The U.S. Coast Guard has spent the past 25 years trying to predict the challenges it will face over the next 25 years through its long-running Evergreen initiative. The aim of this long-term strategic planning effort is to identify emerging challenges and future trends that might alter the demand for Coast Guard missions and the ability to perform them so that senior leaders can plan and be better prepared for the coming decades. This brief summarizes the findings of Evergreen V—the most recent four-year initiative—run by the Coast Guard Office of Emerging Policy (DCO-X) with support from the Homeland Security Operational Analysis Center (HSOAC), a federally funded research and development center operated by the RAND Corporation under contract with the Department of Homeland Security.
**HOW EVERGREEN OPERATES**

Evergreen works by tapping into the expertise of Coast Guard subject-matter experts and RAND researchers. The initiative operationalizes strategic foresight planning in this way:

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>OUTPUTS</th>
<th>DESIRED OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCENARIO DEVELOPMENT</td>
<td>WORKSHOPS AND GAMES</td>
<td>QUICK LOOKS AT KEY THEMES</td>
</tr>
<tr>
<td>DCO-X and HSOAC researchers create scenarios of global and regional changes that might occur in 15–25 years.</td>
<td>In workshops and games, small groups of Coast Guard personnel play out how these scenarios could affect existing strategies and statutory missions and how short-term strategic decisions could better prepare the service to respond or prevent potential undesired outcomes in the future.</td>
<td>After each game or workshop, HSOAC researchers create a short document, or “Quick Look,” summarizing the event and highlighting some key themes from the discussions for DCO-X to present to senior leaders.</td>
</tr>
<tr>
<td>PERSPECTIVES ON SELECTED THEMES</td>
<td>INSIGHTS FOR SENIOR LEADERS</td>
<td></td>
</tr>
<tr>
<td>Leaders select a few themes of interest and researchers publish Perspectives that explore the potential implications to Coast Guard strategy, policy, and operations in the future.</td>
<td>These collective insights allow senior leaders to make informed decisions that better prepare the Coast Guard to meet its future mission demands, ensure mission relevance, and aid in the development of emerging strategy and policy.</td>
<td></td>
</tr>
</tbody>
</table>

One of the main goals that Evergreen V had in having so many different participants in the workshops was to expose Coasties to more strategic thinking as one of the key tenants of Evergreen is to “infuse the Service with strategic intent”.

---

*ACTIVITIES AND RESULTS FROM U.S. COAST GUARD PROJECT EVERGREEN V*
FOUR YEARS OF ACTIVITIES IN SUPPORT OF STRATEGIC PLANNING

YEAR 1
2018–2019

OCT 2018
WORKSHOP
Identifying Global Drivers of Change

REPORT
“Possible in Vulnerabilities in Existing U.S. Coast Guard Strategies” (USCG draft)

SEP 2019
WORKSHOP
Workforce 2040
QUICK LOOK

NOV 2019
WORKSHOP
Maritime Risk
QUICK LOOK

PERSPECTIVE
“The Marine Transportation System, Autonomous Technology, and Implications for the Coast Guard”

PERSPECTIVE
“U.S. Coast Guard Workforce 2040: Better Management Through Transparency”

REPORT
“Workforce 2040” (plus executive sneak peek and summary)

JUN 2019
WORKSHOP
Outside the beltway

REPORT
“Developing New Future Scenarios for the U.S. Coast Guard’s Evergreen Strategic Foresight Program”

YEAR 2
2019–2020

SEP 2020
WORKSHOP
Total Workforce 2030
QUICK LOOK

DEC 2020
WORKSHOP
Semper Adaptus
QUICK LOOK

PERSPECTIVE
“Decoding Data Science”

REPORT
“Workforce 2030”

JUN 2020
WORKSHOP
“Autonomous Technology, the Marine Transportation System, and the U.S. Coast Guard”
QUICK LOOK

REPORT
“Risks to the Future Marine Transportation System”

YEAR 3
2020–2021

JAN 2021
GAME
DCO-X core team
QUICK LOOK

MAR 2022
GAME
Senior leadership
QUICK LOOK

REPORT
Summarizing all four years of the initiative

FEB 2021
GAME
Flash to Bang
QUICK LOOK

EXECUTIVE SUMMARY
Summarizing the full report

YEAR 4
2021–2022

JAN 2022
GAME
CONCEPT 2040
QUICK LOOK

EXECUTIVE SUMMARY
Summarizing the full report

WASHINGTON D.C.
FEB 2021
GAME
Flash to Bang
QUICK LOOK

EXECUTIVE SUMMARY
Summarizing the full report

YEAR 1
2018–2019

YEAR 2
2019–2020

YEAR 3
2020–2021

YEAR 4
2021–2022
YEAR 1: **SCENARIO DEVELOPMENT**

The HSOAC team designed and supported two workshops and wrote a research report, *Developing New Future Scenarios for the U.S. Coast Guard’s Evergreen Strategic Foresight Program*, that framed a more-deliberate approach to developing scenarios. The report developed the structure for how to create scenarios for robust strategic planning, and the workshops served to identify vulnerabilities and opportunities in Coast Guard strategies while implementing the scenario-based workshop concept.

**KEY CONCERNS FROM EARLIER EVERGREENS**

- **Scenarios should be robust and diverse rather than predictive.** They should stress-test current plans, policies, and capabilities by helping workshop participants better articulate trade-offs that the Coast Guard will make today to address the wide variety of possible challenges that it might face in the future.

- **Evergreen insights are underutilized.** Evergreen participants generally valued the experience of considering long-range implications for Coast Guard operations, but Evergreen products and findings often did not directly influence Coast Guard decisionmaking because of different planning time horizons. This also makes it challenging to trace Evergreen’s impacts.

**IMPROVEMENTS MADE IN RESPONSE**

- **An improved approach to scenarios.** To help participants articulate short-term trade-offs to address long-term challenges, the Evergreen team improved the approach to scenario development. The scenario development was analytically robust and created four diverse plausible futures, each of which was designed to exert various amounts of pressure on key drivers of Coast Guard missions.

- **Clearer communications.** The team began producing short summaries and deeper dives into topics of interest to make the findings more accessible, timely, and useful to Coast Guard decisionmaking. Senior leaders and specific offices were able to understand the themes, opportunities, and concerns raised in the workshops within weeks of the event, and be more informed on complex topics that affect the service.
YEARS 2 AND 3: WORKSHOPS AND COMMUNICATIONS

Using the approach to scenario development created in year one, HSOAC developed four possible futures for discussion in the six Pinecone workshops held in 2019–2021. The scenarios were structured around five levers: geopolitics, the economy, climate, technology, and society. Each scenario had distinct stressors and put varying amounts of pressure on drivers of demand for Coast Guard missions. This resulted in a spectrum of potential futures, ranging from a world characterized by rapid growth, innovation, and U.S.-led cooperation to one plagued by disasters, resource strains, and loss of global influence. The same scenarios, with slight modifications, were used in the six subsequent workshops.

DRIVING MISSION DEMANDS IN THE FUTURE

Below are highlights of the current and future trends, driven by various phenomena, that will ultimately converge to have a collective impact on the Coast Guard in the 2040 time frame. These are coupled with common themes raised by participants about how these trends could impact the service, or what the service might consider in response.

**Demographic shifts.** Aging populations will affect recruiting pools and the profiles of those that the Coast Guard rescues; population growth will intensify demand for Coast Guard services.

**Technological shifts.** The Coast Guard will use new technologies—but so will those whom the Coast Guard rescues, supports, partners with, regulates, and counters. The Coast Guard needs to dynamically adjust its operations to effectively use technology, make it interoperable with some technologies, and be able to counter others.

**Workforce and work-arrangement shifts.** As long-term employment shifts toward shorter-term engagements and independent contractual work, the Coast Guard might need to accommodate changing expectations and rethink how it recruits, develops, and retains talent.

**Environmental shifts.** Receding coastlines, more severe storms, rising water levels, and other climate effects will profoundly change demand for Coast Guard services and put its infrastructure at risk.

**Changing patterns of energy production and usage.** Shifts in the transport volume of coal, oil, and natural gas will affect the types of traffic and facilities that the Coast Guard will regulate and secure. The Coast Guard could also seek to reduce its own usage of fossil fuels.

**Changing drug production, use, and legislation status.** The types of illicit drug flows that the Coast Guard will need to address over the long term will vary based on policies, changes in demand, shifting sources, and how drugs are routed from their sources to consumers.

**Geopolitical shifts.** The rise of China, the resurgence of Russia, fragile state control in various regions, terrorist threats, and other geopolitical factors can alter the Coast Guard’s emphasis on its various domestic and overseas roles.
YEARS 2 AND 3: WORKSHOPS AND COMMUNICATIONS

HIGHLIGHTS OF KEY THEMES FROM THE WORKSHOPS

(A complete list, including more details, can be found in the final report.)

The Coast Guard will need to enhance its technical capabilities in ways that help it
- actively share information with partners—international agencies, the Department of Defense, the intelligence community, state and local agencies, and the private sector
- enhance collaboration with partners and allies that will become increasingly necessary because of increased demand signals in missions and geographic regions where authorities are shared
- improve its ability to more effectively deploy assets to meet mission demands.

Internal and external stakeholders need greater visibility and transparency. The Coast Guard will need to invest in its Information Technology systems to make actionable data accessible to analysts, decisionmakers, servicemembers, and external stakeholders. This approach will require a difficult change in culture and substantial investment.

Grassroots innovation and enterprise integration can be at odds. The Coast Guard often develops novel solutions to meet its particular needs, but tailored solutions can hinder interoperability with other stakeholders and steepen the learning curve for personnel. Striking the right balance between innovation and standardization requires constant reappraisal.

There is a need for balance between centralized and distributed decisionmaking. Ensuring alignment across the service can increase interoperability and collective effectiveness, but individual commands also need to be able to tailor policies, approaches, and decisions to meet their specific needs, given their deeper awareness of their operational environment and issues.

There is an inherent tension between localization and the ability of units to deploy. Rooting units in a particular locale has advantages (e.g., connections with neighboring units and agencies, knowledge of an area), but units must be deployable to respond to short-term emergencies and long-term shocks, where localization can be a disadvantage (e.g., cost and effort of deploying; unfamiliarity with environment, agencies, and individuals). Recurring deployments to the same areas can enhance familiarity, but the efforts and costs associated with deployments could limit a unit’s capabilities and experience in its home environment, and induce additional strain and burden.

The Coast Guard faces trade-offs between efficiency and resilience. Measures taken to make the service lean and efficient can backfire by making the Coast Guard less resilient and reducing its ability to surge. The Coast Guard needs to invest in skilled personnel, equipment, assets, and infrastructure to meet prospective crises, even if not all elements are used routinely.

The Coast Guard will need additional resources. The Coast Guard’s budget will need to increase to address the expectation of more involvement abroad and the growing demand at home, and the increasing cost of equipment sustainment.

In multiple workshops, participants suggested that organizational culture was at the heart of addressing issues that would shape the Coast Guard’s future. . . . Some aspects of the current culture will need to be preserved and enhanced, others might serve as barriers to change, and still others are not well-defined and are opportunities to lean in and shape the force.

— Shaping Coast Guard Culture to Enhance the Future Workforce, Homeland Security Operational Analysis Center operated by the RAND Corporation, PE-A872-1, 2021.
YEAR 4: STRATEGIC GAMES

In year 4, Evergreen shifted from workshops to strategic games. Paratus Futurum (“Ready for the Future”) forced players to make distinct choices about mission priorities and investments to prepare for an uncertain future in which climate change, technological advancements, the U.S. economy, and global power competition shape the demand for Coast Guard missions. There were two series of games: a virtual game for mid-grade officers and civilian participants and a second series consisting primarily of senior leaders and flag officers. Participants probed the trade-offs that must occur to meet national and Coast Guard priorities and to enable Coast Guard leadership to articulate a vision to the public, Congress, the Executive Branch, the Department of Homeland Security, and the Coast Guard workforce.

GAME PLAY

1. Each team was assigned a unique scenario and corresponding strategic vision developed in a prior workshop. The game was intended to demonstrate how efforts to achieve the vision could be challenged by the need to make trade-offs among competing priorities.

2. The game begins in 2025. Each round represents a four-year period. Teams played three to five rounds, progressing to 2040 and beyond.

3. At the start of each round, each team received an intelligence brief on key trends for the next four years and a fixed number of “resource tokens.” The tokens were used to prioritize ongoing missions, invest in longer-term capabilities for use in future rounds, or invest in operations and maintenance or facilities and infrastructure.

4. As in real life, investing in some capabilities also requires “cultural” investment, such as institutional adaptation, new training, changes in talent management priorities and the desired attributes of recruits, and new types of equipment and organization and their integration costs. Teams could invest in cultural change to promote these new or changing efforts.

5. At the end of each round, challenging new events were introduced. Mission success depended on how well resources and investments were positioned in each region and an element of chance (a roll of the die).

6. The score reflected how the public, Congress, and the Executive Branch perceived success. The scores and additional domestic events determined the resource constraints for the next round.

Expanding access to games across the service can be a relatively low-cost, easily executable approach to ensuring analytic consistency and preparing the workforce to take on the challenges of today and tomorrow.

OVERARCHING OBSERVATIONS:

- Several teams relied on the current, positive progress of the service to sustain operations, and their dominant strategy for the first round of game play was to invest in new capabilities. Notably, Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance capabilities were uniformly identified as the priority investment.

- The teams’ early investment strategies almost universally accepted some level of short-term risk in traditional missions and often in culture to pay for future capabilities, but players pivoted back to domestic missions as game play progressed.

- Each team acknowledged the importance of investing in operations, maintenance, and facilities, and was unwilling to take risks over several consecutive rounds of play.

- The concept of an adaptive force package emerged as a key approach for covering a broad range of missions.

- Ensuring mission success in the future while leveraging new technology and attracting and retaining a highly capable workforce will require investment in culture.

- Teams generally spread resources to cover mission demand signals contained in the intelligence briefs and relied on surge capability as insurance against plausible surprises.

- Domestic missions are enduring and fundamental to the Coast Guard, and the teams’ resourcing decisions reflected that.

- Participants noted that although the principal Coast Guard mission set might not change, how missions are performed or accomplished could be different.

YEAR 4: STRATEGIC GAMES

This brief describes research conducted within the Homeland Security Operational Analysis Center of the RAND Homeland Security Research Division (HSRD) and documented in USCG Project Evergreen V: Compilation of Activities and Summary of Results by Aaron C. Davenport, Michelle D. Ziegler, Susan Resetar, Scott Savitz, Katherine Anania, Melissa Bauman, and Karishma Patel, RR-A872-2 (available at www.rand.org/t/RRA87-2). To view this brief online, visit www.rand.org/r/RBA872-1.

The Homeland Security Act of 2002 (Section 305 of Public Law 107-296, as codified at 6 U.S.C. § 185), authorizes the Secretary of Homeland Security, acting through the Under Secretary for Science and Technology, to establish one or more federally funded research and development centers (FFRDCs) to provide independent analysis of homeland security issues. The RAND Corporation operates the Homeland Security Operational Analysis Center (HSOAC) as an FFRDC for the U.S. Department of Homeland Security (DHS) under contract HSHQDC-16-D-00007.

The HSOAC FFRDC provides the government with independent and objective analyses and advice in core areas important to the department in support of policy development, decisionmaking, alternative approaches, and new ideas on issues of significance. The HSOAC FFRDC also works with and supports other federal, state, local, tribal, and public- and private-sector organizations that make up the homeland security enterprise. The HSOAC FFRDC’s research is undertaken by mutual consent with DHS and is organized as a set of discrete tasks. This report presents the results of research and analysis conducted under 70202318FM7P03200, Evergreen.

The information presented in this brief does not necessarily reflect official DHS opinion or policy. This brief was published in 2022. Approved for public release; distribution is unlimited.

Image credit: Cover–Seaman Kate Kilroy/USCG; page 2–SergeyBitos/Adobe Stock, Petty Officer 2nd Class David Weydert/USCG; page 3–photos provided by HSOAC; page 4–Lt. Matthew Stroup/U.S. Navy; page 5–Petty Officer 2nd Class Brandon Giles/USCG; page 6–Petty Officer 3rd Class Matthew Abban/USCG; page 7–Petty Officer 2nd Class Brandon Giles/USCG; page 8–Chief Petty Officer Charity Hengen/USCG, olga_jmelnitskaya/Getty Images, gameboard image provided by HSOAC, Seaman Sophia Simons/U.S. Navy.

For more information on HSOAC, see www.rand.org/hsoac.