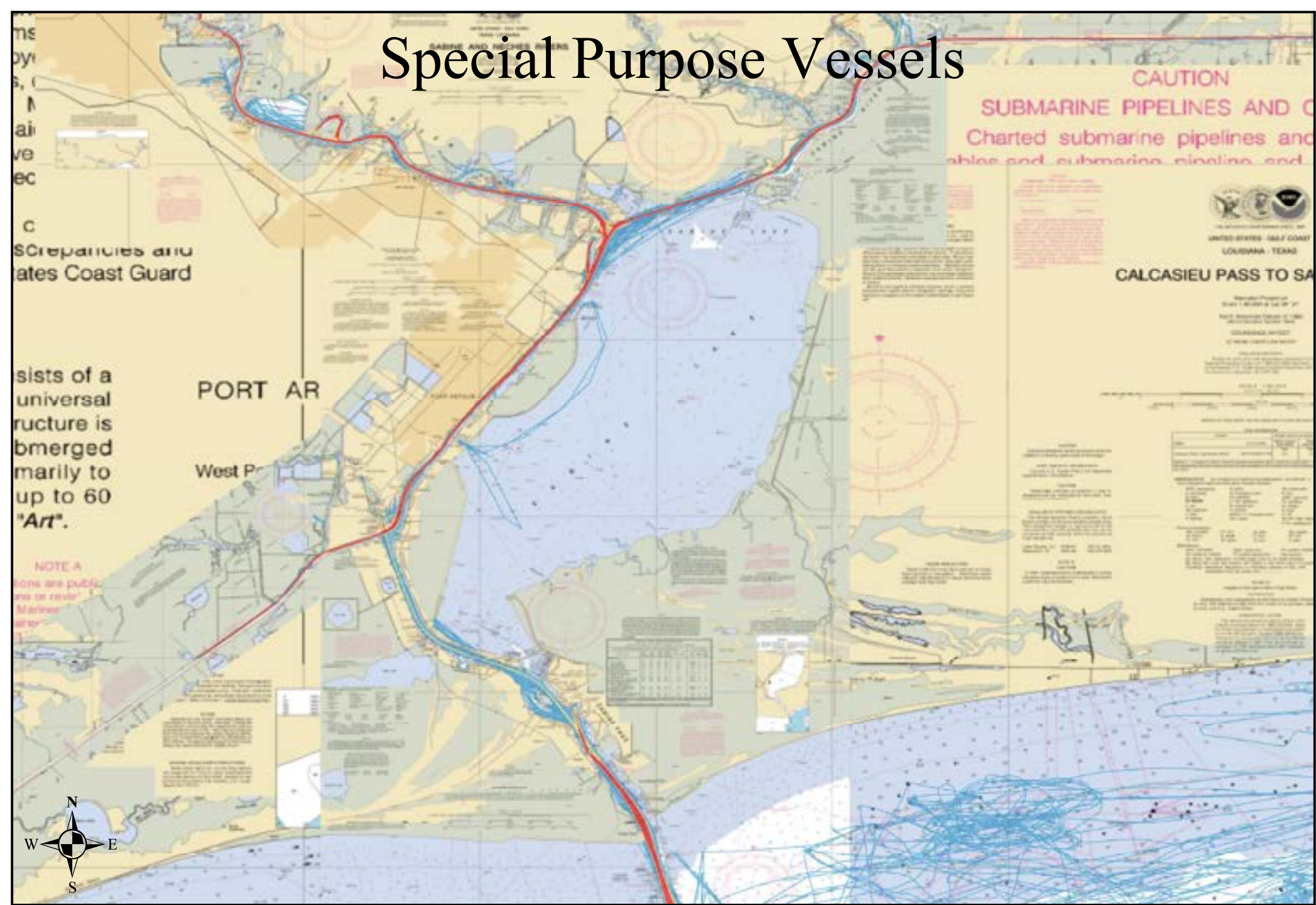
Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Data Source: NAIS
 Prepared by Coast Guard Navigation Center

Pleasure Craft\Sailing Vessels



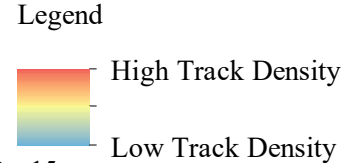
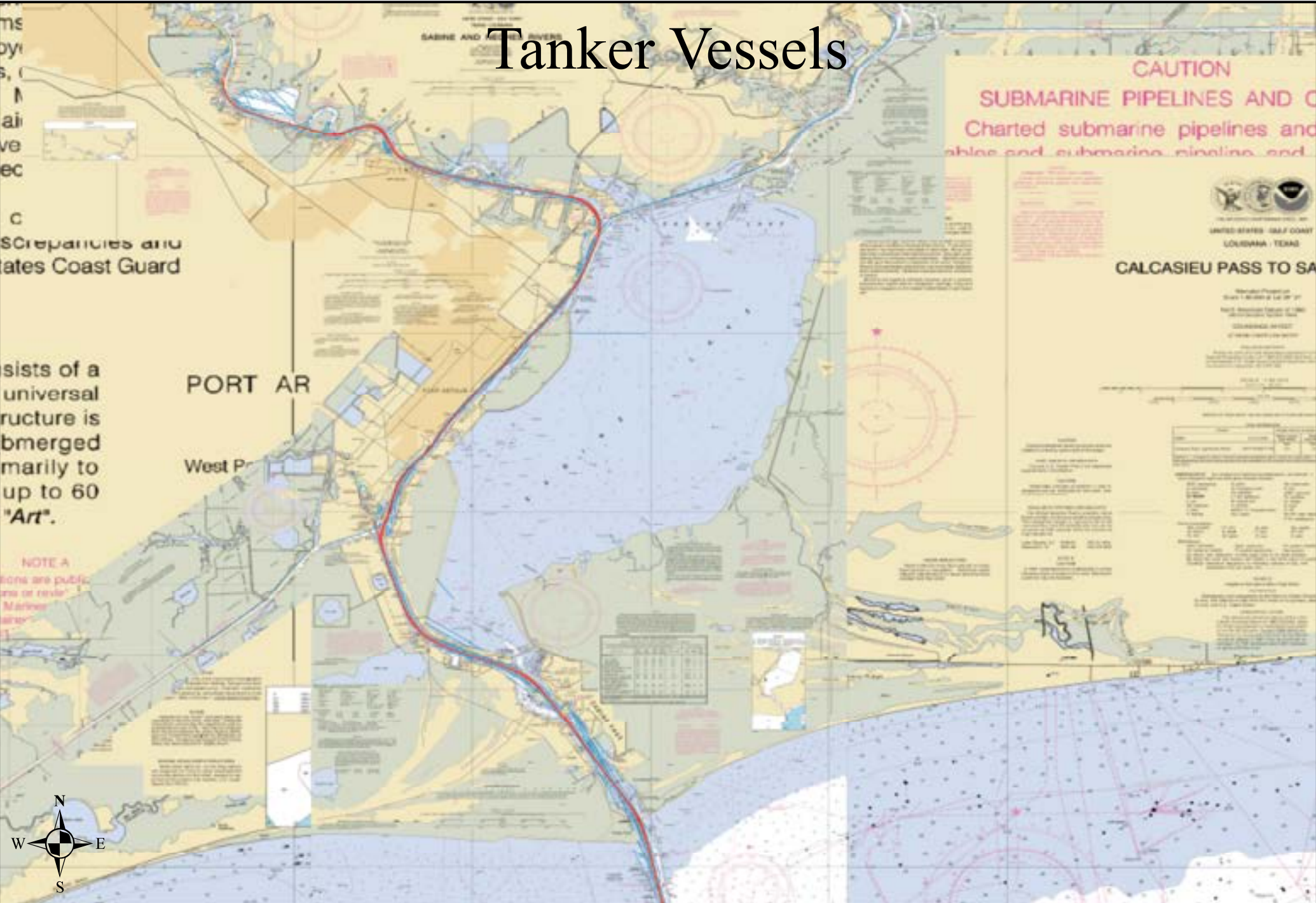
Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Data Source: NAIS
 Prepared by Coast Guard Navigation Center

Special Purpose Vessels

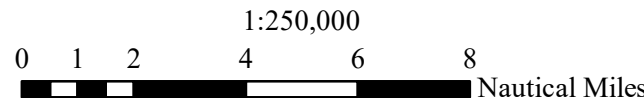


Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree
Data Source: NAIS
Prepared by Coast Guard Navigation Center

Tanker Vessels

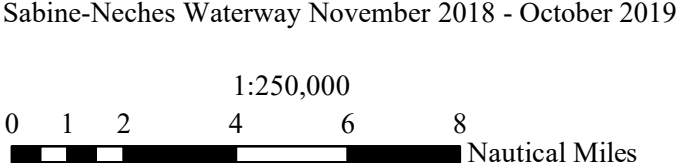
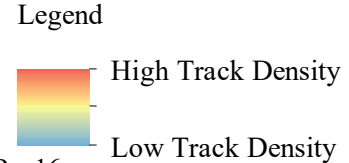
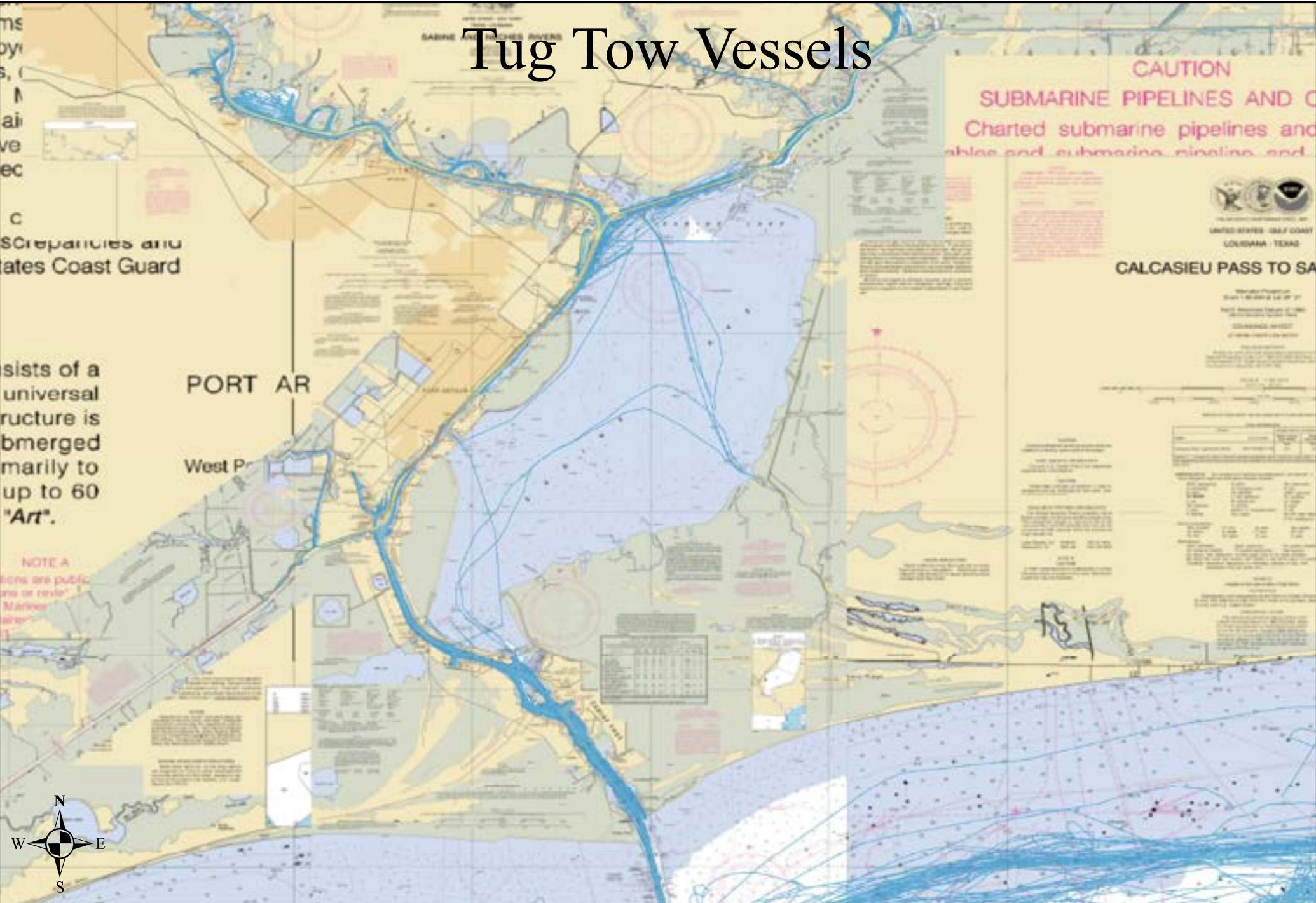


Sabine-Neches Waterway November 2018 - October 2019



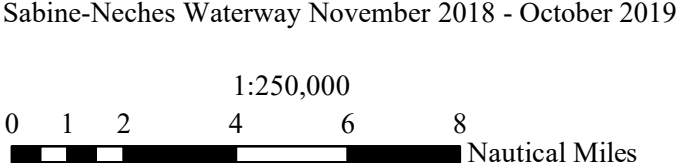
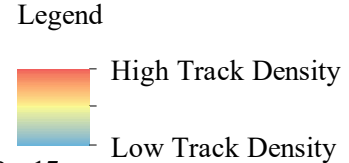
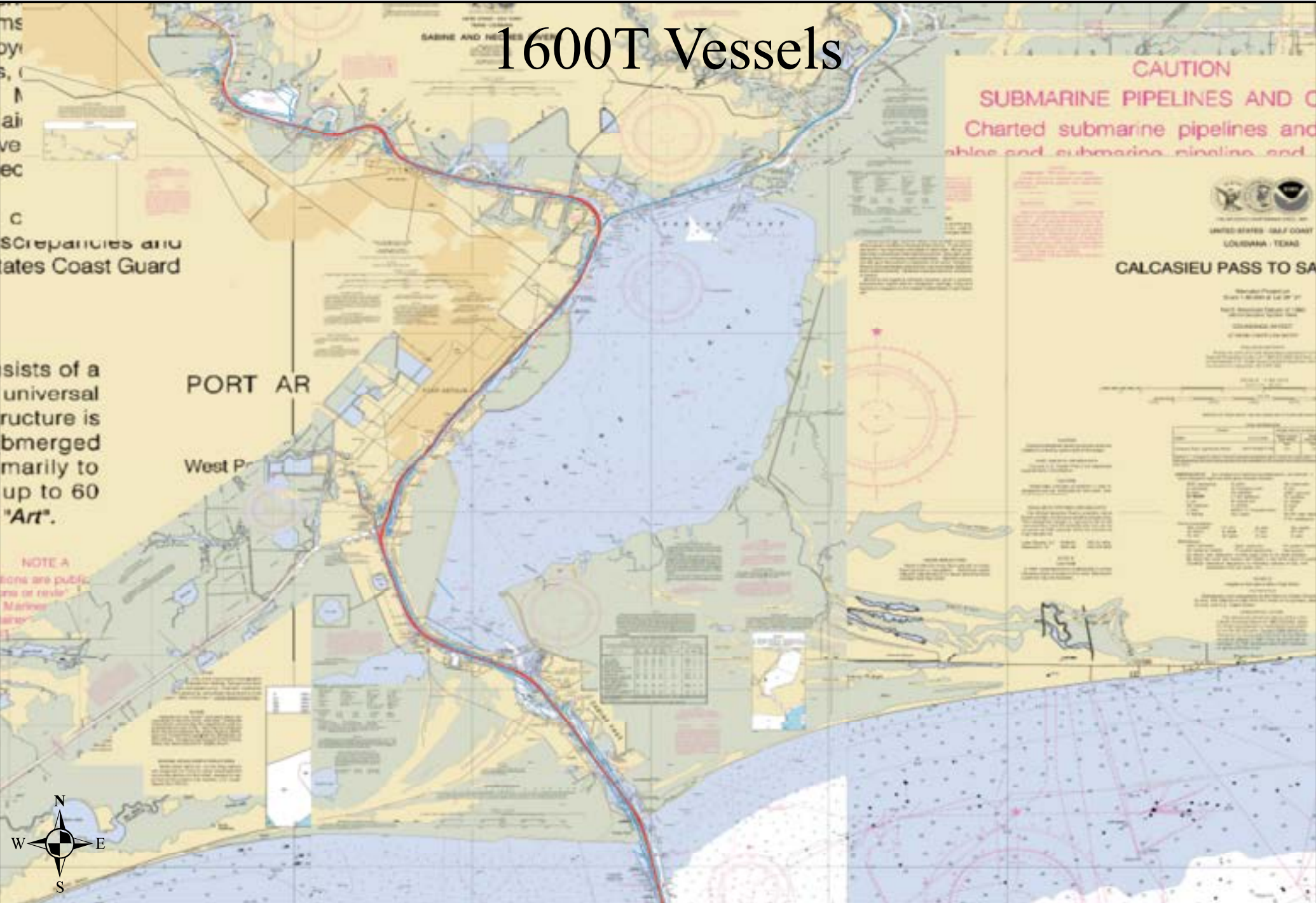
Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Data Source: NAIS
 Prepared by Coast Guard Navigation Center

Tug Tow Vessels



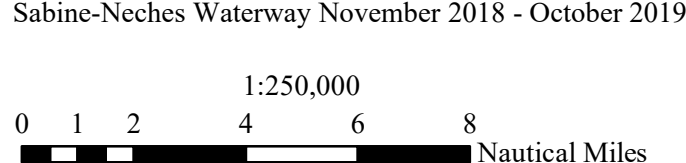
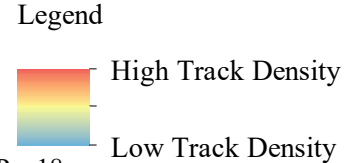
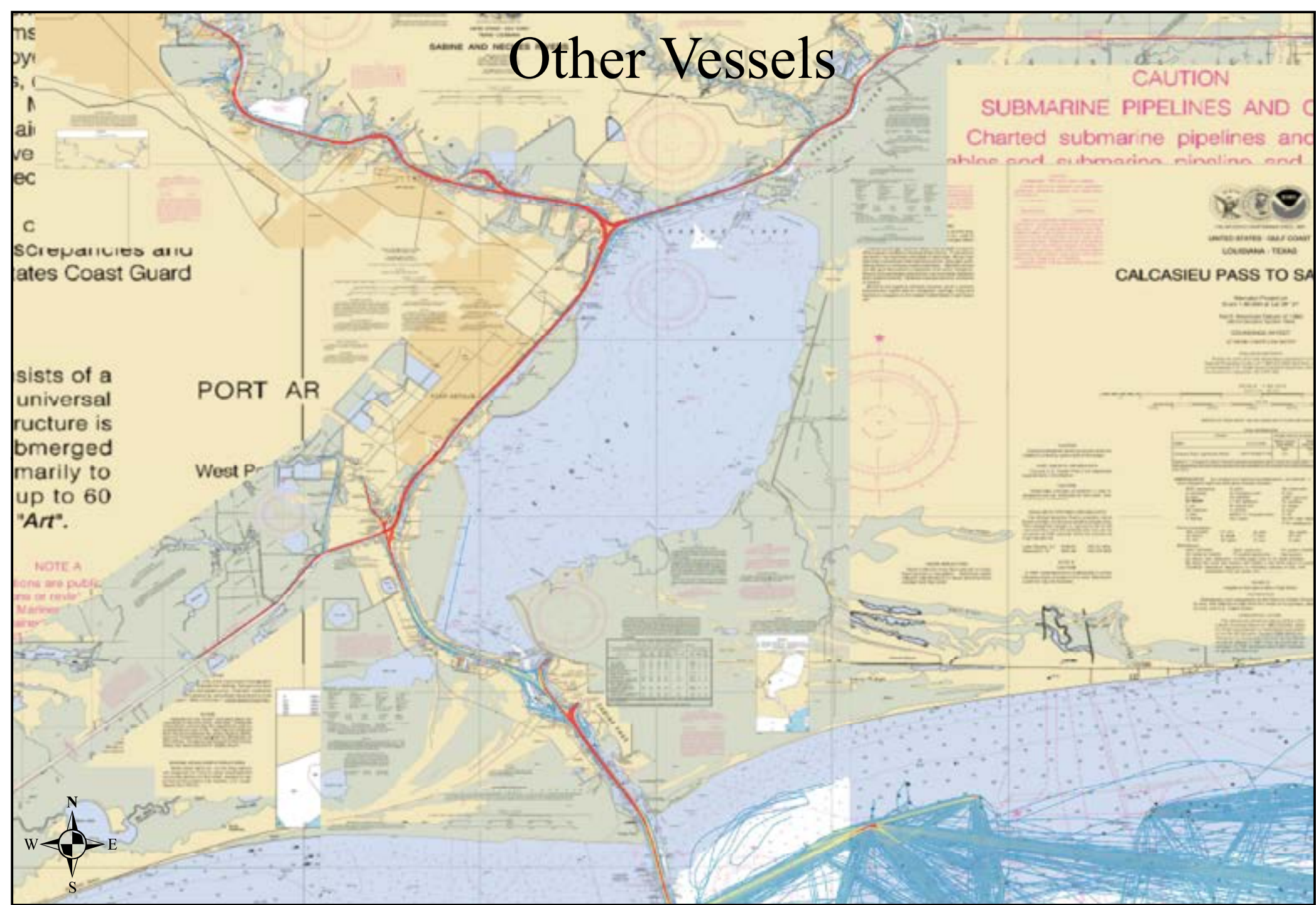
Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Data Source: NAIS
 Prepared by Coast Guard Navigation Center

1600T Vessels



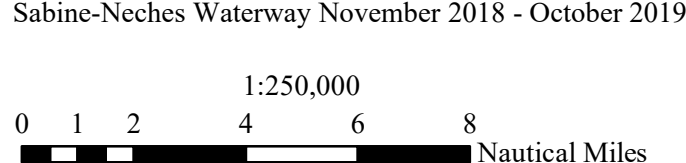
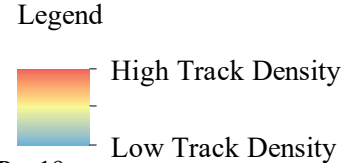
Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree
Data Source: NAIS
Prepared by Coast Guard Navigation Center

Other Vessels



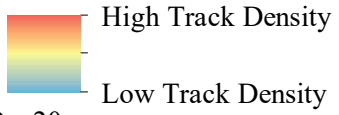
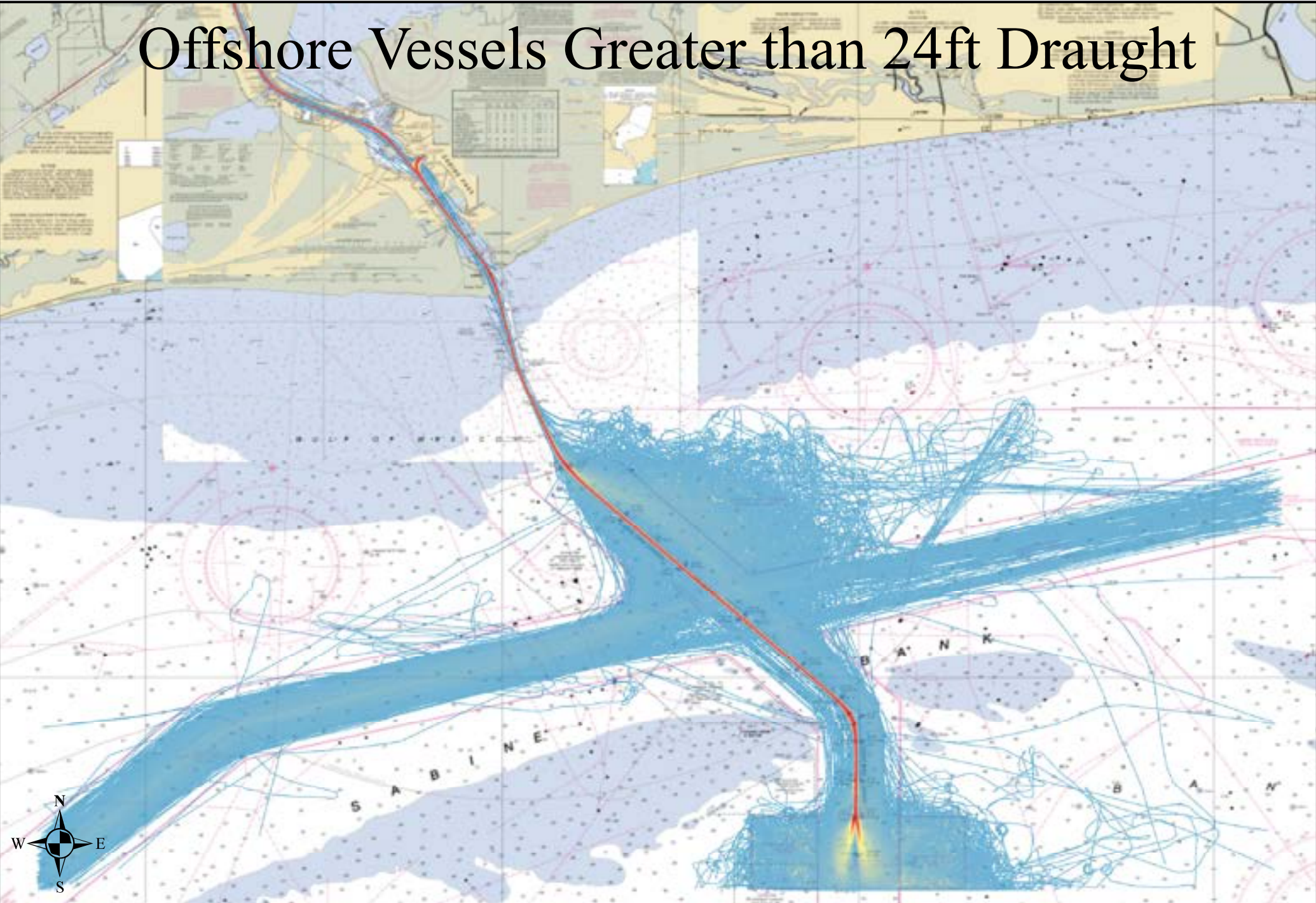
Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree
Data Source: NAIS
Prepared by Coast Guard Navigation Center

Not Available

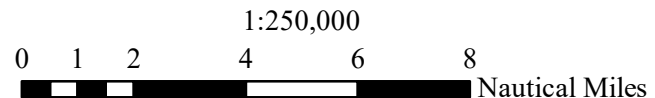


Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree
Data Source: NAIS
Prepared by Coast Guard Navigation Center

Offshore Vessels Greater than 24ft Draught

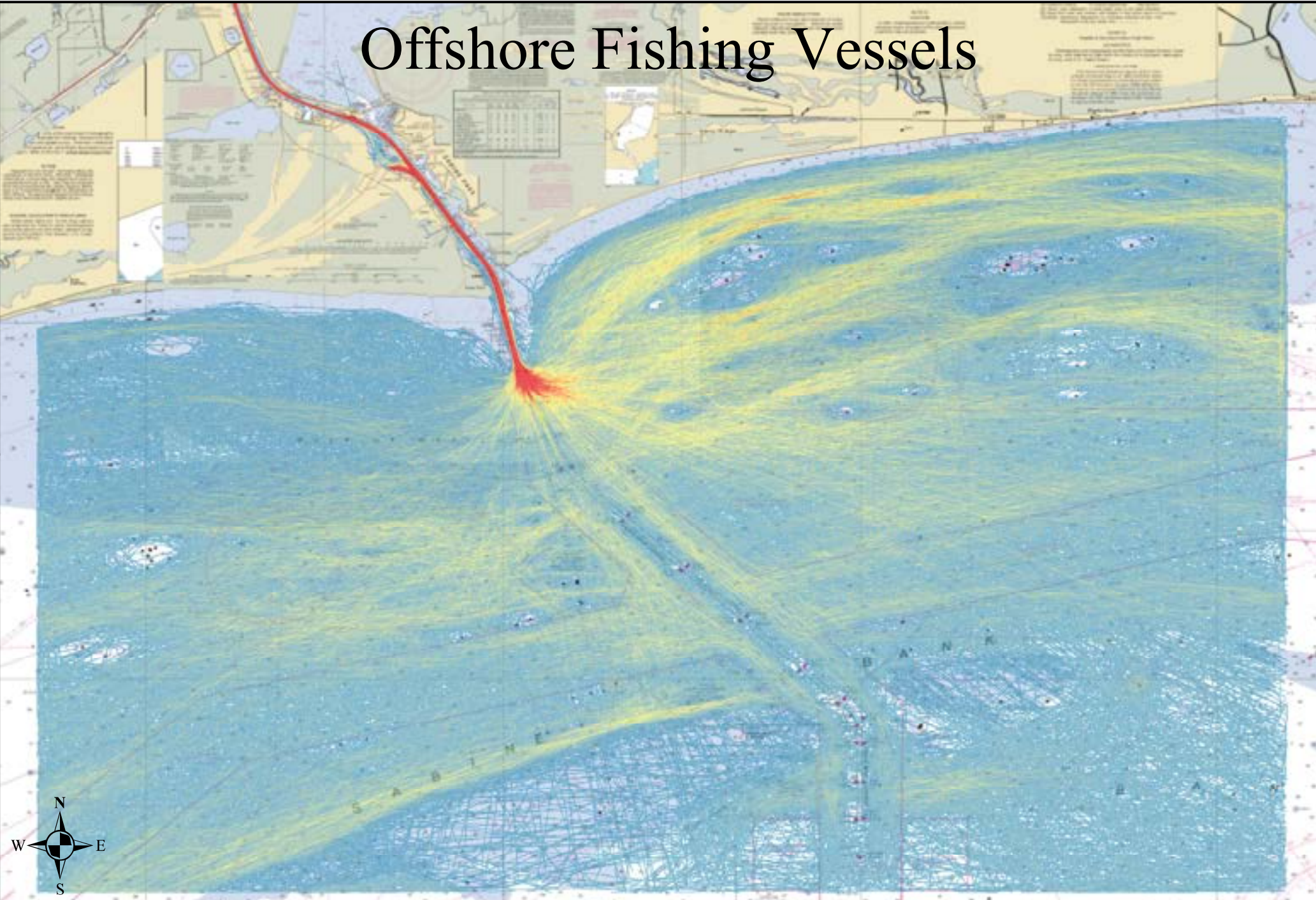


Sabine-Neches Waterway November 2018 - October 2019

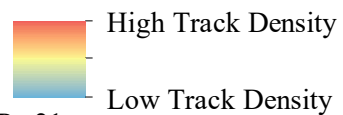


Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree
Data Source: NAIS
Prepared by Coast Guard Navigation Center

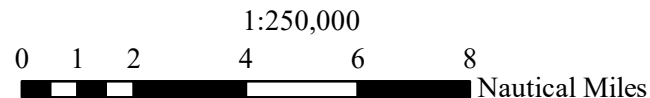
Offshore Fishing Vessels



Legend



Sabine-Neches Waterway November 2018 - October 2019



Coordinate System: GCS WGS 1984

Datum: WGS 1984

Units: Degree

Data Source: NAIS

Prepared by Coast Guard Navigation Center

U.S. Department of
Homeland Security

United States
Coast Guard



Commander
United States Coast Guard
Marine Safety Unit

2901 Turtle Creek Drive
Port Arthur, TX 77642
Phone: (409) 719-5086
Fax: (409) 719-5090

16670

APR 13 2021

MEMORANDUM

From:

Molly A. Wike
Molly A. Wike, CAPT
CG MSU Port Arthur

Reply to

S. Whalen

Attn of:

(409) 719-5086

To: Navigation Center

Subj: TRANSMITTAL OF PAWSA REPORT FOR THE SABINE-NECHES WATERWAY

Ref: (a) COMDTINST 16003.2B, Marine Planning to Operate and Maintain the MTS and Implement National Policy

1. I am submitting the enclosed final Ports and Waterways Safety Assessment (PAWSA) report, which I approve, for the PAWSA that took place 12-13 February 2020.
2. I understand that this report will be reviewed by Navigation Center one final time before being posted to the public archive on www.navcen.gov in two weeks.

#

Enclosure: Final Report of PAWSA for the Sabine-Neches Waterway (12-13 Feb 2020)

22 April 2021

FIRST ENDORSEMENT

Digitally signed by Michael
Glander
Date: 2021.05.06 12:52:57
+04'00'

Michael Glander
From: M.W. Glander

NAVCEN

To: File

1. NAVCEN received PAWSA report from Sabine-Neches COTP and conducted a final review. Report is approved for posting without further comment.
2. Final PAWSA report will be posted at <https://navcen.gov/?pageName=pawsaFinalReports>.