

COAST GUARD

Security Risk Model Meets DHS Criteria, but More Training Could Enhance Its Use for Managing Programs and Operations

Why GAO Did This Study

Since the terrorist attacks of September 11, 2001, the nation's ports and waterways have been viewed as potential targets of attack. The Department of Homeland Security (DHS) has called for using risk-informed approaches to prioritize its investments, and for developing plans and allocating resources that balance security and the flow of commerce. The U.S. Coast Guard—a DHS component and the lead federal agency responsible for maritime security—has used its Maritime Security Risk Analysis Model (MSRAM) as its primary approach for assessing and managing security risks. GAO was asked to examine (1) the extent to which the Coast Guard's risk assessment approach aligns with DHS risk assessment criteria, (2) the extent to which the Coast Guard has used MSRAM to inform maritime security risk decisions, and (3) how the Coast Guard has measured the impact of its maritime security programs on risk in U.S. ports and waterways. GAO analyzed MSRAM's risk assessment methodology and interviewed Coast Guard officials about risk assessment and MSRAM's use across the agency.

What GAO Recommends

GAO recommends that the Coast Guard provide more thorough documentation on MSRAM's assumptions and other sources of uncertainty, make MSRAM available for peer review, implement additional MSRAM training, and report the results of its risk reduction performance measure in a manner consistent with risk analysis criteria. The Coast Guard agreed with these recommendations.

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What GAO Found

MSRAM generally aligns with DHS risk assessment criteria, but additional documentation on key aspects of the model could benefit users of the results. MSRAM generally meets DHS criteria for being complete, reproducible, documented, and defensible. Further, the Coast Guard has taken actions to improve the quality of MSRAM data and to make them more complete and reproducible, including providing training and tools for staff entering data into the model. However, the Coast Guard has not documented and communicated the implications that MSRAM's key assumptions and other sources of uncertainty have on MSRAM's risk results. For example, to assess risk in MSRAM, Coast Guard analysts make judgments regarding such factors as the probability of an attack and the economic and environmental consequences of an attack. These multiple judgments are inherently subjective and constitute sources of uncertainty that have implications that should be documented and communicated to decision makers. Without this documentation, decision makers and external MSRAM reviewers may not have a complete understanding of the uses and limitations of MSRAM data. In addition, greater transparency and documentation of uncertainty and assumptions in MSRAM's risk estimates could also facilitate periodic peer reviews of the model—a best practice in risk management.

MSRAM is the Coast Guard's primary tool for managing maritime security risk, but resource and training challenges hinder use of the tool by Coast Guard field operational units, known as sectors. At the national level, MSRAM supports Coast Guard strategic planning efforts, which is consistent with the agency's intent for MSRAM. At the sector level, MSRAM has informed a variety of decisions, but its use has been limited by lack of staff time, the tool's complexity, and competing mission demands, among other things. The Coast Guard has taken actions to address these challenges, but providing additional training on how MSRAM can be used at all levels of sector decision making could further the Coast Guard's risk management efforts. MSRAM is capable of informing operational, tactical, and resource allocation decisions, but the Coast Guard has generally provided MSRAM training only to a small number of sector staff who may not have insight into all levels of sector decision making.

The Coast Guard developed an outcome measure to report its performance in reducing maritime risk, but has faced challenges using this measure to inform decisions. Outcome measures describe the intended result of carrying out a program or activity. The measure is partly based on Coast Guard subject matter experts' estimates of the percentage reduction of maritime security risk subject to Coast Guard influence resulting from Coast Guard actions. The Coast Guard has improved the measure to make it more valid and reliable and believes it is a useful proxy measure of performance, noting that developing outcome measures is challenging because of limited historical data on maritime terrorist attacks. However, given the uncertainties in estimating risk reduction, it is unclear if the measure would provide meaningful performance information with which to track progress over time. In addition, the Coast Guard reports the risk reduction measure as a specific estimate rather than as a range of plausible estimates, which is inconsistent with risk analysis criteria. Reporting and using outcome measures that more accurately reflect mission effectiveness can give Coast Guard leaders and Congress a better sense of progress toward goals.