



TRB TRANSPORTATION RESEARCH BOARD

TRB Conference on

Innovative Science and Technologies to Improve Security and Safety in the Marine Transportation System

Washington, DC • June 23–26, 2025

Register Now!

The **TRB Conference on Innovative Science and Technologies to Improve Security and Safety of the Marine Transportation System** is organized by The National Academies of Science, Engineering and Medicine in partnership with the U.S. Committee on the Marine Transportation System and will be held June 23 – 26, 2025 in Washington, D.C. This conference will seek to identify research needs, barriers, and potential progress related to overall maritime security and safety strategies.

Presenters and attendees will discuss cybersecurity, marine facility and waterway security, port and vessel security, cargo carriage safety, mariner safety, climate resilience, risks related to

Call for Presentations is Open! See back of flyer for topics.

adopting new goods movement technologies and energy systems, maritime safety data systems, and collaboration mechanisms among all MTS-related stakeholders and sectors.

Student Honor Panel: This conference will provide up to \$500 for domestic travel support and one complimentary registration for up to **four full-time students**. See the Call for Presentations page on the conference website for more details!

REGISTRATION RATES

	EARLY BIRD	ADVANCE	REGULAR
General	\$600	\$650	\$700
One Day	\$325	\$350	\$375
TRB Sponsors and / or Speakers	\$500	\$550	\$600
Student	\$200	\$215	\$230
Marine Board Sponsors	\$500	\$500	\$500

SCAN ME



Call for Presentations

Deadline: February 15, 2025

You are invited to share your knowledge and expertise as part of a focused technical breakout session during the conference. The conference planning committee is seeking presentations within the context of maritime resilience, safety and security relating to the following marine transportation topics.

Climate Resilience and Adaptation

- Sea level rise
- Inland water level issues, rivers, droughts
- Inclement weather adaptation and communication
- Disaster response frameworks and contingency planning
- Industry and government facility capabilities
- Mariner safety procedure updates for changing ocean conditions
- International waterway considerations
- Offshore renewables
- Risk assessment related to sustainability

Marine Transportation System (MTS) Operational and Economic Resilience

- Business continuity, infrastructure, and operations research
- Impacts of larger vessels and increased commerce on system capacity, operations, and vessel technologies
- Workforce education and training
- Vulnerability and risk assessment methodologies
- Navigation safety and information data

Cyber Security/Cyber Resilience/Data Integration

- Cybersecurity – incident response, threat management, information sharing
- Navigation systems integrity (PNT, ATONs, Shipboard systems)
- Infrastructure and vessel systems integrity and security of manufacturing/ component supply chains for critical functions (port cranes, vessel systems, etc....)
- Interagency data sharing procedures, advances, gaps, and challenges
- Expanding data sources, data integrity, data management and associated infrastructure
- Managing the interoperability and security of public and private data
- Data security training, compliance, and associated workforce development
- Voyage planning and route forecasting
- Traffic and predictive scheduling, right on time scheduling
- Meteorological and oceanic condition integration and data
- Port and vessel predictive maintenance
- Workforce changes due to automation/artificial intelligence (AI)
- Predictive applications for AI
- AI applications supporting freight fluidity and supply chain efficiency as applied to safety and security
- Unintended consequences of not uniformly implementing AI system-wide
- Smart container placement and handling
- Risk assessment and reduction methodologies

Security, Safety, Compliance, And Resilience with Zero & Low Emission Technology Adoption

- Battery technology safety
- Security and safety of electrified/autonomous/automated cargo handling equipment
- Alternative fuels – storage, use, leak detection and warning systems
- Energy transport and storage (electricity, hydrogen, LNG, methanol, ammonia, on vessels as cargo and bunker fuel)
- Limitations in the global supply chains of EV batteries
- Pollution incident response to emerging technology and fuels
- Emission monitoring and reporting
- Workforce training, development and certification for new technologies
- Expanding Offshore Wind – navigational safety aids, SAR capabilities, port access, unexploded ordinance issues (UXO)
- Small Modular Reactors (SMRs) and other advanced nuclear reactor technologies
- Emergency response and firefighting considerations, techniques and training

Enforcement Procedures

- Illegal trafficking of goods
- Detection of disruptive illicit activity
- Threat Detection Technologies, weapons of mass destruction (WMD)
- Technologies supporting Secure and Safe Cargo transport
- Maritime Facility and Waterway Security and Safety Technologies
- Response and prevention of theft of cargo
- Leveraging technology to improve port/terminal security and enforcement, i.e., cyber/white hats, drone, etc.
- Balancing appropriate enforcement with freight fluidity
- Private sector roles and responsibilities as part of typical operations

Regulatory Environment for Security and Safety Strategies

- International, national, and local governance
- Reconciling multiple jurisdictions and disparate authorities
- Class societies roles and other technology inspection and verification regimes
- Governance requirements and issues pertinent to license, certification, and training
- Lithium-ion battery carriage issues (as standalone cargo and in electric vehicles)
- Governmental fleet considerations – how will government vessels use and implement technology in their floating assets (DOD, DOC, DHS, USACE, MARAD)
- Potential and proposed regulations and authority implementations - effects on port & vessel operations, including vessel discharge Vessel General Permit (VGP)/Vessel Incidental Discharge Act (VIDA) compliance