Ports and Waterways Safety Assessment Workshop Report

Lower Mississippi River

Providing Navigation Safety Information for America's Waterways Users

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Executive Summary

The United States Coast Guard (USCG) Sector New Orleans sponsored a Ports and Waterways Safety Assessment (PAWSA) workshop in New Orleans, LA, on 9-10 March 2022. Thirty participants represented the range of waterway users, stakeholders, environmental interest groups, joined together with Federal, State, and local regulatory authorities to collaboratively assess navigational safety on the Lower Mississippi River from Baton Rouge to Southwest Pass. The USCG Navigation Center (NAVCEN) facilitated the PAWSA workshop.

The primary goal of a PAWSA workshop is to improve coordination and cooperation between government agencies and the private sector. Workshop stakeholders participate in a facilitated discussion framed by a USCG developed decision tool that numerically the participants understanding of relative risks among a standard set of waterway design and use factors subsequently referred herein as "Waterway Risk Factors". These outputs focus the collective discussions and consensus towards the identification of potential long-term solutions tailored to local circumstances. PAWSA workshops have been held by the Coast Guard since 1999 but the goals of the program have changed significantly in that time. Commissioned by the PAWSA program office, Waterways Management (CG-WWM-1), in 2020 to evaluate the original decision tool's results against modern programmatic goals, NAVCEN implemented substantive revisions by 2021. The Lower Mississippi River PAWSA is the second workshop evaluated through this modernized framework. While the PAWSA's fundamental framework remains unchanged, the updated risk scoring system and numerical results from this report are not comparable to previous PAWSA reports.

On the first day of the workshop, participants discussed and scored sixteen risk factors that form the basis of the PAWSA decision tool. Generally, these risk factors rate 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. Potential consequences as a result of a casualty or incident on the waterway are evaluated with each factor to develop a baseline risk value for each of the sixteen waterway risk factors. In parallel to this baseline assessment, participants assessed risk trends over time, risk tolerances, and the effectiveness of any existing mitigation measures.

On the second day, participants reviewed the survey results and prioritized the risk factors most in need of more effective mitigation measures. The follow Waterway Risk Factors were agreed upon as the highest priorities: traffic mix, volume of commercial traffic, and congestion constitute priority risk factors for this area of interest. Participants discussed and agreed on risk mitigation strategies that involve education, coordination, policy/regulatory improvements, and physical waterway configuration enhancements. Section 4 contains the complete list of mitigation strategies.

The USCG Marine Transportation Systems Directorate (CG-5PW), NAVCEN, and Sector New Orleans extend a sincere appreciation to all participants for their contributions to the Lower Mississippi River PAWSA workshop. Their expertise was critical to the success of this dialogue. These recommendations will also meaningfully assist the USCG as it continues to work with all Lower Mississippi River stakeholders and waterways users to improve safe and efficient navigation in the Lower Mississippi River area.

Background and Purpose

The USCG Marine Transportation Systems Directorate (CG-5PW) 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 1997 Coast Guard Appropriations Act directed the USCG to establish a process to identify minimum user requirements for new Vessel Traffic Service (VTS) systems in consultation with local officials, waterway users and port authorities, and to review private / public partnership opportunities in VTS operations.

The Coast Guard convened a National Dialogue Group (NDG) comprised of maritime and waterway community stakeholders to identify the needs of waterway users with respect to Vessel Traffic Management (VTM) and VTS systems. The NDG was intended to provide the foundation for the development of an approach to VTM that would meet the shared government, industry, and public objectives of ensuring the safety of vessel traffic in U.S. ports and waterways, in a technologically sound and cost-effective way.

The ***Ports and Waterways Safety Assessment (PAWSA) Waterway Risk Model*** and the ***PAWSA workshop process*** is a direct output of NDG efforts. PAWSA 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 to meet the risk assessment objectives. 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 receive appropriate attention as risk interventions are identified and evaluated.

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

- Provide input during planning for projects that intend to improve the safety of navigation;
- 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;
- Foster development and/or strengthen the roles of Harbor Safety Committees within each port; and,
- Support and reinforce the role of USCG Sector Commanders and Captains of the Port (COTP) in promoting waterway and VTM activities within their geographic areas of responsibility.

PAWSA Waterway Risk Model and Workshop Process

The PAWSA Waterway Risk Model includes variables associated with causes of waterway casualties and their consequences. The Waterway Risk Model measures risk as defined as a function of the probability of a casualty and its consequences. The diagram below shows the four general risk categories and their corresponding risk factors that make up the Waterway Risk Model.

Vessels	Traffic	Navigation	Waterway
Deep Draft Vessel Quality	Volume of Commercial Traffic	Winds	Dimensions
Shallow Draft Vessel Quality	Volume of Small Craft Traffic	Currents/Tides	Obstructions
Commercial Fishing Vessel Quality	Traffic Mix	Visibility Restrictions	Visibility Impediments
Recreational Vessel Quality	Congestion	Bottom Type	Configuration

- 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.

In addition to the four general risk categories, the model utilizes two categories of consequences: immediate consequences and subsequent consequences. The table below shows the breakdown of the consequences in the two categories.

Immediate Consequences	Subsequent Consequences
Personnel Injury	Public Health and Safety
Petroleum Discharge	Environmental Damage
Hazardous Materials Release	Aquatic Resources
Port Mobility	Economic

Workshop Process

Workshop activities include a series of discussions about port and waterway attributes and vessels that use the waterway. This dialogue is followed by the completion of participant surveys to establish relative baseline risk levels, evaluate the effectiveness of existing risk mitigations, and identify additional risk intervention strategies to further reduce risk. The baseline survey numerically evaluates the baseline risk

levels using predefined qualitative risk descriptions for predefined risk factors. The risk characterization survey is used to evaluate trends and effectiveness of the current risk levels and mitigation efforts, and to collect preliminary comments. The results of both surveys are briefed to the participants and used to determine which factors to discuss further on the second day of the PAWSA. Participants discuss additional risk intervention strategies and then evaluate how effective those new strategies could be at reducing risks for those risk factors where the risk is deemed high or existing mitigations are ineffective. Additionally, participants had the opportunity to provide georeferenced comments to further clarify risk factors (see Appendix C).

Lower Mississippi River PAWSA Workshop

The United States Coast Guard (USCG) Sector New Orleans sponsored a Ports and Waterways Safety Assessment (PAWSA) workshop in New Orleans, LA, on 9-10 March 2022. Thirty participants represented the range of waterway users, stakeholders, environmental interest groups, and Federal, State, and local regulatory authorities to collaboratively assess navigational safety on the Lower Mississippi River from Baton Rouge to Southwest Pass. The USCG Navigation Center (NAVCEN) facilitated the PAWSA workshop.

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 16 risk factors in the PAWSA Model.

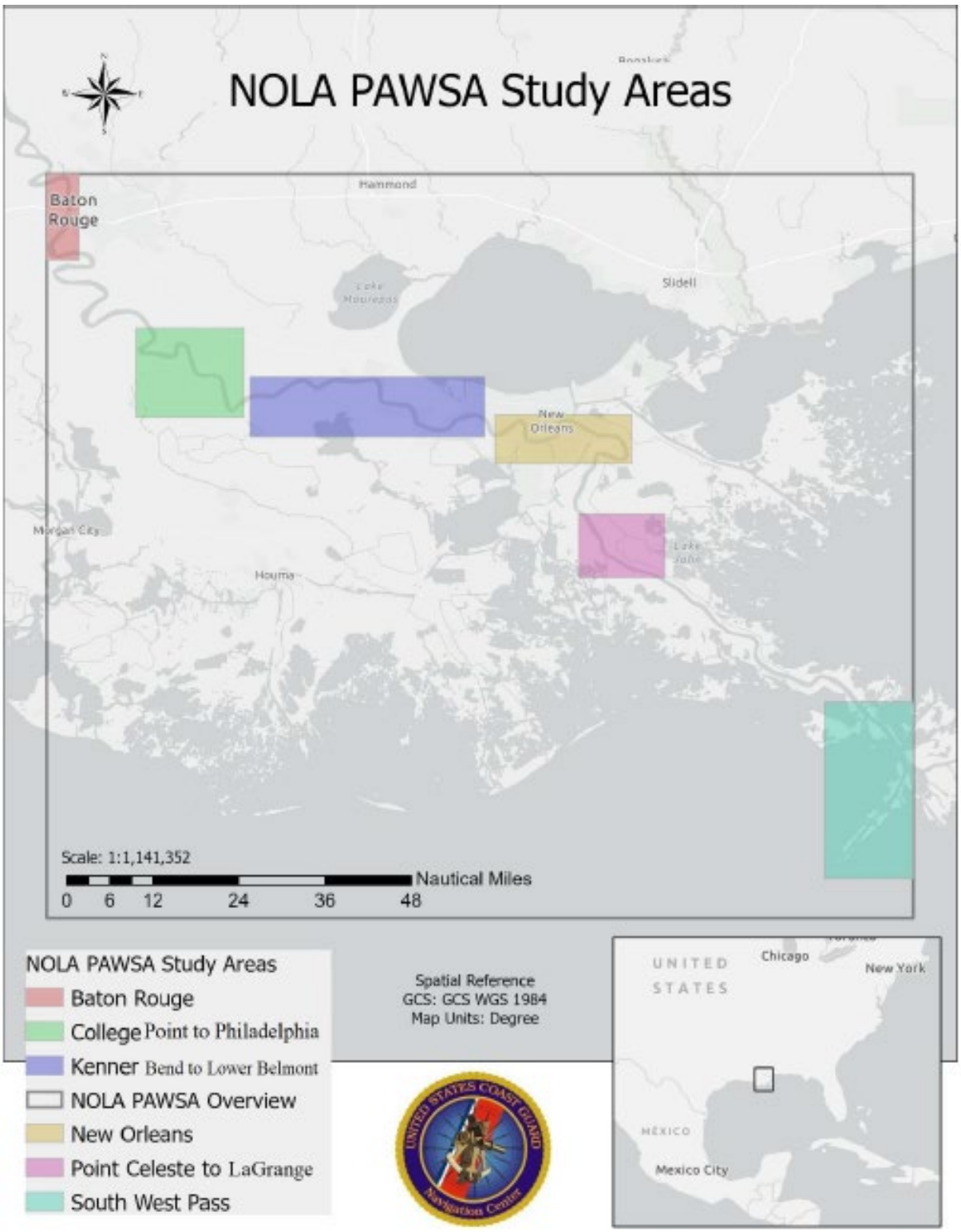
Baseline risk levels were first evaluated using pre-defined qualitative risk descriptions for each risk factor. Participants then characterized risk mitigation strategies by evaluating cost and effectiveness of existing mitigation strategies followed by an assessment of risk trends over time. For the highest rated risk factors, the participants engaged in further discussion to identify additional mitigation strategies to reduce the risk. The results of the baseline-risk-level survey, risk characterization, 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 Lower Mississippi River maritime community. The USCG 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.

Section 1: Lower Mississippi River PAWSA Assessment Area

The geographic study area of interest for this Lower Mississippi River PAWSA extends from Baton Rouge to the Southwest Pass as depicted in the following graphic:

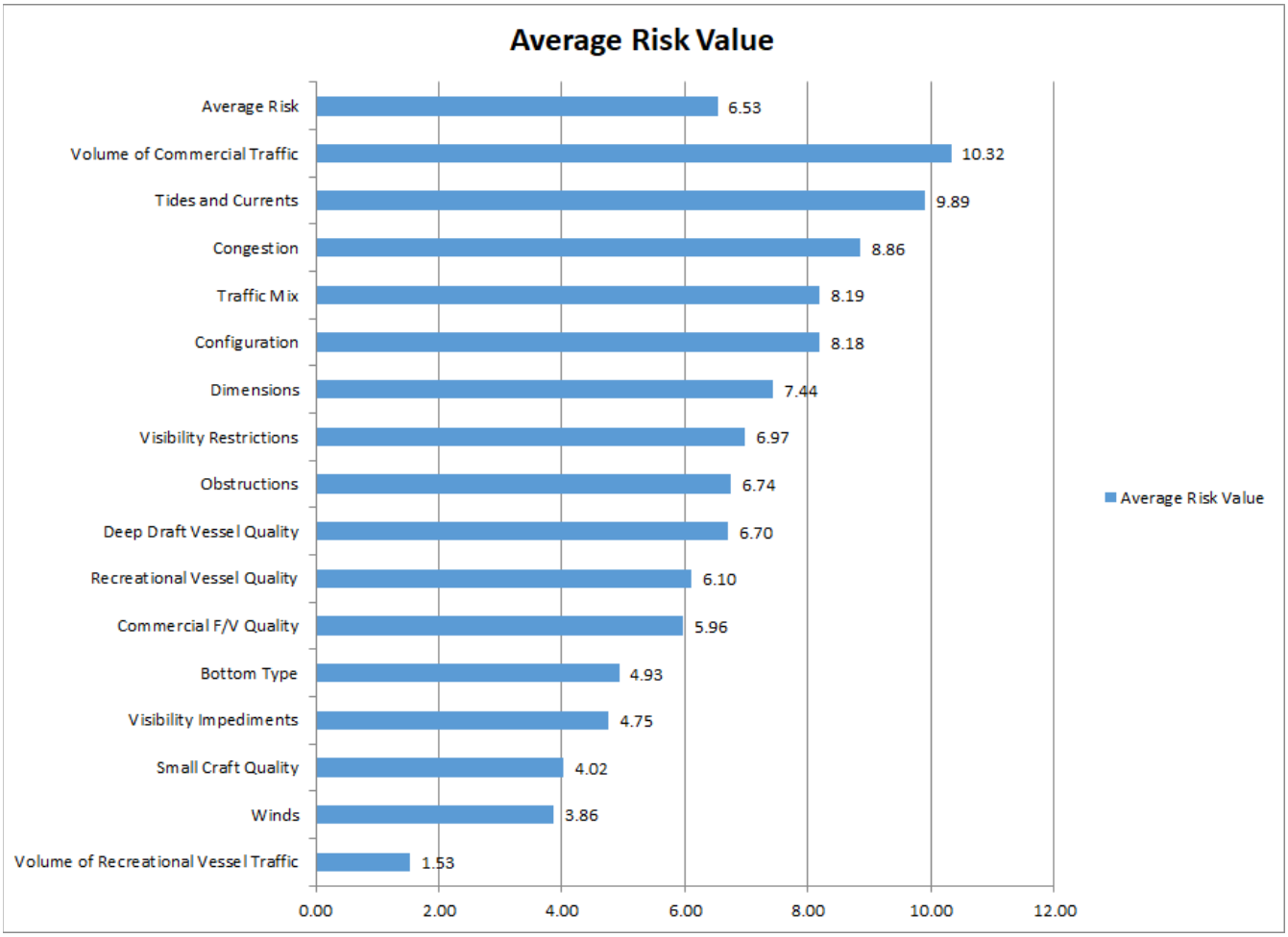


Section 2: Baseline Risk Levels

The first step in the workshop was the completion of a baseline survey 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 16 applicable factors in the Waterway Risk Model and filled out the baseline survey based on quantitative descriptions of the risk level and the severity of consequences associated with those risks. These risk levels are converted to a numerical value between 1 and 4 based on the severity of the risk. The consequences are given a value of 0, 0.5, or 1 based on the level selected by the participant. For each risk factor, the baseline is determined by multiplying the risk (1-4) by the average immediate consequence plus the average subsequent consequence using the below formula.

$$Risk\ Value = (risk\ level) \times \left(\frac{\sum Immediate\ Consequences}{4} + \frac{\sum Subsequent\ Consequeunces}{4}\right)$$

The graph below shows the baseline risk-level values for all risk factors evaluated by the Lower Mississippi River PAWSA workshop participants.



Section 3: Risk Characterization

The second step in the workshop uses the risk characterization survey to determine if the current risk for each category is acceptable, the current trends in the risk level, and if current mitigations were effective. The survey also collects initial comments from the participants on the risk and mitigations for each risk factor (Appendix B). The results are generated based the plurality of the participants selected for each risk factor. The results were combined with the results from Step 1 and briefed to the participants.

The Step 2 results and the baseline values from this PAWSA workshop are shown in the table below.

Risk Factor	Risk Index	Current Risk Level	Current Risk Trend	Current Mitigations are
Volume of Commercial Traffic	10.32	Acceptable, keep status quo	Increasing	Acceptable but Tenuous
Tides and Currents	9.89	Acceptable, keep status quo	Staying the same	Acceptable but Tenuous
Congestion	8.86	Acceptable, keep status quo	Increasing	Acceptable but Tenuous
Traffic Mix	8.19	Acceptable, keep status quo	Increasing	Acceptable but Tenuous
Configuration	8.18	Acceptable, keep status quo	Staying the same	Acceptable but Tenuous
Dimensions	7.44	Acceptable, keep status quo	Increasing	Acceptable but Tenuous
Visibility Restrictions	6.97	Acceptable, keep status quo	Staying the same	Acceptable but Tenuous
Obstructions	6.74	Acceptable, keep status quo	Increasing	Acceptable but Tenuous
Deep Draft Quality	6.70	Acceptable, keep status quo	Increasing	Acceptable but Tenuous
Rec Vessel Quality	6.10	Acceptable, keep status quo	Increasing	Unacceptable and need more/better mitigations
Fishing Vessel Quality	5.96	Acceptable, keep status quo	Decreasing	Acceptable
Bottom Type	4.93	Acceptable, keep status quo	Staying the same	Acceptable
Visibility Impediments	4.75	Acceptable, keep status quo	Staying the same	Acceptable but Tenuous
Shallow Draft Quality	4.02	Acceptable, keep status quo	Increasing	Acceptable but Tenuous
Winds	3.86	Acceptable, keep status quo	Staying the same	Acceptable
Volume of Rec Vessel Traffic	1.53	Acceptable, keep status quo	Increasing	Acceptable but Tenuous

Facilitators briefed these results to participants to then focus on priority risk factors for mitigation development discussions. Informed by the Step 1 risk value results and the risk trends, participants had the opportunity to collectively discuss and manually reprioritize factors with group consensus. Workshop

participants considered that risk factors with an “increasing” trend to be the highest priority to develop mitigation strategies for during step 4.

Section 4: Risk Mitigation Strategies

The workshop's final step focused participant efforts on specific risk factors, risk level evidence collection, and identifying potential mitigation measures. Using a team facilitated discussion format, participants employed handwritten sticky notes to then group and consolidate ideas. Resulting major themes/ideas were then presented to the participants to further distill action items. From this bank of action items, participants were encouraged to create specific, measurable, actionable, realistic, and time-bound (SMART) goals.

During step 4 additional mitigation strategies were developed for the highest priority and/or "increasing" risk factors: *Volume of Commercial Traffic, Congestion, Traffic Mix, Deep Draft Vessel Quality, Tides/Currents, Configuration, and Obstructions.* Recognizing that the highest priority factors of *Congestion, Traffic Mix, and Volume of Commercial Traffic* would be addressed with similar mitigations, workshop participants discussed strategies for all three together. Results of that discussion are listed below under "mitigations for traffic conditions." The next highest priority to the group was to address the increasing risk caused by ECO-Construction standards for *Deep Draft Vessels* captured below in "mitigations for vessel conditions." Finally, workshop the group developed additional strategies for the waterway conditions of *Tides and Currents, Configuration, and Obstructions*. Due to time constraints the remaining increasing factors of *Dimensions, Recreational Vessel Quality, Shallow Draft Vessel Quality*, and *Volume of Recreational Vessel Traffic* were not able to be addressed.

Workshop participants identified, discussed, and evaluated additional risk intervention strategies through education, coordination, policy/regulatory improvements, and/or physical waterway configuration enhancements. These recommended additional risk intervention strategies, recorded below, were agreed upon by consensus of the PAWSA workshop participants and should not be construed to represent the views of the USCG.

Mitigations for Traffic Conditions (Volume, Congestion and Mix)

Strategy 1: Increase VTS reach/resources

- Increase shallow draft representation in the VTS
- Increase reach and traffic organization ability of VTS
- Increase VTS traffic organization area
    - Establish work groups for specific river sections
    - Bring in more expertise/experience
    - Consider appropriate amount of management/control
- Leverage tech capacity & integration for enhanced situational awareness
- Increase VTS capability & capacity
    - Radio outreach/education for inexperienced vessels
    - Consider expanding active management at Wilkinson pt. (see waterway conditions goals below)
- Consider the nature of shipping and one-way traffic around new LNG facilities
- 2-year timeline
- Increase the amount of sensor & system integration
    - VTS cameras
    - Air gap sensors
    - Real time current sensors
    - River stage sensors

- Increase redundancy (e.g., COOP) for VTS capability
- Increase personnel/staffing in VTS

Strategy 2: Enhance dredging efforts

- Increase funding for dredges
- Increase the dredging fleet
- Congressional authorization for wider channel, State, local & non-government sponsorship

Strategy 3: Expand anchorages areas and associated regulations

- Continue to improve anchorages and VTS staffing for monitoring & enforcement of anchorages
- Designated parking spots for towing vessels (shoreside non-development zones)
- Solve existing issues with pipelines in and around anchorage areas
- Establish shallow draft anchorages or moorings around locks
- Port partner, waterway user, and terminal facility dialogue to address ad hoc barge fleeting practices causing waterway congestion

Strategy 4: Increase throughput in the locks

- Increase throughput in the locks
- Increase lock design, size, technology
- Older locks are about half the size of what they should be for modern navigation
    - Design newer locks to accommodate future needs
- Authorization and funding to improve the locks
- Consider public/community engagement/outreach/meetings

Strategy 5: River Community/Marine Spatial Planning

- Establish committee to provide waterway operation impact assessment/recommendations for new developments
- Consider river operations effects in development permitting process
- Take into account how operations will affect traffic
- Consider zoning requirements
- Emergency response asset capabilities, particularly with regards to cruise ships (LA area contingency plan: SELACP)

Strategy 6: Work with NOAA and USCG for maritime safety information and chart improvements

- More frequent updates to chart data
    - Soundings/hydrographic data pushes
- Update chart labeling
    - Names of facilities/docks
- Capture additional data and information on facilities as necessary
    - Provide Government agency support to existing platform (MRTIS)
- Gain consensus between agencies on which datum to use for measurements
- Improve communication of local marine events

Mitigations for Vessel Conditions (Deep Draft Vessel Quality)

Strategy 1: Consider regulatory solutions to inadequately powered vessels

- Vessels built to ECO standard have inadequate power and/or engine responsiveness to maneuver in river environment creating unintended safety issues during high water.
- Resolve construction regulation conflict between class societies and CFRs.
- Current mitigations involving extra tugs are too expensive.
- Consider adding deep draft vessels to underpowered vessel regulations.

Strategy 2: Increase inspection resources for commercial vessels

- Various inspectors involved. Depending on situation class/surveyor/CG inspector may be required.
- Increase inspector staffing a Coast Guard Sectors
- Continue pilot education to report hazardous conditions to USCG during ANOA process.

Strategy 3: Include high water propulsion requirements to Coast Pilot.

- Consider adding flocculation note on chart
- Include in Lower Mississippi River RNA

Strategy 4: Work with port partners to establish a contingency plan for emergencies on cruise ships.

Mitigations for Waterway Conditions (Tides/Currents, Configuration, Obstructions)

Strategy 1: Environmental Sensors

- Current velocity (ID hi-risk areas & responsible entities; NOAA, Big River Coalition, USCG, Baton Rouge Pilots, Congressional)
- Improve distribution of river stage forecasting
- Revisit Smart Port initiative: Dept of Commerce, Economic Development Agency, Water Inst. of the Gulf
- Install "Smart Bridge" technology - real-time air gap sensors (e.g., condition for new construction/mods)
- Update USACE Surface Velocity study and pubs.
- Lack of holistic MS River environmental data coordinating agency/committee.

Strategy 2: High water effect mitigations

- Consider adopting customary protocols into regs., Waterway Action Plan, hurricane plans, and/or standards of care for nav safety
- Considering min. speed/power (3mph req. presently only for Algiers Pt.) for ocean-going vessels
- Tug escort / restrictions
- Consider downstream towing vessel training & policies in company safety management system
- Convergence areas; encourage bridge-to-bridge VHF comms
- Consider establishing AtoN/PATON (e.g., AIS ATON) at battures; exposed pipelines (e.g., high water AIS AtoN "button").

- Provide navigational input to 5yr Lower MS River Comprehensive Study (USACE) ahead of public comment

Strategy 3: Consider recording Anchoring locations/distance between vessels in heavy weather standards of care/Sector New Orleans Hurricane Plan

Strategy 4: Stand up user working group to discuss traffic management/VTS oversight of Wilkinson Pt. in addition to high water/current Waterway Action Plan.

Strategy 5: Reconfigure Baton Rouge Bridge (US190)

- Major obstruction causing congestion at Wilkinson Pt.
- Reconfigure bridge construction; widen spans and consider increased air draft of new larger ships.
- Further document navigation impacts from current design.

Strategy 6: Remove remains of derelict docks/piers.

- Example: chemical dock @ 100 Mile Point
- Outside federal channel; no USACE authority
- Create list of specific derelict facilities that are of particular concern and prioritize for removal.
- Unnecessary obstructions that will cause problem eventually.
- Need to identify owners and enforcement agency for each.

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Appendix A

Workshop Participants

Participant	Organization
Brett Bourgeois	New Orleans Board of Trade
Ron Branch	Louisiana Maritime Association (LAMA)
Paul Dittman	Gulf Intracoastal Canal Association (GICA)
Gary Frazer	Marquette Transportation
Nicholas Cali	Southeast Louisiana Flood Protection Authority - West
Chris Humphreys	Southeast Louisiana Flood Protection Authority - East
Jeff Kindl	American Commercial Barge Line Association (ACBL)
Michelle Kornick	U.S. Army Corps of Engineers (USACE)
Ray Newman	USACE
Victor Landry	USACE
Matthew Lagarde	Mississippi River Navigation Safety Association (MNSA)/ACBL
Mike Bopp	Crescent River Port Pilots' Association
Mark Delesdernier, III	Crescent River Port Pilots' Association
Greg Bush	Associated Federal Pilots and Docking Masters of Louisiana
Toby Wattigney	New Orleans-Baton Rouge Steamship Pilots Association
Tim Osborne	National Oceanic & Atmospheric Administration (NOAA)
Jay Hardman	Port of Baton Rouge
Lester Milet	Port of South Louisiana
John Guidry	Port of New Orleans
Chistopher Smith	Port of New Orleans
Eric Acosta	Port of Plaquemines
Mark Wright	American Waterway Operators (AWO)
Andrew McKinney	McKinney Salvage & Heavy Lift
Sean Duffy	Big River Coalition
Cherrie Felder	Channel Shipyard
Karl Gonzales	Greater New Orleans Barge Fleeting Association (GNOBFA)
Jay McDaniel	Lower Mississippi River Committee (LOMRC)/Kirby Corporation
Randall Chamness	LOMRC/ACBL
Bruce Hussell	ADM Transportation /American River Transportation Co.

Workshop Observers

Thao Nguyen	U.S. Coast Guard (USCG)
Meagan Scholten	USCG
George Petras	USCG
Damon Williams	USCG
William Stewart	USCG
Peter Raneri	USCG
Colin Campbell	USCG
Adam Authement	USCG
Xiaobin Tuo	USCG

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Appendix B

Participant Observations - Trends in the Port and Existing Risk Mitigations

Workshop participants are local subject matter experts, waterway users, and regional stakeholders. These comments capture their opinions and analyses to provide a general sense of the ideas discussed during the workshop. References to existing regulations and standards may be included for additional context. Participant comments provide various perspectives representative of varying interests and do not reflect the views of or statements by the United States Coast Guard.

Risk Condition: Vessels

Risk Factor: Deep Draft Vessel Quality

(Generally ocean-going vessels engaged in international trade)

Trends/Observations:

1. More stringent domestic, international, and ship classification society emissions standards are affecting vessel powerplant operability (e.g., horsepower, torque, available power time delays). Mississippi River water conditions (i.e., flocculation, slush water, or suspended sediment) and compounding navigational constraints (I.e., sharp turns, following currents, other vessels underway, and anchored barge fleets) demand more responsive propulsion to maintain steerageway. ECO-construction standards create maneuverability issues with unintended consequences. International regulations conflict with river navigation needs. Vessels built to ECO standard have inadequate power and/or engine responsiveness to maneuver in river environment during high water.

2. Shortly before receiving pilots off Southwest Pass, foreign flagged vessels had intermittent propulsion issues with temporary yet ineffective repairs or inoperative navigation equipment. However, the full extent of the deficiency was poorly or not communicated.

Existing Mitigations:

1. Pilots more directly managing vessels meeting in the river when operating eco-diesel-powered ships or working more proactively with VTS; staging tugboats for assistance in high-risk areas. However, the expense of additional tugs is unsustainable and inefficient.

2. When vessels are incapable of making enough power consistently, embarked pilots make report to USCG Sector New to then direct vessel to nearest safe area. Some vessel masters and chief engineers can or are willing to override propulsion limit.

Additional Mitigations Discussed:

1. Resolve ECO-construction regulation conflicts between class societies and U.S. Code of Federal Regulations (CFR).

2. Consider adding ECO-construction deep draft vessels to underpowered vessel regulations.

3. Address foreign flagged deep draft vessel mechanical and navigational deficiencies:

3.1. Increase inspection resources and their staffing for foreign flagged commercial vessels. Various inspectors involved. Depending on the situation, a class/surveyor/CG inspector may be required.

3.2. Continue pilot education to report hazardous conditions to USCG during ANOA process.

3.3. Include high water propulsion requirements to Coast Pilot to ensure vessel and crew and meet navigational demands.

3.4. Consider adding "periods of high suspended sediment concentration" cautionary note on nautical charts and publications.

3.5. Include in Lower Mississippi River RNA

Risk Factor: Shallow Draft Vessel Quality

(Generally, vessels engaged in coastwise and/or inland trade)

Trends/Observations:

1. Non-local tug/barge operators (e.g., Upper Mississippi River companies) lack sufficient local knowledge and familiarity with seamanship practices critical to safe operation within the regional. Several observations across maritime community participants, ranging from weekly to daily, of negligent mariners pushing vessels up to flood control levees during high river stages (i.e., faster water and broader navigable river area). This results in damage which then weakens then weakens then flood control/protection system and risks inundation of populated areas.

2. Overall material condition, navigational suites, and formalized training has improved in recent years. Older vessels or those outside of Subchapter M (e.g., <26 feet length overall) can be noticeably poorer in material condition and operation.

3. Training and enforcement activities decreased with COVID pandemic restrictions, though improvements are actively witnessed with the ongoing shift towards more in-person simulator, classroom, and inspection opportunities.

Existing Mitigations:

1. Local law enforcement and public safety agencies periodically board offending vessels and a brief operational improvement is witnessed, however, the issue soon returns.
2. Implementation of Subchapter M inspection regulations presumably drove improvements. Ten years ago, vessels seldom received external scrutiny. Government and industry have increased vessel surveys, audits, etc. However, small business/operators may continue to be exempt from Subchapter M requirements.

Additional Mitigations Discussed:

1. Increase education, enforcement, and outreach efforts with transient shallow draft vessel fleet operators.

Risk Factor: Commercial Fishing Vessel Quality

Trends/Observations:

1. Concerns with vessel operator fatigue compounded by limited viable deckhand workforce candidates (e.g., prolific drug use in recruiting/operating area).

2. New build commercial fishing vessels more often must comply with classification society rules. However, smaller fleets continue to operate older vessels to keep costs down by neglecting Maintenance and material condition.

3. Operators on the Gulf of Mexico and adjacent waterways frequently block critical VHF radio channels, particularly on lower parts of the river, with prolonged non-English conversations.

Existing Mitigations:

1. 46 U.S. Code § 8304 requires uninspected fishing industry vessels of 200 gross tons or over to have a licensed master, mate, and chief engineer onboard. However, smaller vessels suffer from crew fatigue, lack of operator proficiency, and lack of maintenance.

2. New build commercial fishing vessels more often must comply with classification society rules. However, smaller fleets continue to churn older vessels to keep costs down.

3. These vessels are required to have Automatic Identification System onboard when 65' or greater, engaged in commercial service (See 33 CFR 164.46).

4. In previous years, Lower Mississippi River Committee (LOMRC) circulated education flyers in both English and Vietnamese at community events to enhance commercial fishing vessel operator awareness of safe boating and communication practices.

Additional Mitigations Discussed:

1. Consider periodic meetings, similar to Houston, where pilots meet with inland and fishing fleets twice a year.

2. Consider a Houston-like River Pilot/USCG voluntary visit partnership program to assess uninspected fishing vessels and host community training days.

Risk Factor: Recreational Vessel Quality

Trends/Observations:

1. Limited radio contact with recreational craft operating on Mississippi River, to include kayakers voyaging the length of the river.

2. Routinely encounter recreational with minimal or no nautical navigation expertise; lack of understanding of rules of the road, poor charting knowledge, and operate at unsafe speeds in close proximity to deep draft commercial vessels.

Existing Mitigations:

1. Various education/outreach boating safety events: (e.g., Power Squadron boat ramp engagement, Coast Guard Auxiliary inspections, and NOAA navigation seminars).

Risk Condition: Traffic

Risk Factor: Volume of Commercial Traffic

Trends/Observations:

1. New commercial traffic is expected in the New Orleans area to include container terminals (at least one was referenced as being under construction) and an LNG export terminal.

2. Cruise ship operations are common, adding to the volume of commercial traffic. Tug and barge traffic is always present and heavy up and down the LMR.

3. It was noted that volume is expected to increase as more shipping terminals are brought online in previously unused or repurposed properties along the river. Participants noted that for most survey questions their waterway is going to consistently rank as highest risk and that in terms of congestion, the operators have become accustomed to extreme congestion.

Existing Mitigations:

1. VTS check-ins, AIS, VHF communications, instituting vessel traffic management controls during high water or after marine casualty incidents.

Risk Factor: Volume of Small Craft Traffic

Trends/Observations:

1. Small recreational vessels are present and vary based on location and season.

2. Typical small craft include duck hunters in "jon boats" (e.g., <20ft, small capacity, generally aluminum, flat bottom, square bow), recreational fisherman in fast center-console boats, kayakers, and even adventure-seekers floating down the river on "Huck Finn" derelict vessels composed of blue drums, plywood and a tarp.

3. Participants noted a perceived increase in small vessel traffic and attributed it to the pandemic combined with a low cost of entry to obtain a watercraft and get out of the house. However, despite the presence of small craft, the consensus was that the river is primarily an industrial waterway supporting large commercial vessel operations.

4. Commercial fishing vessels were present in the lower reaches of the river, but for the most part they were not seen as being present in significant numbers.

5. Additionally, based on discussions in the Vessel Quality category, there were participants who noted that the number of people who are leaving the industry are outpacing the number of people entering the industry.

Existing Mitigations:

1. No formal mitigations are in place to prevent small "Huck Finn"-like craft from entering the river environment and hazarding themselves or fellow mariners. Some participants noted that attempting VHF hails, despite appearances, may prove successful.

2. Discussions regarding small craft vessel quality noted State-mandated operator training as a positive contribution to boater education which should help alleviate potential conflicts between commercial and recreational vessels.

Risk Factor: Traffic Mix

Trends/Observations:

NOTE – This portion of the workshop recording was lost. The recollection of the NAVCEN team is that the traffic mix included a wide variety of commercial vessel types – bulk dry cargo, bulk liquid cargo, container ships, roll-on/roll-off cargo, cruise ships, ferry/passenger vessels, river tows moving everything from aggregate and wood chips to coal and petrochemicals in bulk. Recreational vessels are present, along with commercial fishing vessels, in certain sub-regions of the river (usually the lower stretches below Empire) but the group consensus was that for the most part the traffic mix is overwhelmingly dominated by commercial traffic.

Risk Factor: Congestion

Trends/Observations:

1. Congestion varies according to location. Congestion can occur sharp bends in the river, particularly the Reserve Stretch (aka "Suicide Point") due to the volume of commercial traffic, 48 Mile Point, and San Rose point. However, some areas of the river are wholly uncongested.

2. These areas of traffic concentration/river activity can be broken down in to 5 distinct subareas: mile marker (MM) 303 to Baton Rouge, Baton Rouge to the Sunshine Bridge, Sunshine Bridge to the point (Algiers Point), the Point down to Pilot Town, and then from Pilot Town out to the Gulf.

3. Congestion regularly occurs in vicinity of Wilkinson point and below the I-10 bridge as vessels wait for VTS authorization to transit. VTS only manages traffic directly during periods of high water (Baton Rouge gauge at 33' and rising). Participants noted this is a particularly hazardous area.

Existing Mitigations:

1. During periods of high water, VTS will directly manage traffic in the Algiers Point area, 81-mile Point area, and Wilkinson Point area, and frequently institute one-way traffic control schemes. Occasional planned operations, such as beneficial use dredging, pipeline removal, revetment operations, and saltwater sill construction, also require direct traffic control from the VTS.

2. VHF conversations between pilots and tugs to reduce risk of conflicts during flanking maneuvers.

Risk Condition: Navigation

Risk Factor: Winds

Trends/Observations:

1. Except for hurricanes or catastrophic weather events, consensus is winds do not pose a major impact on commercial vessel traffic for the area.

2. Winds are generally well forecasted. The area has the unique benefit of having the National Weather Service office located nearby to foster partnerships and open communication.

3. The VTS rarely restricts vessel traffic due to high winds.

Existing Mitigations:

1. National Weather Service products and services: provides weather, water and climate data forecasts, warning and impact-based decision support services to enhance voyage planning process and preparedness (e.g., pilot point procedures/maneuvers, tug escorts, etc.).

2. Additional tugs utilized for assistance/standby during transits.

Risk Factor: Water Movement

Trends/Observations:

1. Multiple locations on the river are affected by significant flood surges: MM 170-182 Lower Mississippi River, 221-225 Duncan Point to Hwy 190 Bridge, MM 219-229 Port Allen Locks, MM 225-234 Lower Mississippi River, and MM 232-237 Wilkinson Point.

2. Currents play a significant role in operations. Special services have been required at CMT dock, near MM 160. Currents at the dock have been strong enough to require 7 tugs to hold a vessel in place at the dock while conducting loading operations.

3. The group agreed on several areas of localized hazardous conditions: some examples provided were Wilkinson Point and under the Baton Rogue Bridge with currents as strong as 7 ½ knots. Additionally, some areas on the river have currents as strong as 9 knots and even 5 to 6 knots at anchorage.

4. There are multiple locations where currents converge and create a persistent eddy. These locations can be particularly hazardous to transiting vessels and proximate infrastructure. A notable example of converging currents causing damage is near the light at Neptune 24 where often the light is damaged by towboats getting pulled by the currents.

Existing Mitigations:

1. USACE river gauges and NWS observations/forecasts are used by waterway operators and public safety authorities (e.g., USCG COTP) to inform vessel movement restrictions, identify tug escort requirements, assess vessel meeting/maneuvering, etc.

Risk Factor: Visibility Restrictions

Trends/Observations:

1. Fog season generally ranges from November to April but can be episodic throughout the year.

2. Though fog is a regular occurrence, during fog season, it is predictable and well forecasted.

3. Restricted visibility is more persistent near Southwest Pass and Venice sometimes creating fog delays for several days.

4. Fog conditions often change while underway, dramatically worsening in a short period of time.

Existing Mitigations:

1. ECDIS and Portable Pilot Units – the use of electronic chart display devices and portable pilot units enable local pilots to better integrate with unfamiliar bridge teams/vessels to facilitate safe navigation and marine traffic awareness.

2. National Weather Service products and services: provides weather, water and climate data forecasts, warning and impact-based decision support services to enhance voyage planning process and preparedness (e.g., pilot point procedures/maneuvers, tug escorts, etc.).

Risk Factor: Bottom Type

Trends/Observations:

1. Multiple bottom types identified along the river: clay, soft mud, hard sand, soft sand, revetment, rocks (USACE placed cement), and concrete outside the channel. Each bottom type poses unique challenges.

2. Most groundings in the area occur in hard sand. Of note, anchors left stuck in the hard sand, post groundings, continue to pose a hazard transiting vessels. Hull damage and tank punctures have occurred due to abandoned anchors.

3. As the river continues to get deeper (e.g., increased project depth), pipelines at the bottom of the river are becoming more of a challenge and are only becoming known after vessels allide with a pipeline.

4. Inaccurate charting of bottom types/revetment areas are a concern. Vessels have shattered and pulled up concrete mats due to anchoring in revetment areas.

Risk Condition: Waterway

Risk Factor: Obstructions

Trends/Observations:

1. Workshop participants considered obstructions as both fixed and floating objects (e.g., bridge/pier abutments, river debris following high water/storms, sunken vessels, etc.).

2. Multiple fixed bridges and drawbridges are along the river. Most of the moveable bridges are older and more prone to malfunction. When inoperable, these pose a significant obstruction hazard to the waterway and vessel traffic (e.g., allision hazard, traffic congestion). General lack of consistent communication between bridge operators and vessels operators (e.g., advance notice, potential challenges, unscheduled repairs/delays).

3. There are 10 anchorages within this Workshop's assessment area that contain known pipelines. Increased number of vessels utilizing these anchorages raises concerns for potential fouling and environmental consequences.

4. Substantial floating debris, such as trees are a year around obstruction risk, most notably during low water when further exposed.

5. Overhead power lines have been susceptible to collapse during hurricanes. The Mississippi River & Gulf Intracoastal Waterways both were shut down due to overhead transmission lines and towers that collapsed in the river.

Existing Mitigations:

1. Lower Mississippi River Committee (LOMRC) is a committee of the Lower Mississippi River towing companies, associated with the River Industry Executive Task Force (RIETF), formed to address navigational problems during significance changes in river conditions such as extreme low water and high-water events.

2. Gulf Intracoastal Canal Association (GICA) advocates on behalf of Gulf Intracoastal Waterway users to ensure adequate maintenance, operation, and improvements to provide safe transportation routes.

3. USACE has responsibility to clear debris and obstructions that pose hazard to vessel navigation.

Risk Factor: Visibility Impediments

Trends/Observations:

1. Flood control levees can create a visual impediment when transiting the river (e.g., obstructing views around a river bend).

2. Shoreside terminal facility lighting, or backscatter, at night makes it challenging to distinguish between vessels and determine relative motion.

3. Lighting from the soccer field near 6-Mile Point creates a visibility impediment for vessels transiting the river at night.

4. Vegetation, willow trees, and brush are a recurring visual impediment below New Orleans, specifically below Chalmette. Vines and ivy grow quickly and obscure ATON.

Existing Mitigations:

1. Aid to navigation discrepancies are generally promptly corrected and align with Coast Guard policy for decision/response.

Risk Factor: Dimensions

Trends/Observations:

1. Vessels calling upon Mississippi River ports continue to increase in size and shoreside facilities continue to expand. However, opportunity to significantly expand the lateral dimensions of the waterways are constrained by the natural river width and adjacent infrastructure.

2. Multiple docks are near the river. Due to this configuration, these docks pose challenges to navigation, widening, and deepening of the waterway. Of note, CEMUS Dock was identified as a hazard to navigation, particularly when vessels are moored at the dock and further limit navigable water available to passing traffic.

3. Significant shoaling identified throughout the river (i.e., Southwest Pass, New Orleans, and Baton Rouge through the 12 crossings).

Existing Mitigations:

1. USACE expansion projects and maintenance dredging operations aim to support needs of commerce and facilitate safe navigation with adequate channel depth and width.

2. Gulf Intracoastal Canal Association (GICA) – the GICA ensures the Gulf Intracoastal Waterway is maintained, operated, and improved to provide the safe transportation routes

Risk Factor: Configuration

Trends/Observations:

1. Strong counter currents as well as multiple 45-degree bends significantly increase navigation complexity. A notable example is Algiers Point (downtown New Orleans) where one-way traffic is required during periods of high water and a more than 45-degree bend in the area.

2. Point Houmas, near Baton Rouge, is an area of concern during high water with a 45-degree river bend.

3. The group noted that when water depth is greater, flocculation/suspended sediment remains trapped at the bottom of the river between salt water and freshwater boundary, impacting fewer vessels. However, as shoaling occurs or water levels recede, the margin between vessel draft and the suspended sediment layer decreases. This further affects vessel maneuverability and available water depth.

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Appendix C

Geospatial Participant Observations

During the workshop participants recorded the location of significant observations on an ArcGIS online web-application. Those comments are tabulated in this appendix following maps of the locations for each risk category. For GIS layers contact the navigation center at TIS-DG-NAVCEN-Waterways@uscg.mil.

Vessel Condition Comments

Point	Comment
1	Congested during high and low water periods due to river bend, 190 bridge, and shoaling
2	Strong currents require multiple tugs to help keep vessels on the pier when mooring
3	Typically the first area that gets fogged out
4	maneuverability of vessel reduced due to new EPA regs
5	There is no where for vessels to stop along the river while they wait for the levies between miles 84 and 104. Particular issue during high water and typically with non-local mariners. These vessels are damaging the flood walls.
6	Oyster boats
7	Commercial Fishing Vessels
8	Commercial Fishing Vessels
9	Commercial Fishing Vessels
10	Maneuverability of vessel compromised with new EPA regs

PAWSA Participant Comments: Vessel Conditions.
Page 1 of 3

Spatial Reference
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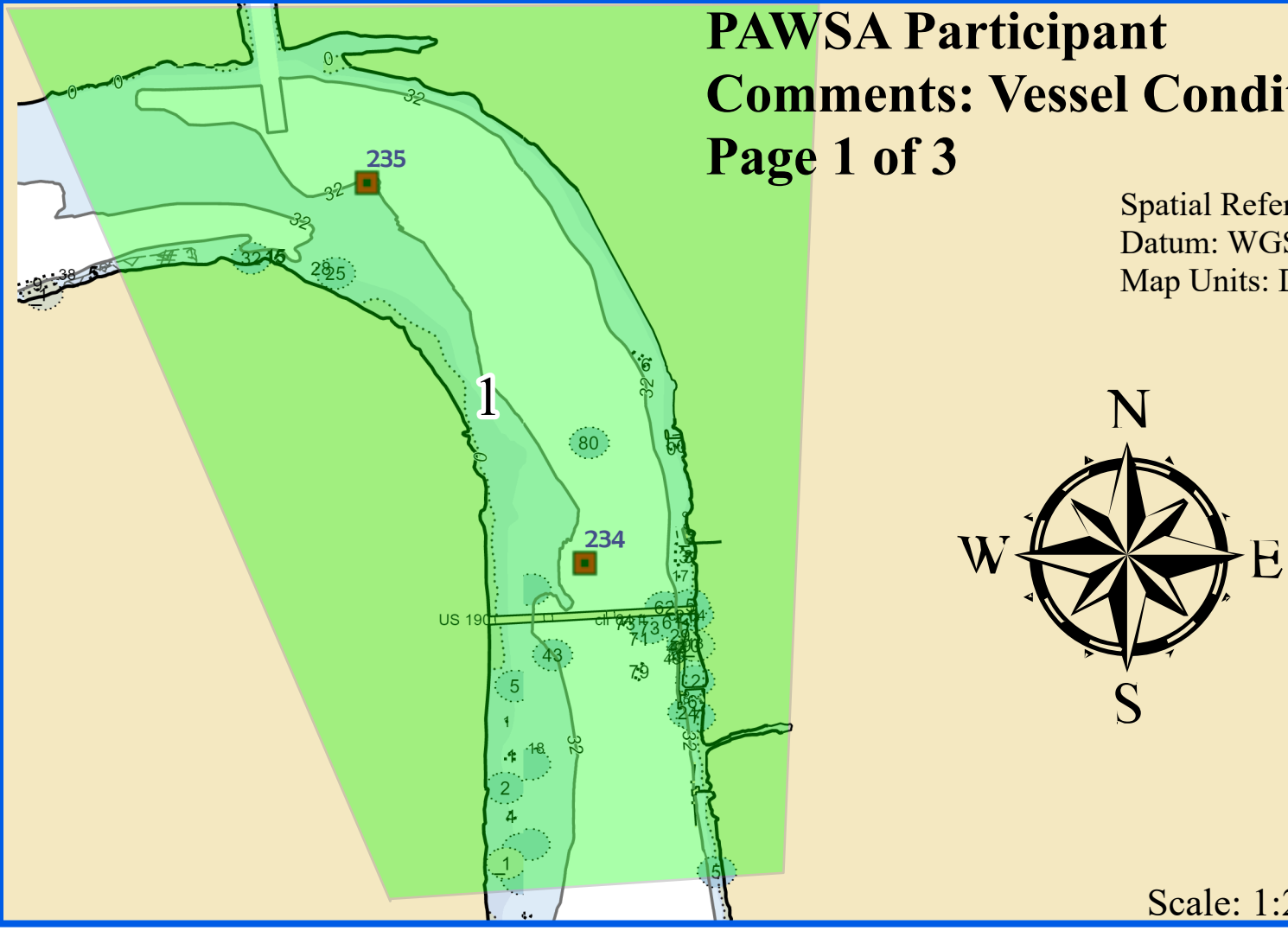
Map Units: Degree



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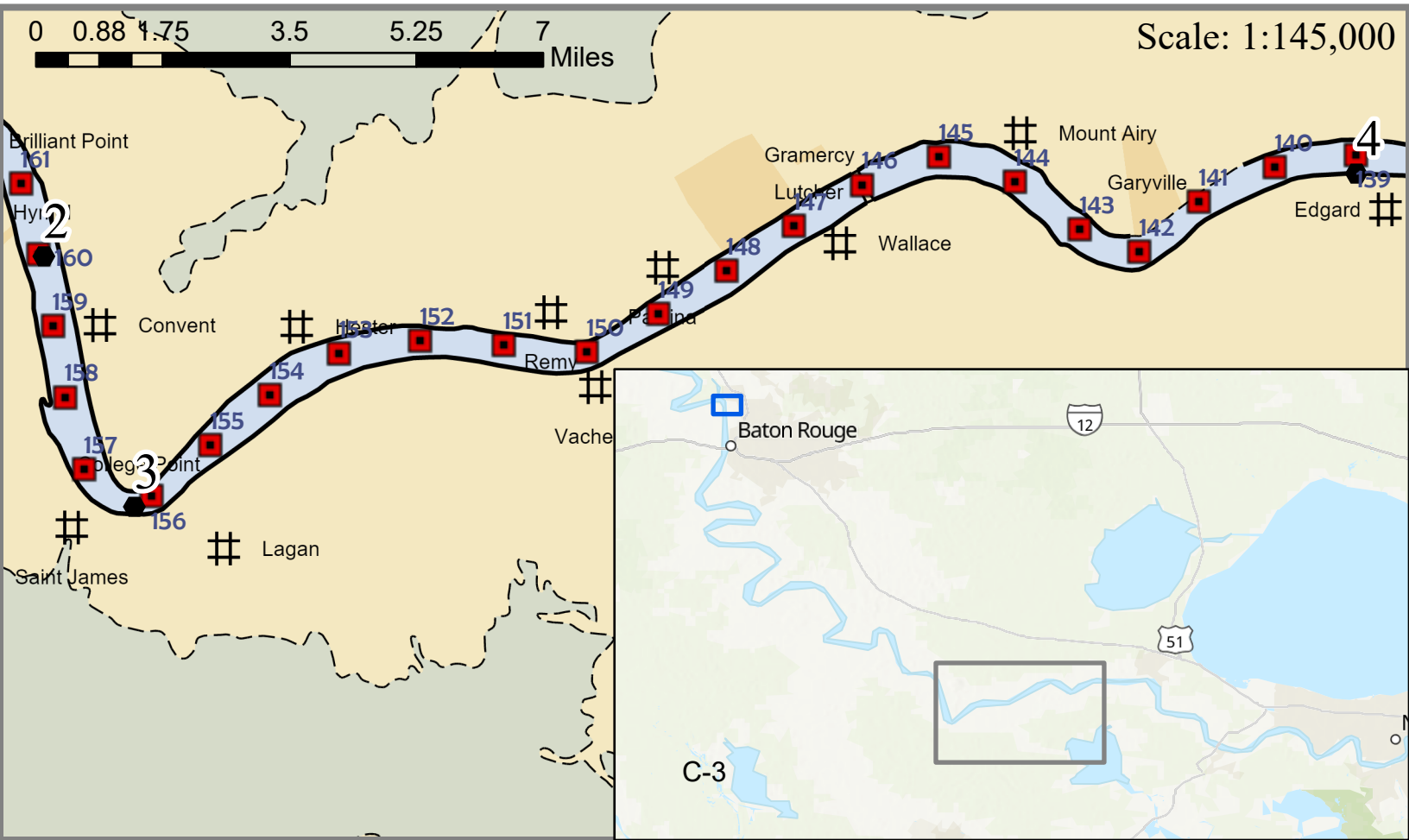
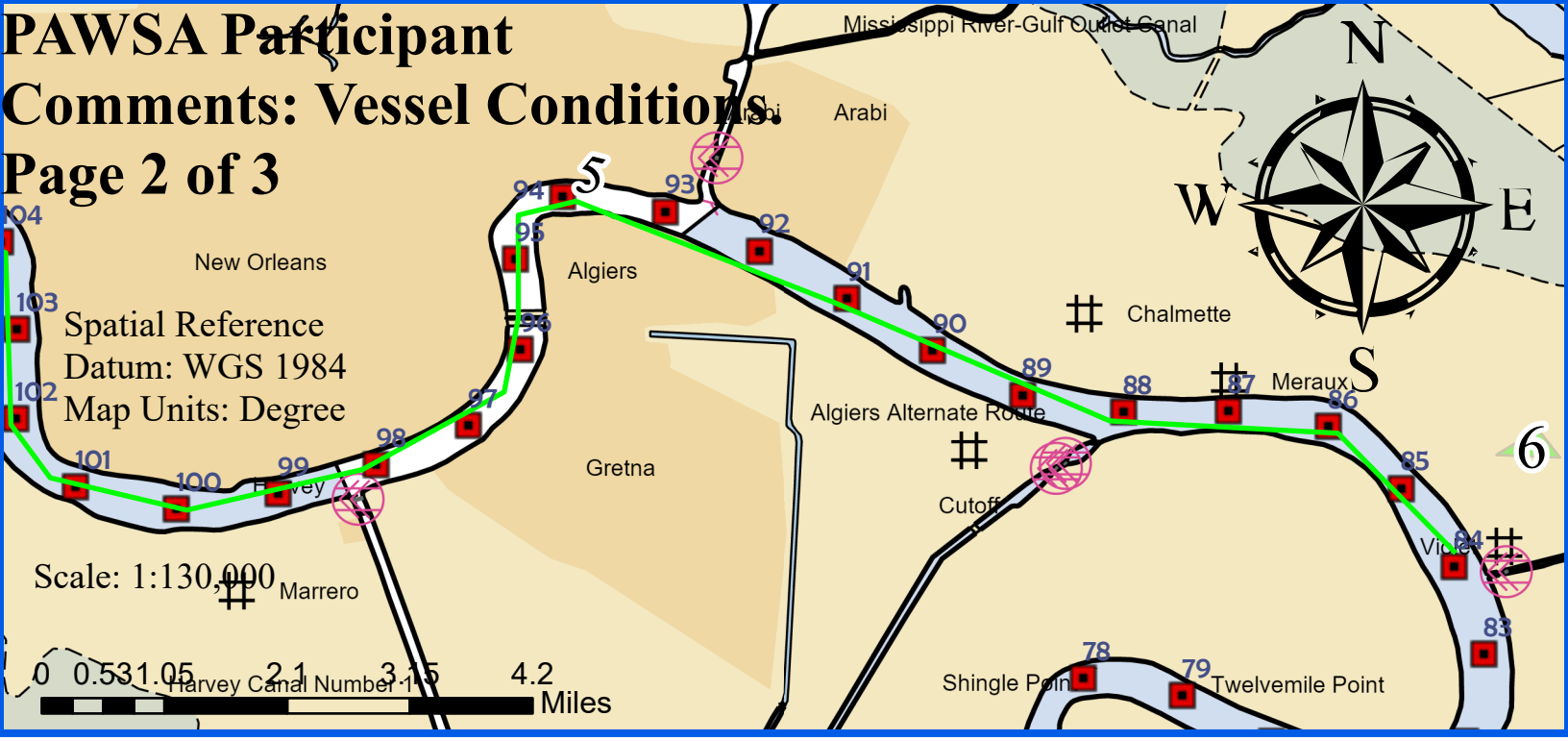


PAWSA Participant Comments: Vessel Conditions
Page 2 of 3



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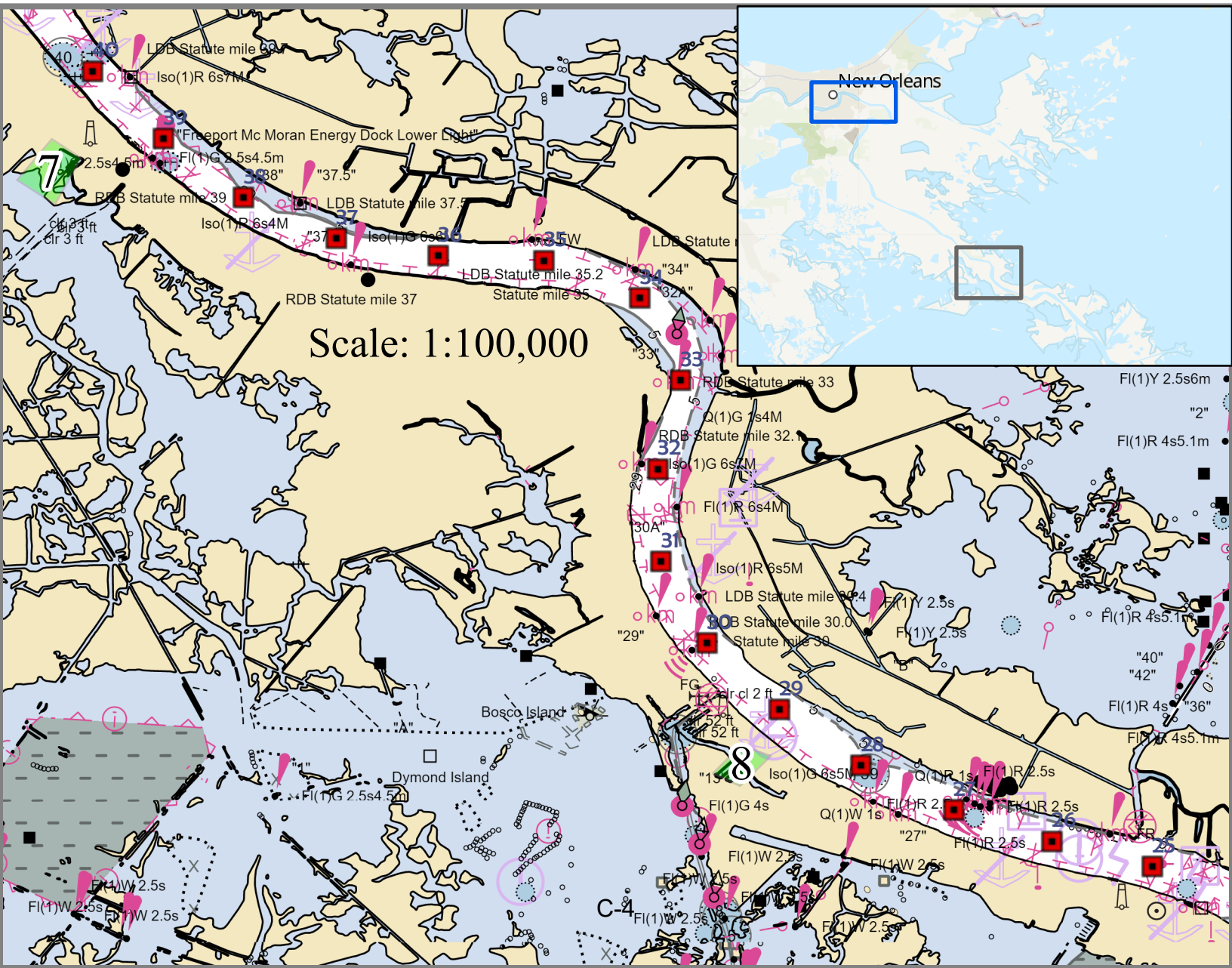

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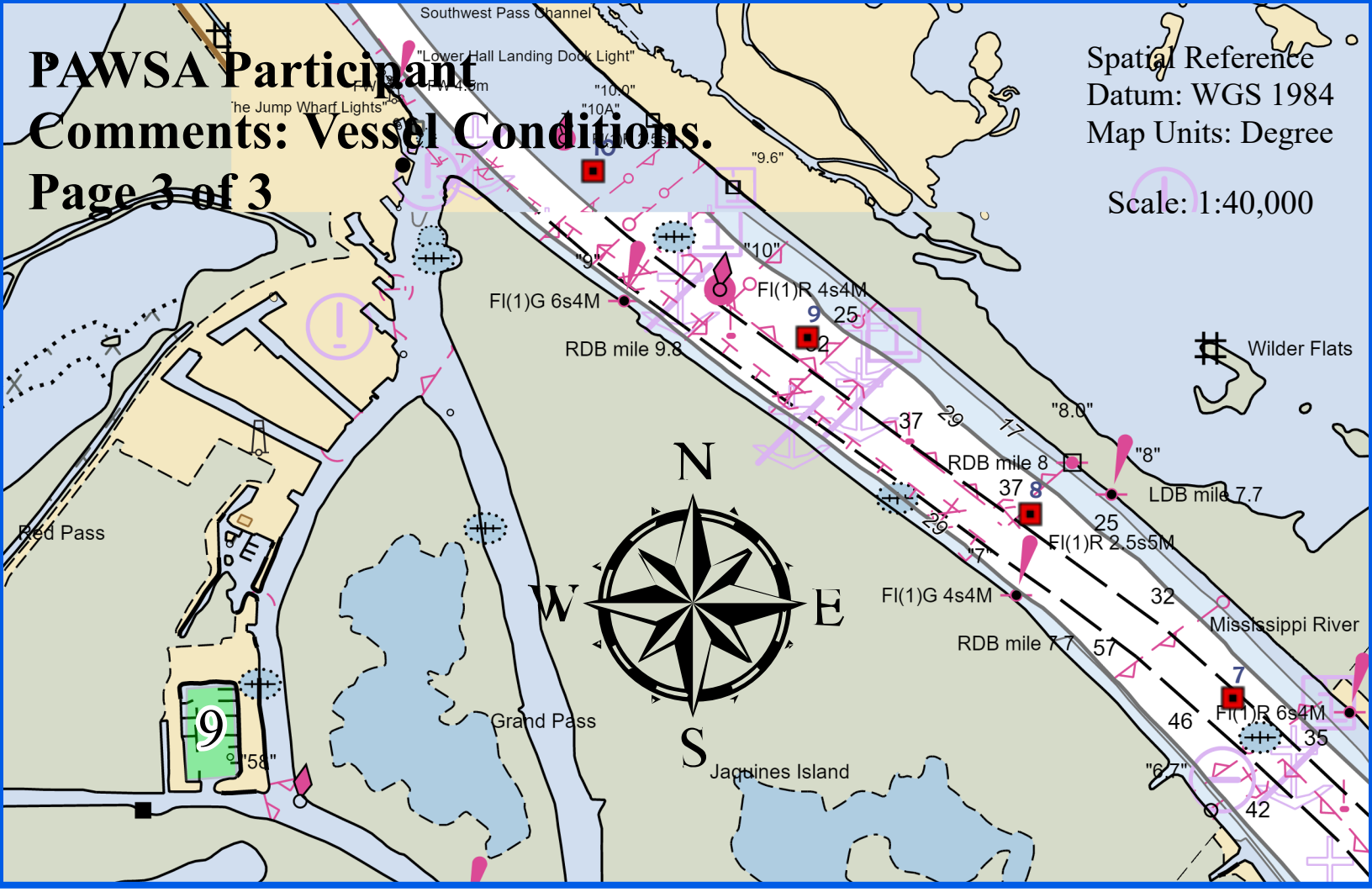

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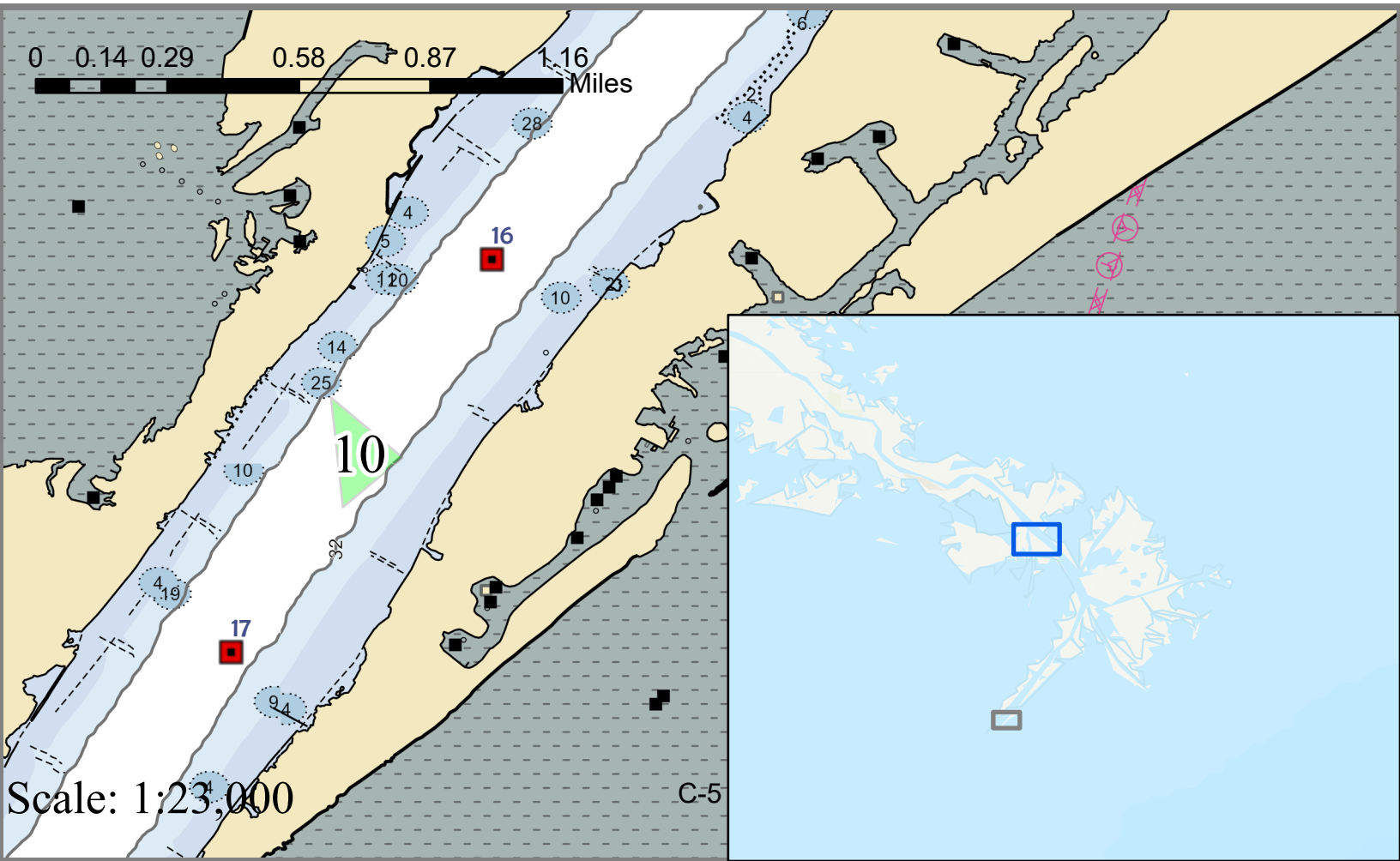

Traffic Condition Comments

Point	Comment
1	Geismar to Convent
2	MM 142-MM130 (SUICIDE ALLEY)
3	Seabrook Structure. Closes after the GIWW surge barrier sector gate closes after RNA evacuation.
4	GIWW surge barrier sector gate - closed in the event of a storm when surge hits 4 ft. The RNA must be evacuated at least 24 hrs before this occurs.
5	Congestion

PAWSA Participant Comments: Traffic Conditions.

Page 1 of 2

Spatial Reference
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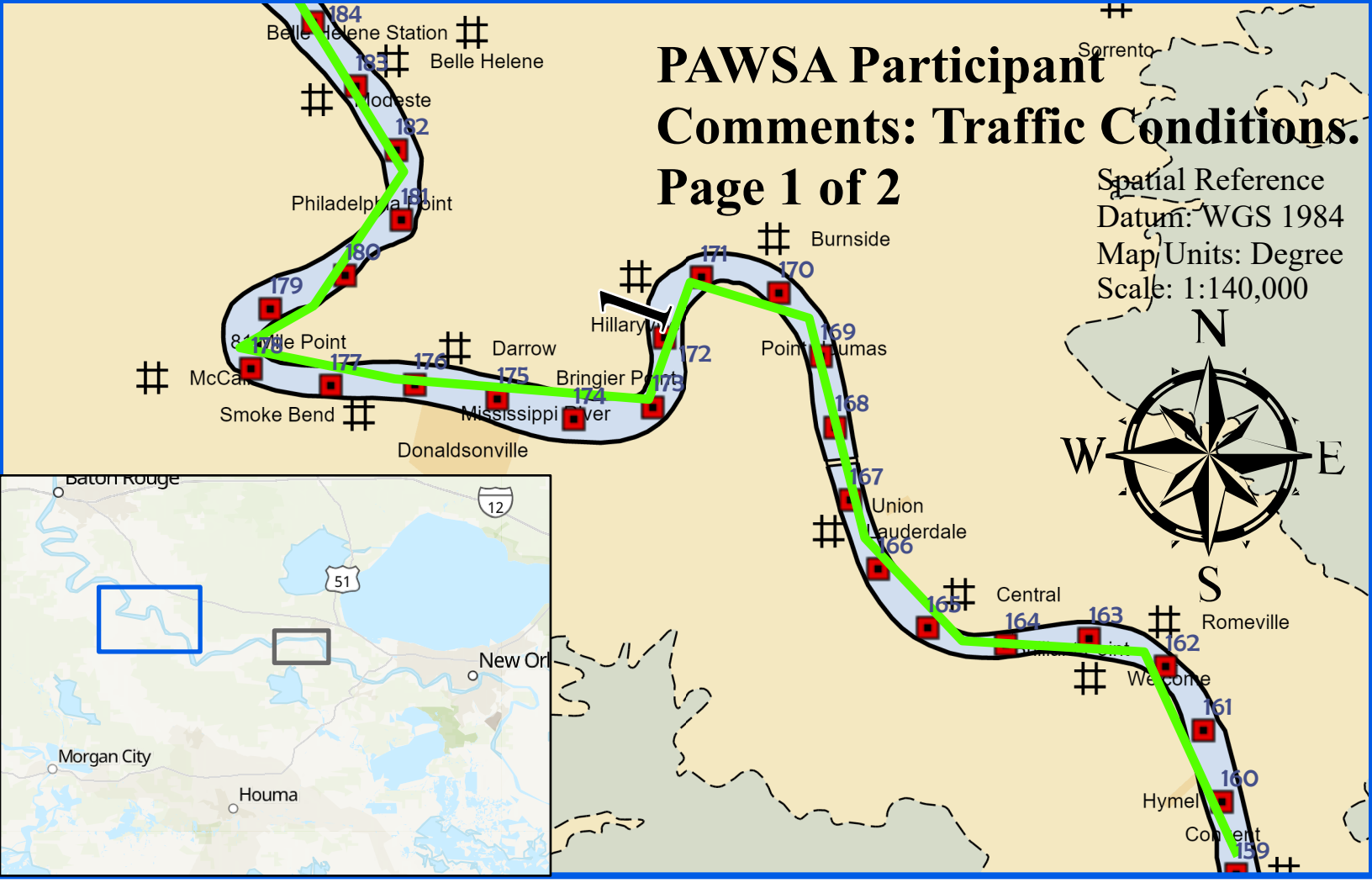

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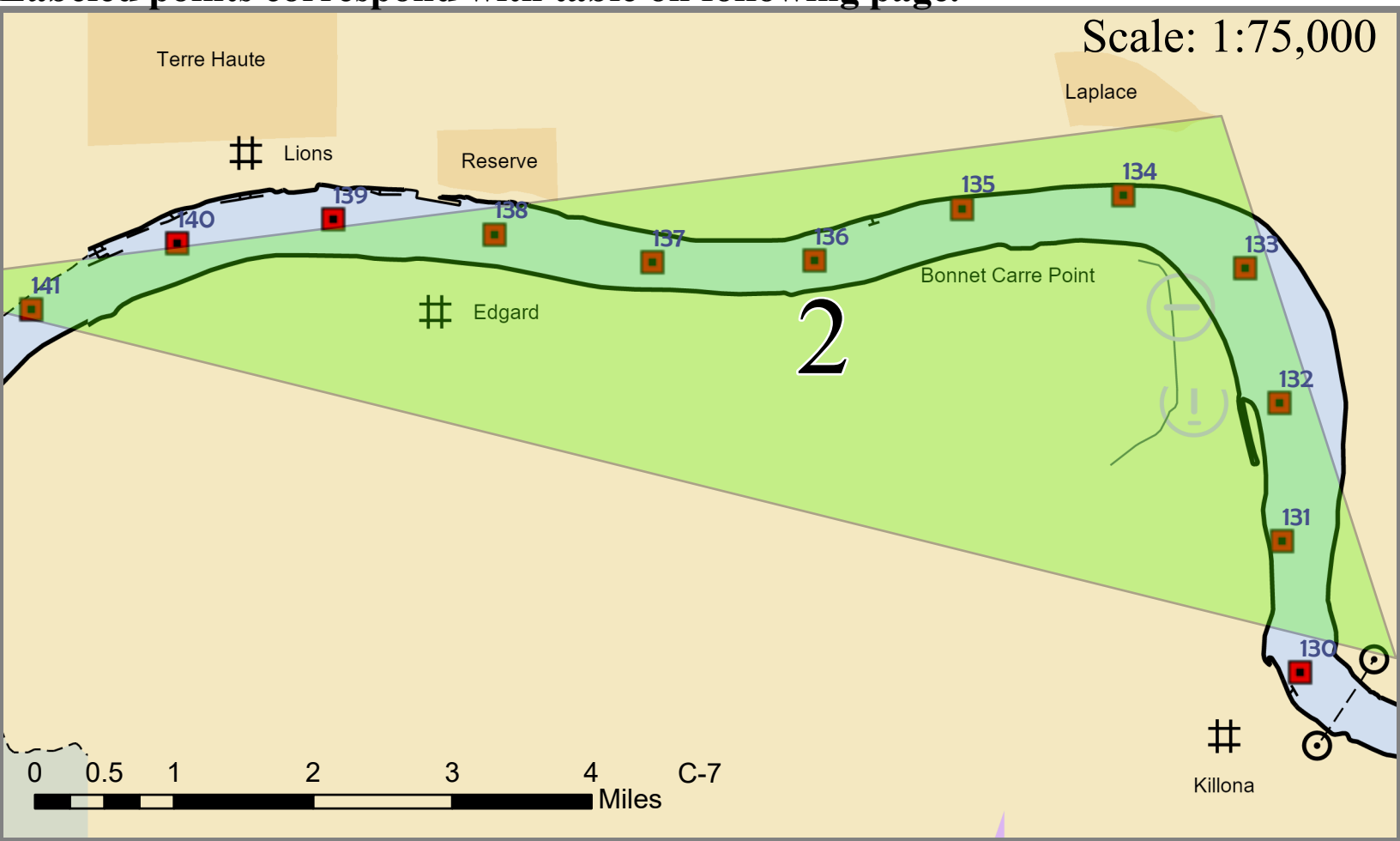

PAWSA Participant Comments: Traffic Conditions.

Page 2 of 2

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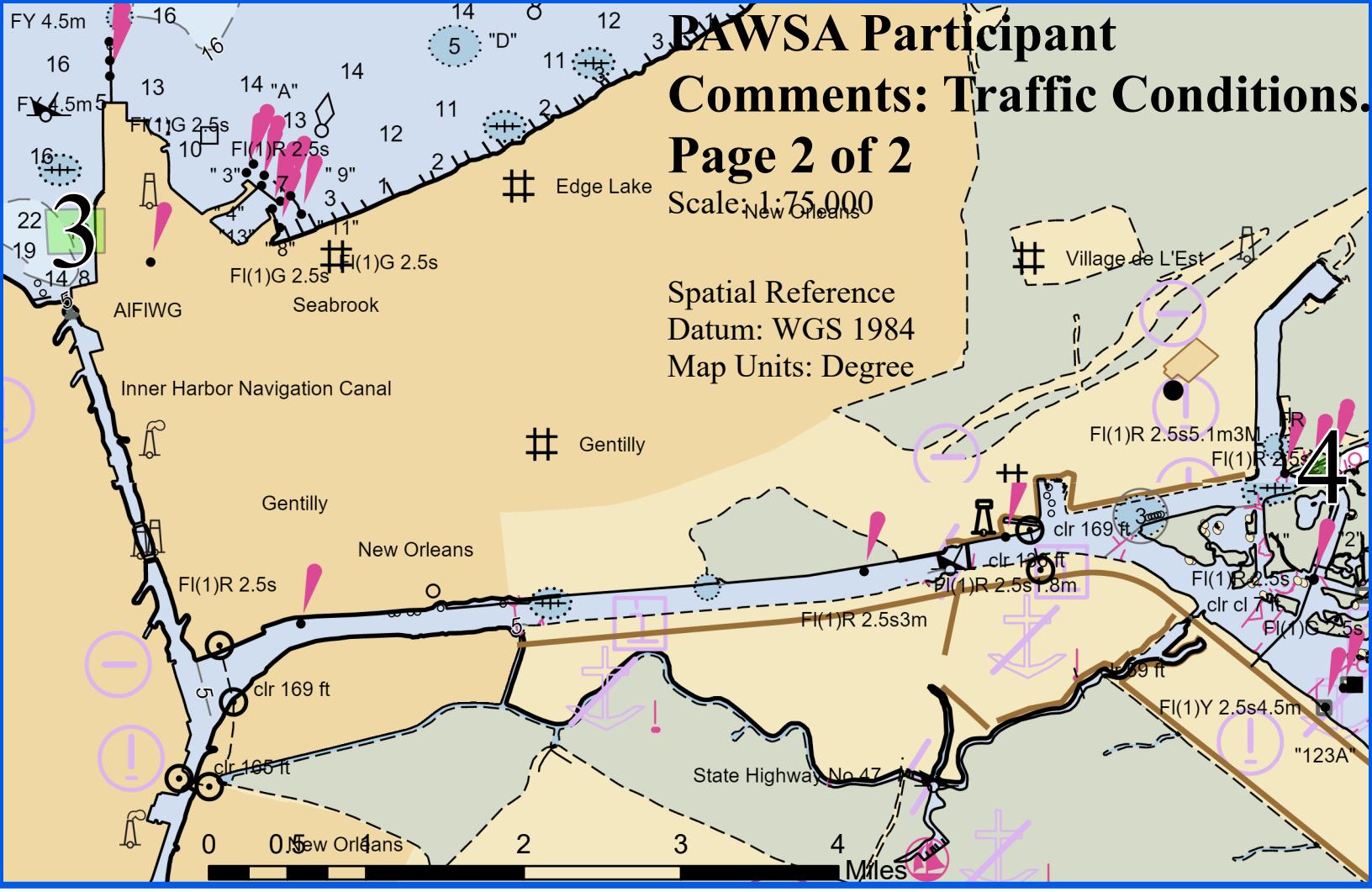

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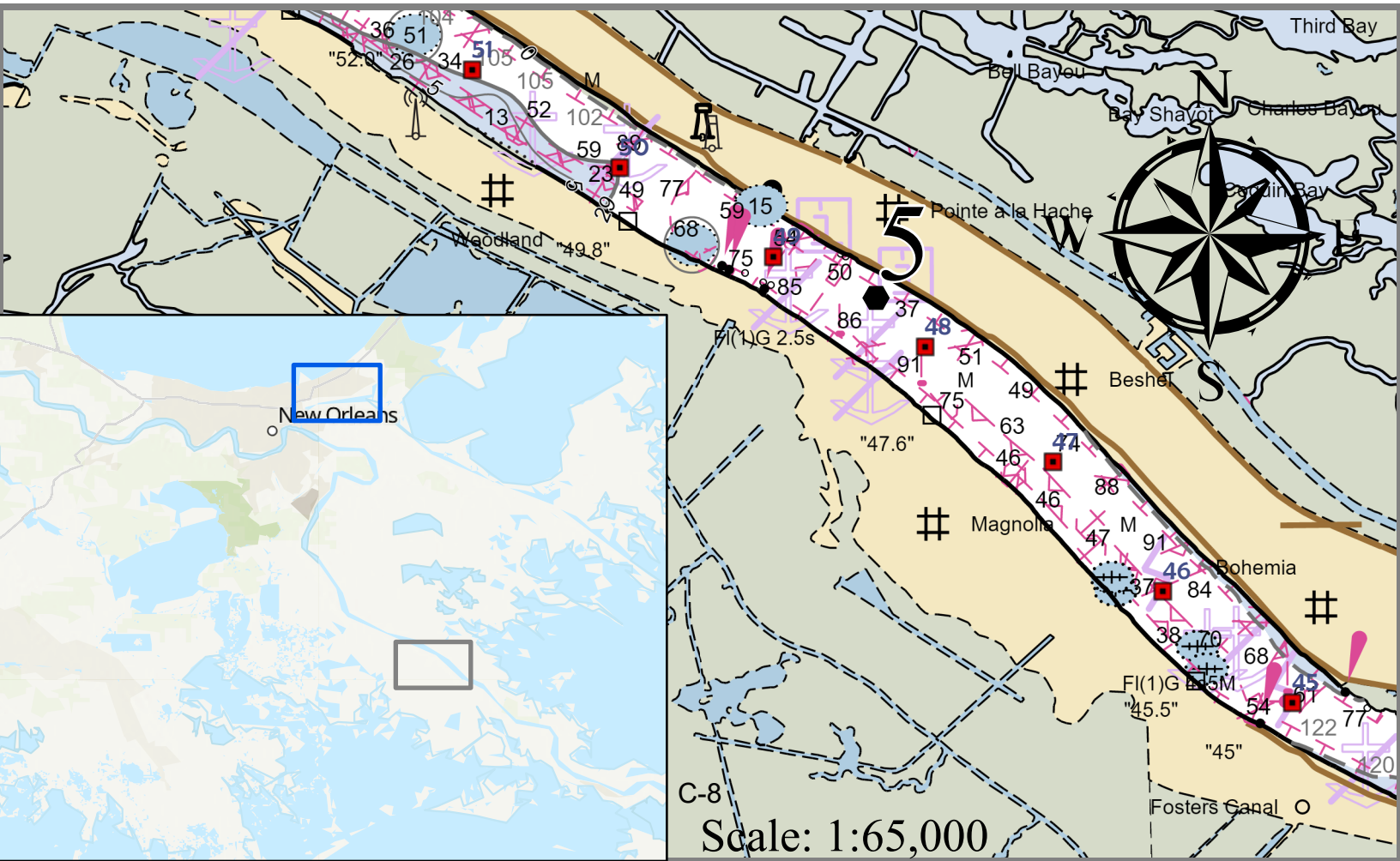

Navigation Condition Comments

Point	Comment
1	Port Allen Lock wait congestion
2	One of the areas of the strongest currents.
3	Harvey Canal Sector Gate
4	MM 81 RNA*

*Note: 81-Mile Point, a different region that identified in this participant comment, is within a Vessel Movement Reporting System Area spanning MM167.5 AHP (Above Head of Passes) and MM187.9 AHP.

PAWSA Participant Comments: Navigation Conditions.

Page 1 of 2

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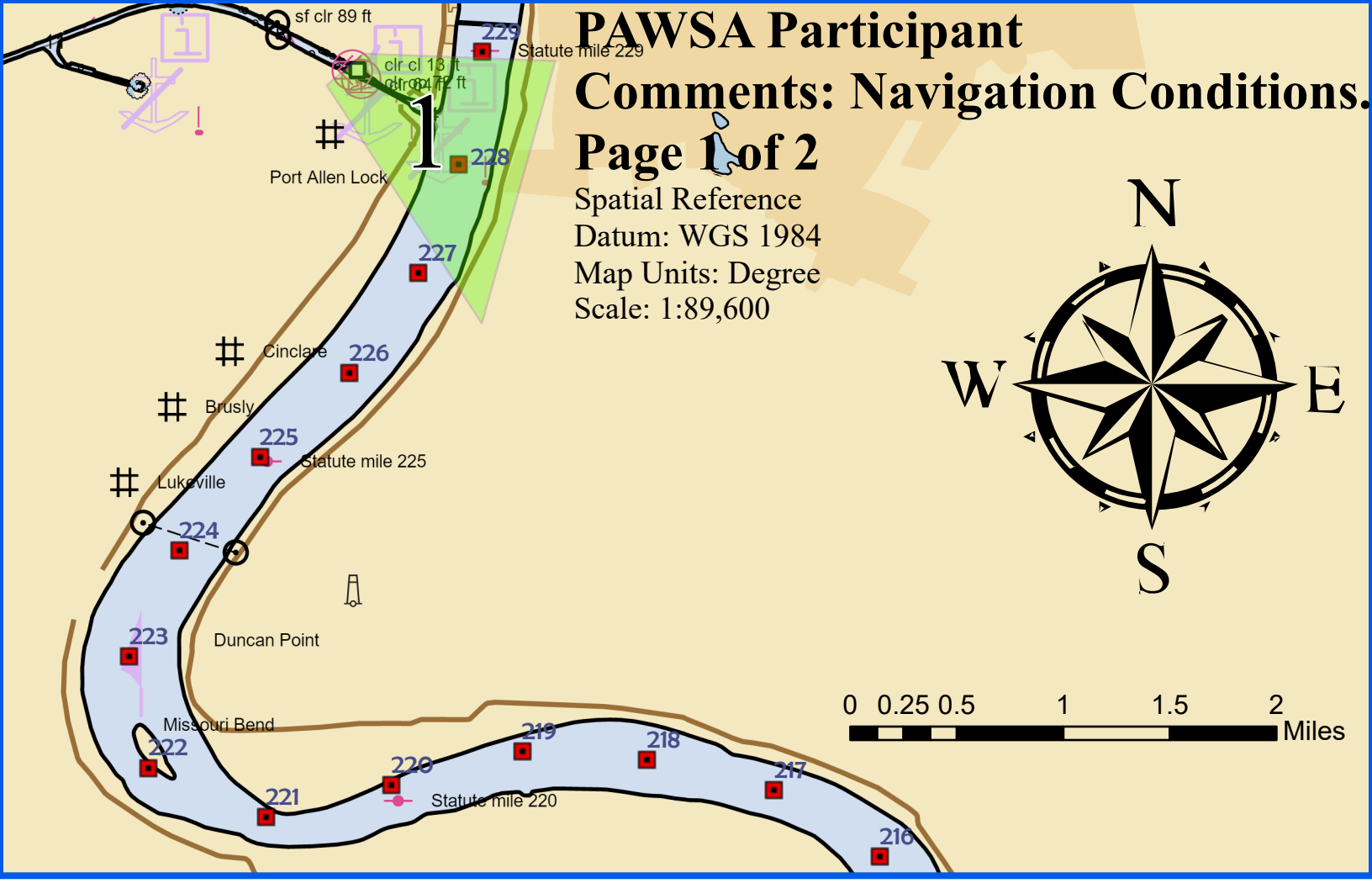

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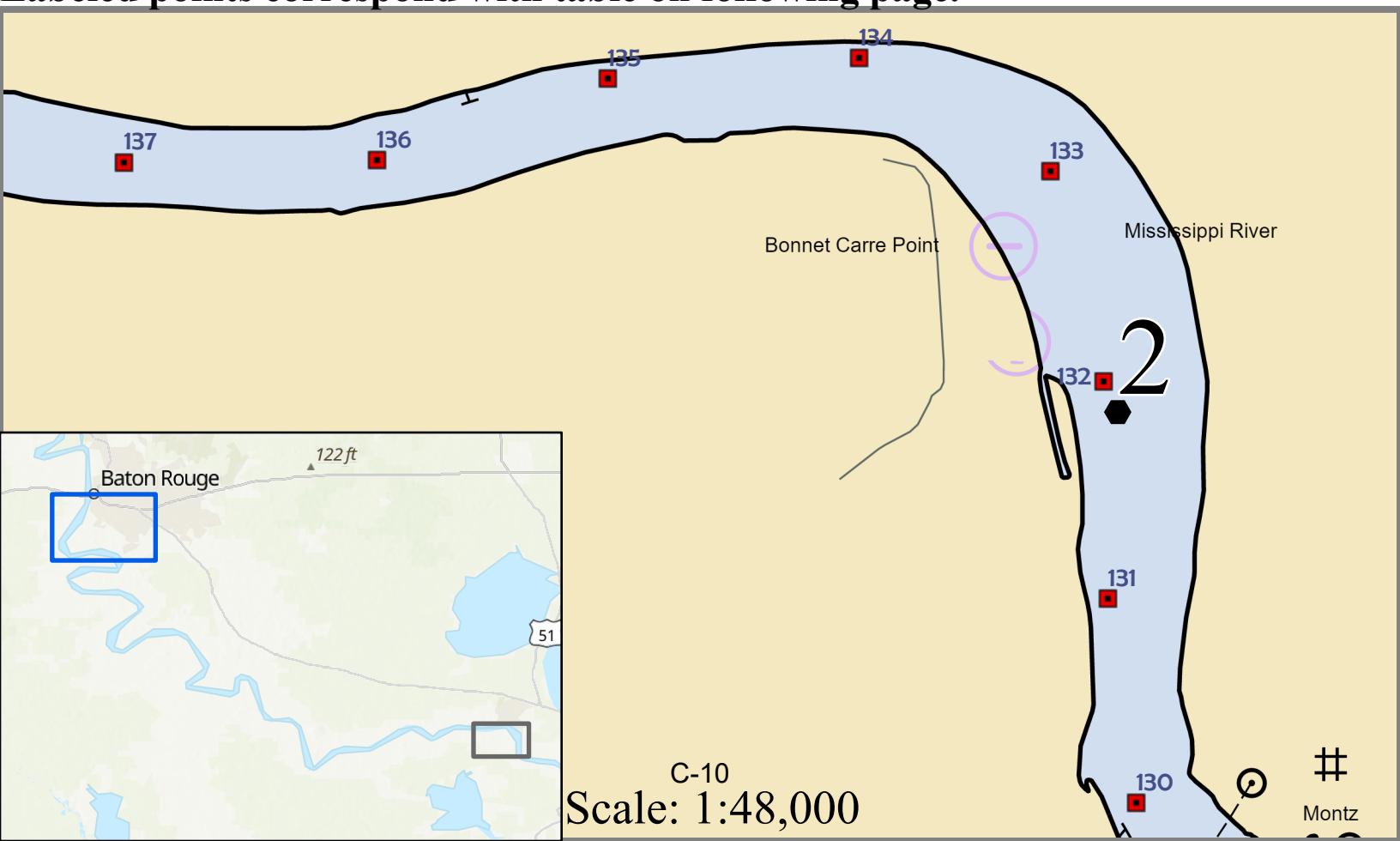

PAWSA Participant Comments: Navigation Conditions. Page 2 of 2

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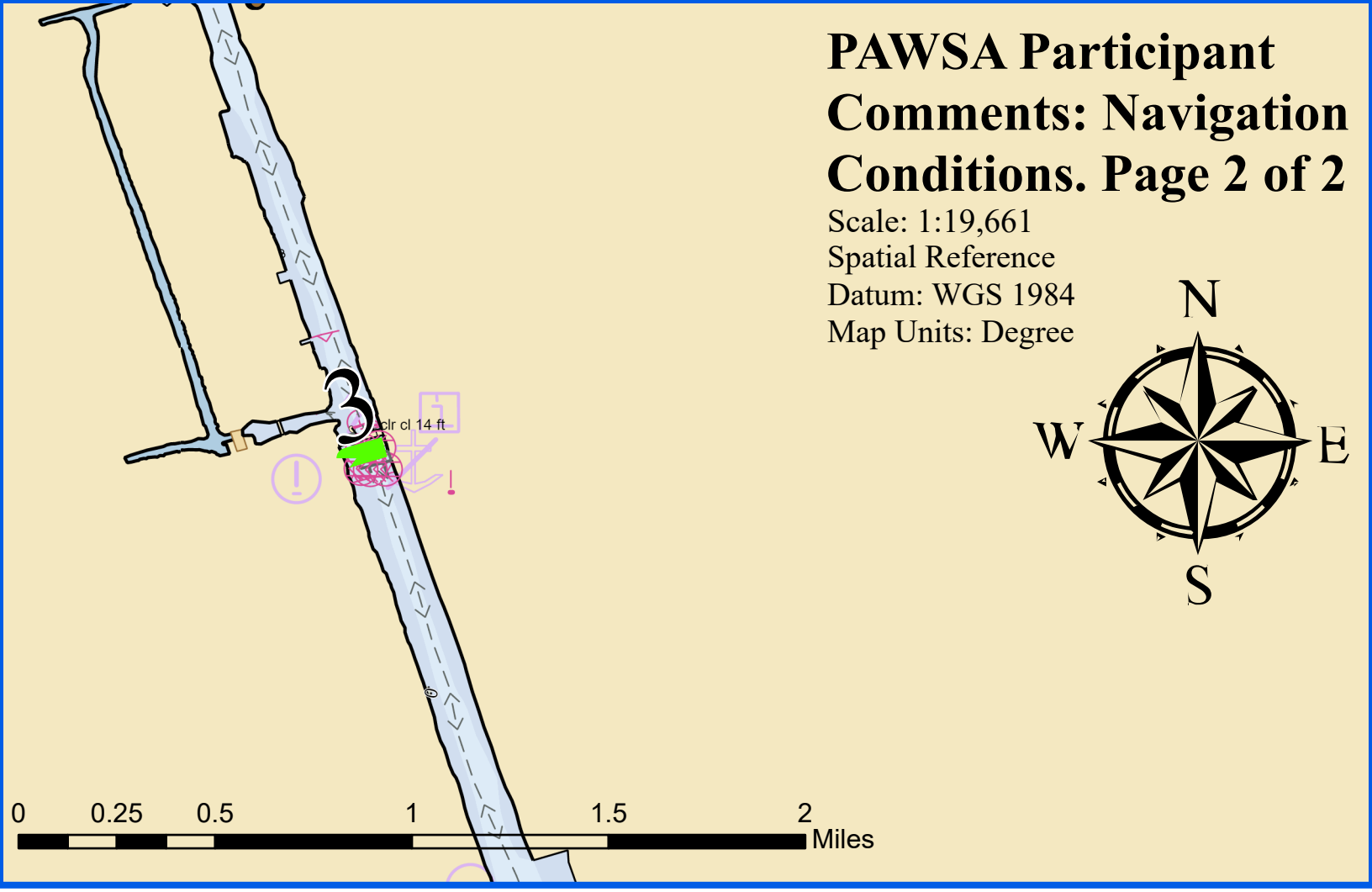

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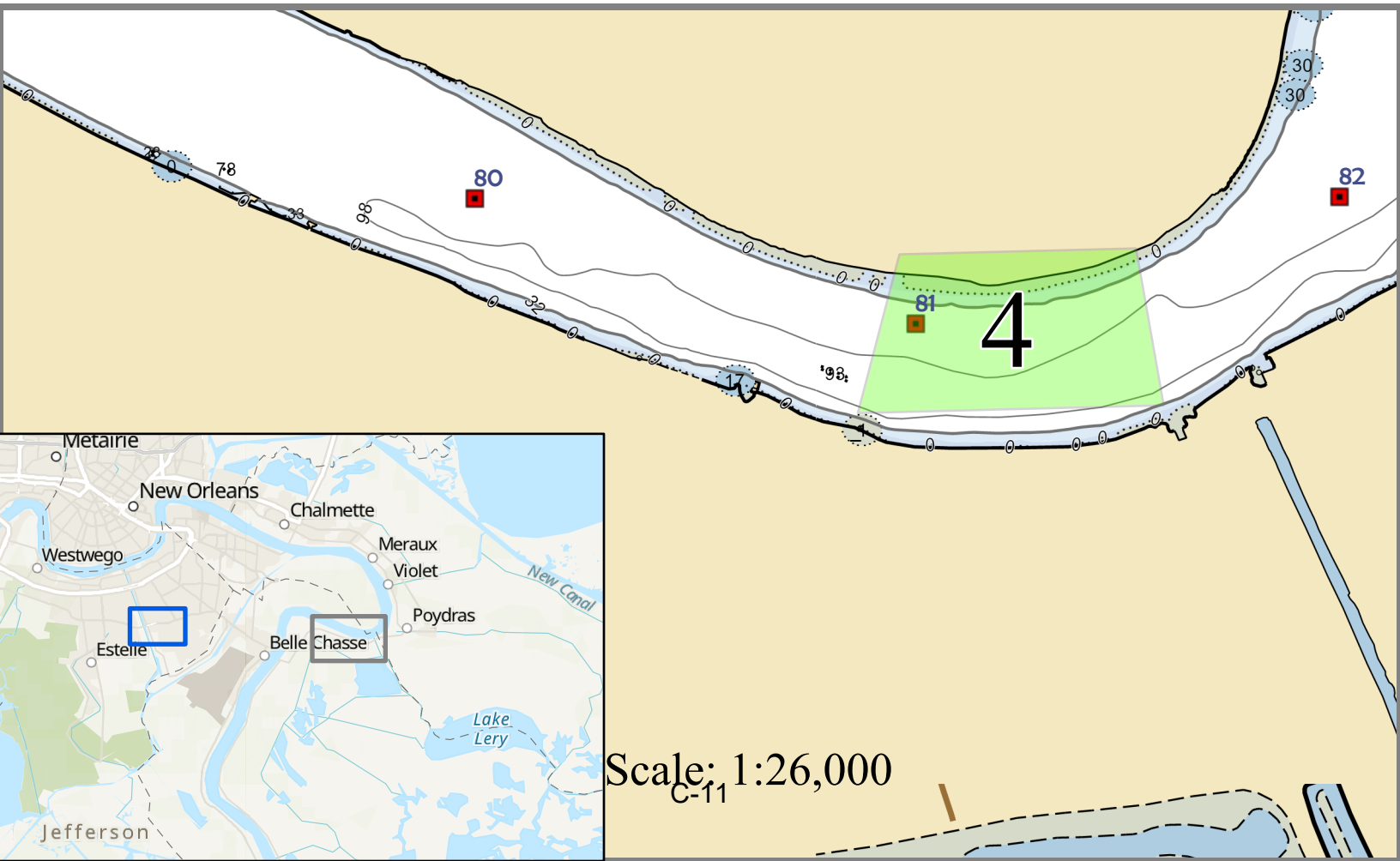

Waterway Condition Comments

Point	Comment
1	Coming around Wilkinson Point going through the 190 bridge trying to avoid the CEMUS dock on the LDB just south of the 190 bridge, extremely difficult for ITV & 40 barges to navigate esp during low water when the Right side of the bridge cannot be utilized
2	Duncan Point
3	Point Clair
4	Philadelphia Point
5	81 mile point
6	Bringier Point
7	College Point
8	9 mile point
9	Lights from the soccer fields make it difficult to see on the river at night
10	upper 9 mile point

PAWSA Participant Comments: Waterway Conditions.

Page 1 of 2

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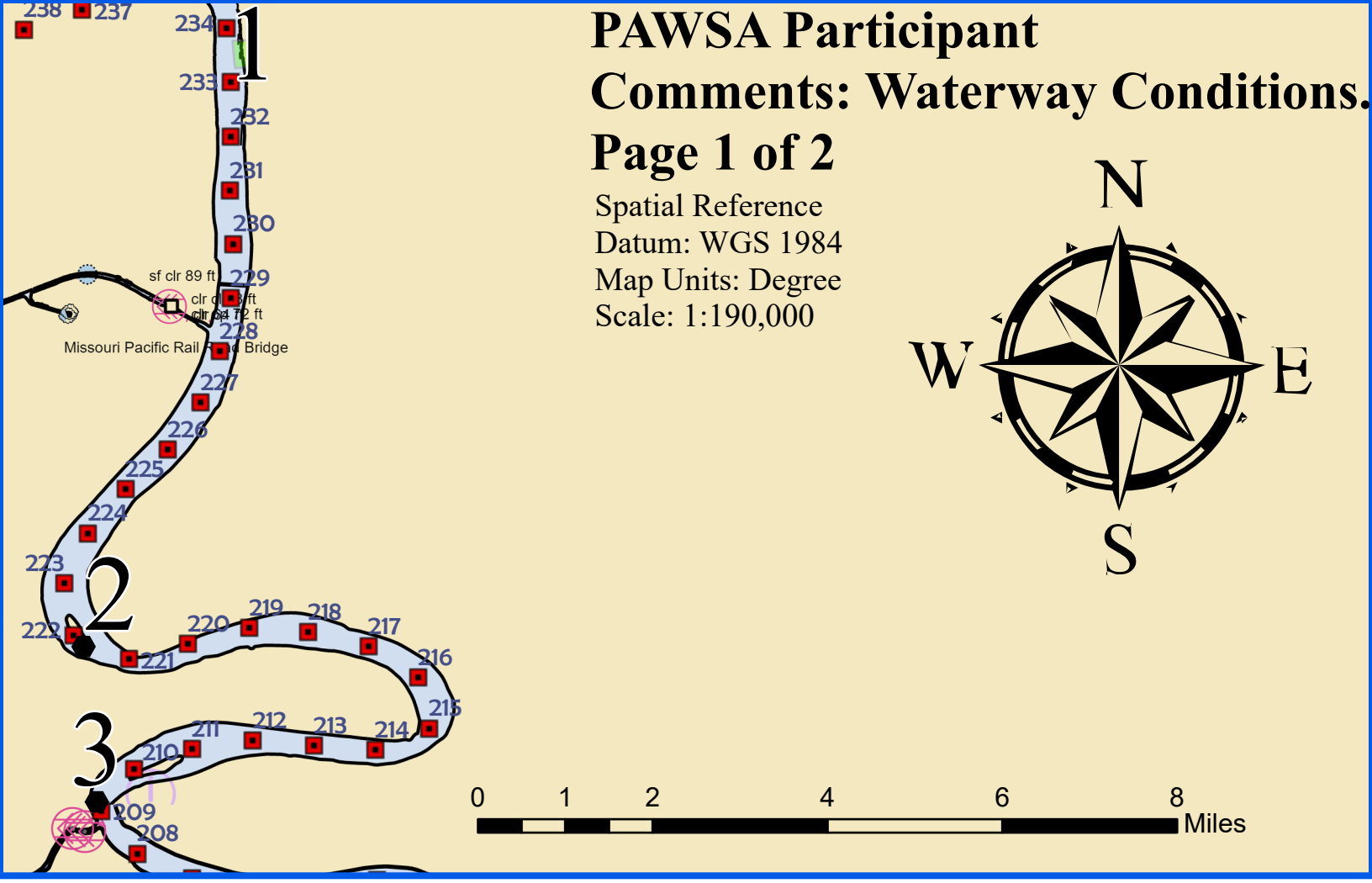

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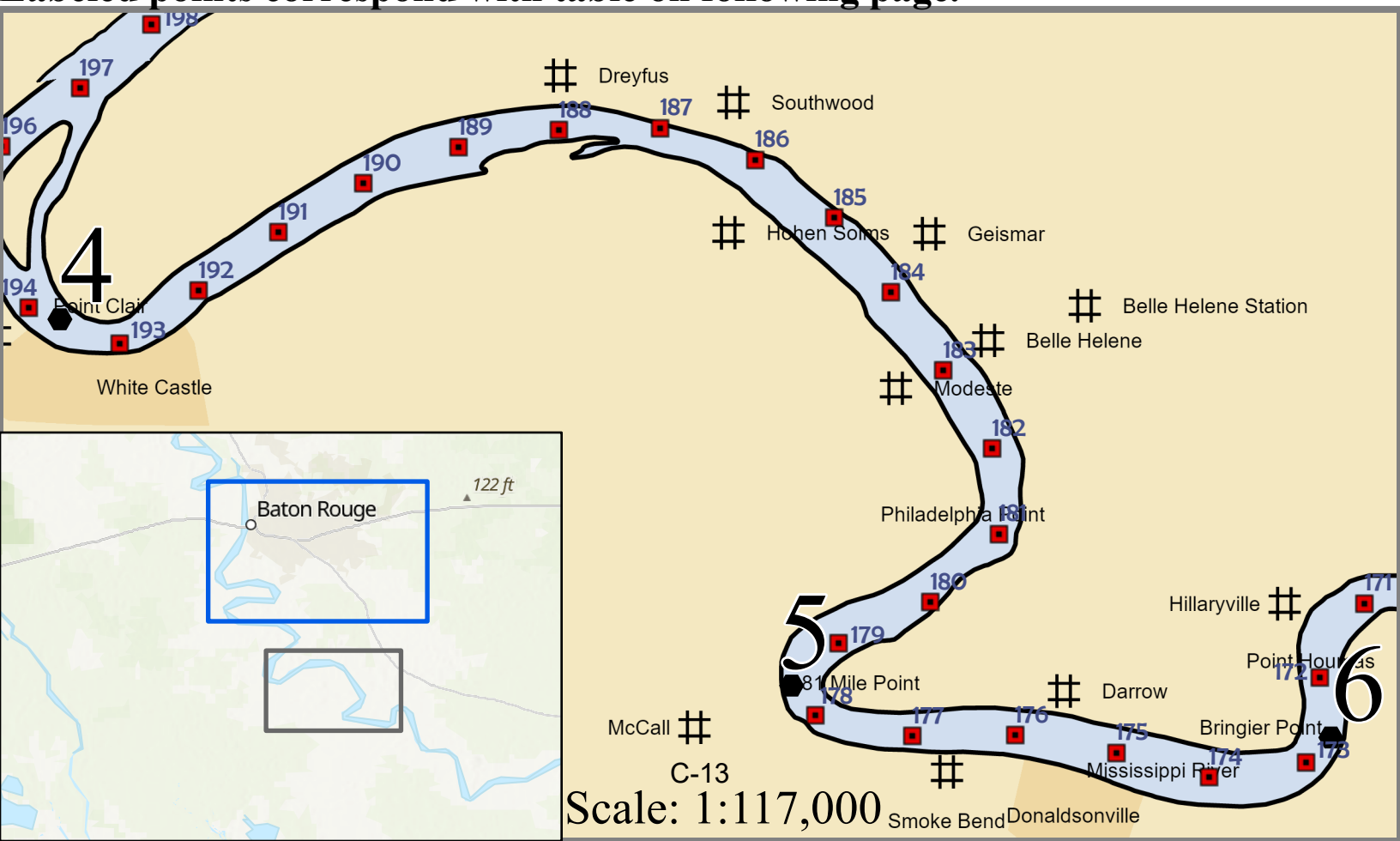

PAWSA Participant Comments: Waterway Conditions. Page 2 of 2

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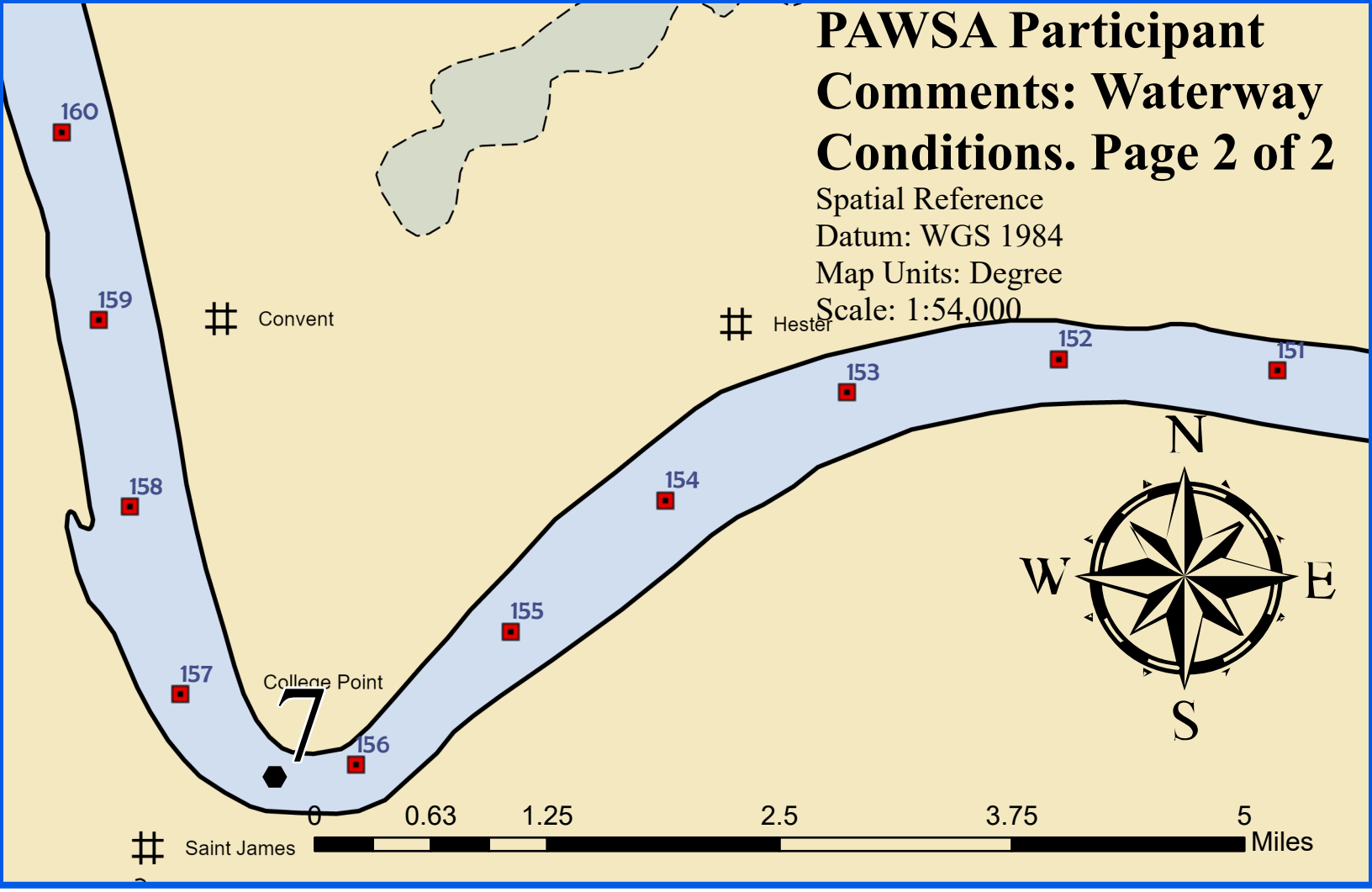

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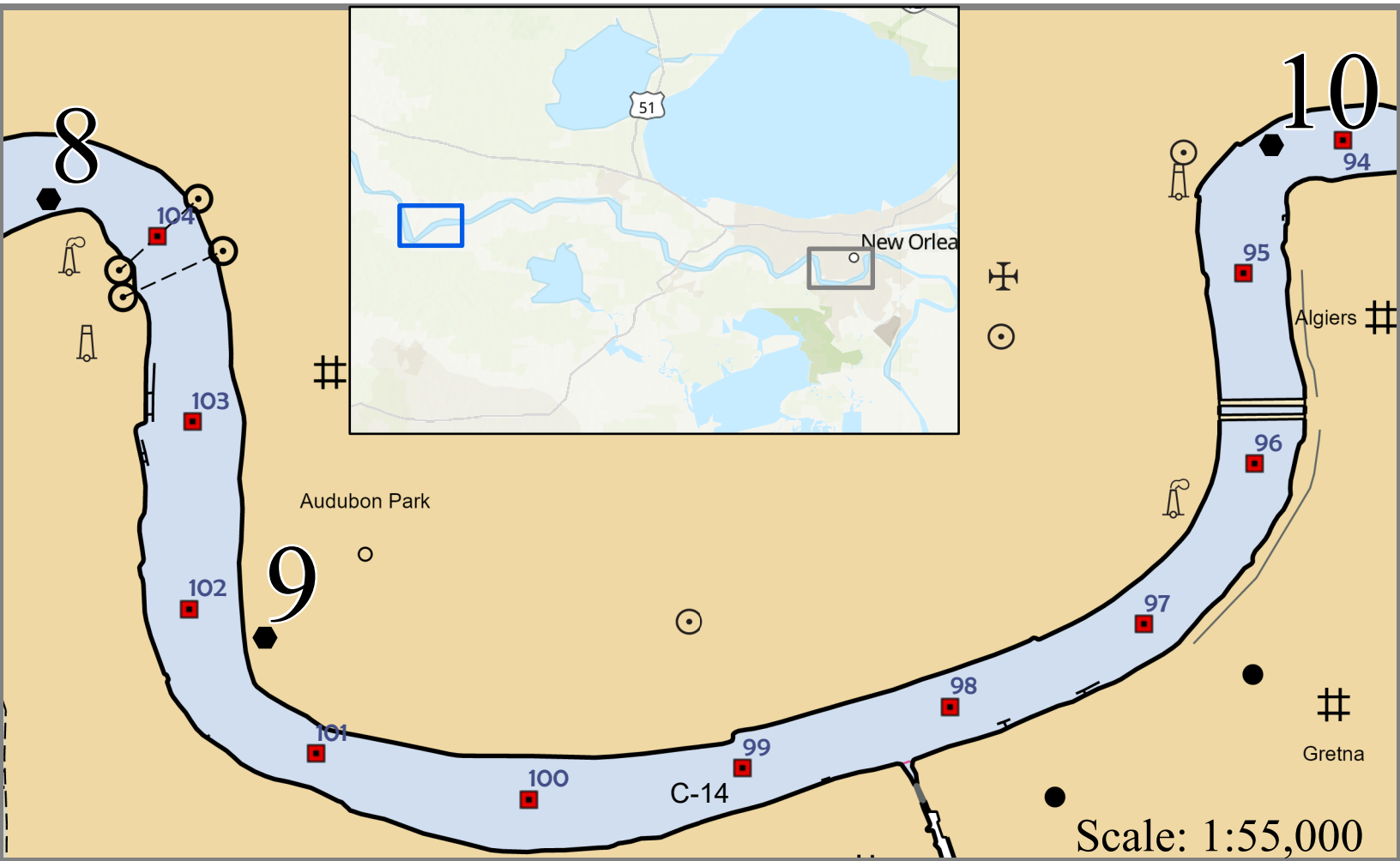

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Appendix D

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Appendix E

Abbreviations and Acronyms

ACP	Area Contingency Plan
AIS	Automatic Identification System
ANPRM	Advance Notice of Proposed Rulemaking
ATON	Aids to Navigation
BWI	Boating While Intoxicated
BNM	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
PFD	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

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