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Emerging Risks in the Marine Transportation System Post-9/11: NCITE Research Snapshot

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NCITE RESEARCH SNAPSHOT

Emerging Risks in the Marine Transportation System Post-9/11

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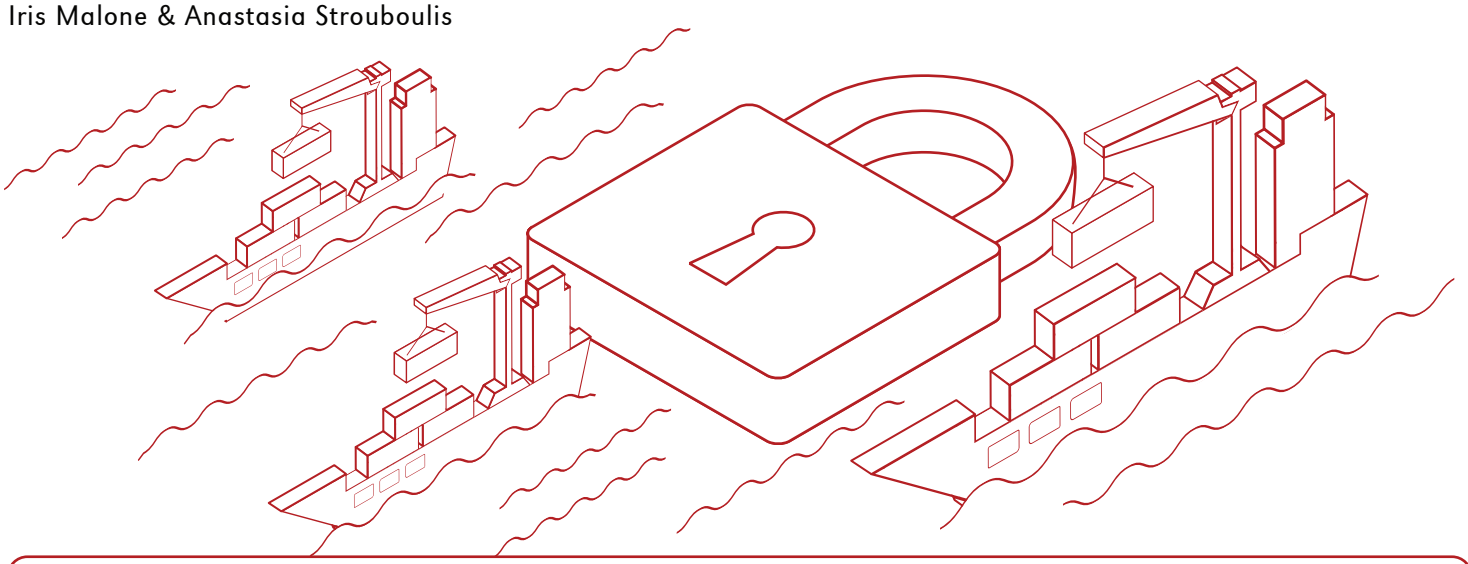

How has maritime security evolved since 2001 and what challenges exist moving forward?

KEY FINDINGS

In the wake of 9/11, the central challenge to protecting the marine transportation system (MTS) is that the complexity of the threat environment is outpacing maritime defense and response capabilities. Sophisticated and versatile threats challenge the conventional counterterrorism framework, generating a new set of security challenges. **Unlike the threat environment immediately following 9/11, emerging risks to the MTS are driven by small-scale, high-probability threats.** Interconnected network systems, globalization, and big data create the potential for cascading effects. Because the maritime sector is a "system of systems," an attack in one system has a second-order effect on other, connected systems. Thus, a small-scale attack can turn into a major one with little warning.

THREE PRESSING THREATS ARE:

1

Increasingly diffuse and unorganized set of extremist actors intent on using violence

2

Increasingly sophisticated cyberattacks and other Advanced Persistent Threats (APTs)*

3

Advanced technologies and weapons systems

*APT = a well-equipped adversary that often employs sophisticated methods to stage an attack, typically in the cyber domain

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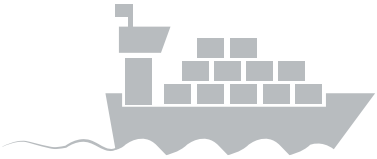
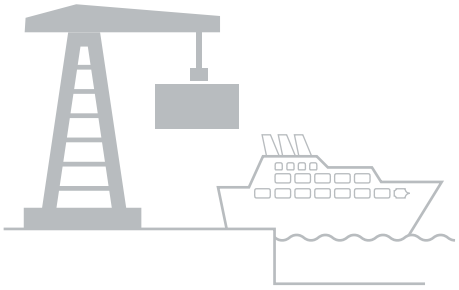
KEY VULNERABILITIES



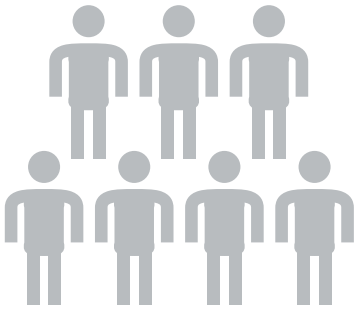
Ships

- **Systems:** operational tech, information tech, tracking tech
- **Foreign ports and routes:** port security, inter-port layovers, natural chokepoints
- **People:** training, vetting
- **Cargo:** manifests, type of cargo, shipping volume



Domestic Ports

- **Ships:** small vessel traffic, port congestion, vessel size
- **Physical infrastructure:** physical security, aging infrastructure, poor investment in maintenance and modernization, physical-cyber ties
- **Digital infrastructure:** automated systems, networks (hub and spoke), digital security



People

- **Companies and organizational culture:** insular culture, growing number of stakeholders, governance and maintenance challenges, foreign operators
- **Operators:** labor shortages, unauthorized access
- **Law enforcement:** understaffing, slow resource acquisition time, reverse machine learning, incomplete information sharing

New Challenges Resulting From Threats And Vulnerabilities

- New domains for exploitation
- Attribution challenges
- Big data and information processing
- Technological innovations
- Globalization

Strategies to Improve Detection, Deterrence, and Delivery Mechanisms

- Machine learning and big data analysis
- Personnel training and operational exercises
- Wargaming and simulation exercises
- Regulations
- Education and lessons learned series

METHOD These findings are based on a two-pronged research approach involving:

1) Interviews with 37 individuals from academia, think tanks, law enforcement, and former and active-duty Coast Guard personnel

2) Review of open-source resources from academia, think tanks, Government Accountability Office reports, and USCG publications.

Read the full report and find out more about our research on our website: **www.unomaha.edu/ncite**

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