

United States Coast Guard Marine Transportation Systems



Future Marine Navigation Technologies

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Commerce Strategic Outlook



By 2025, worldwide demand for waterborne commerce is expected to more than double.

Challenges to Safeguarding MTS:

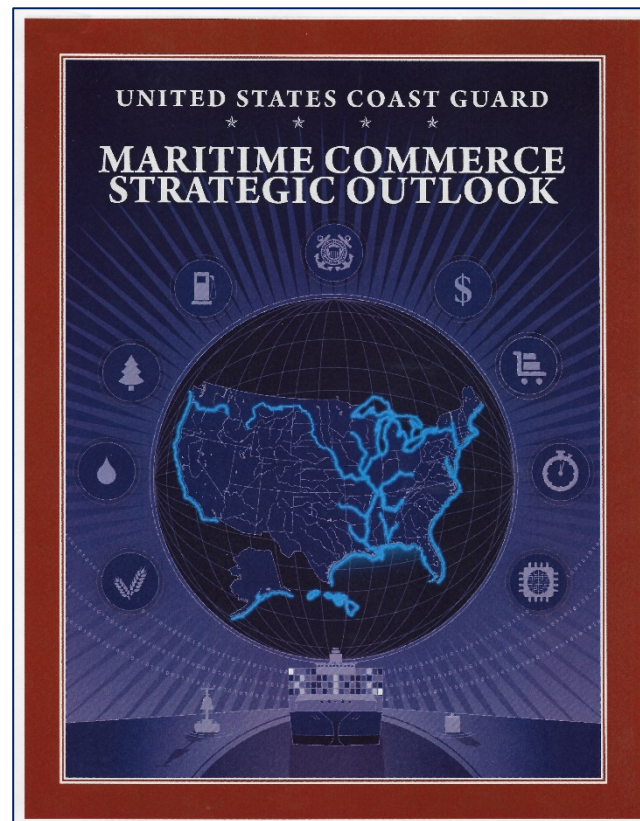
Increased vessel complexity

Enhanced automation

Advanced networked systems

Greater use of MTS

Increased vulnerability to cyber attacks





Lines of Effort



1: Facilitating Lawful Trade and Travel on Secure Waterways



2: Modernizing Aids to Navigation and Mariner Information Systems



3: Transforming Workforce Capacity and Partnerships





e-ATON



- **Virtual:** AIS ATON message broadcast to an assigned position with NO corresponding buoy/beacon.
- **Synthetic:** AIS ATON message broadcast to an assigned position with a corresponding buoy/beacon.
- **Physical:** AIS ATON message broadcast from the buoy/beacon.





Use of AIS-ATON

- Harbor approach and safe water mark buoys
- Traffic separation schemes
- Discrepancy response
- Natural disaster recovery
- Marking of wrecks
- Historically unreliable physical ATON
- Locations where physical ATON is not feasible





Marine Planning & Mitigating Risks



Current Initiatives:

- Identify Navigation Risks
- Ports and Waterways Safety Assessments (PAWSA)
- Rulemaking projects from Port Access Route Studies (PARS)
- Alternative Energy Plans and Safe Navigation

