The Coast Guard Journal of Safety & Security at Sea
PROCEEDINGS
Fall 2019
of the Marine Safety & Security Council

Maritime Governance

Addressing the Nation's Challenges

Coast Guard at Work in Alaska

In the background, the serene image of a raft of otters floating past Coast Guard Cutters *SPAR* and *Douglas Munro,* moored at home port in Womens Bay, Kodiak, Alaska, belies Coast Guard District 17's busy start to 2019. Above, from left, An MH-60 Jayhawk helicopter crew from Air Station Kodiak located two missing men near Saltery Cove, Kodiak Island, on April 28; Maritime Security Response Team West personnel, including K-9 Bingo, trained with Alaska FBI's Joint Terrorism Task Force in a full-scale anti-terrorism exercise in Cordova on April 23; Kodiak High School students participate in Women in Engineering Day activities aboard Coast Guard Cutter *Douglas Munro* in Kodiak on May 6; A dog anxiously awaits the return of her owner from the Coast Guard Cutter *Douglas Munro,* at its home port on April 23, after a 30-day deployment. Coast Guard photos


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PROCEEDINGS

Fall 2019 Vol. 76, Number 2

Introduction

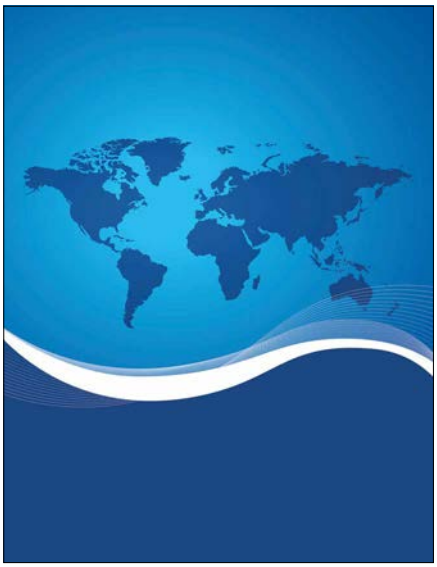
Maritime Governance Frameworks

Coordination and Policy

Compliance and Enforcement

On Deck

On the Cover: *Maritime governance is a difficult concept but affects all maritime nations. The United States is no exception, and this issue of* Proceedings *explains the Coast Guard's approach to the topic. The Polar regions are important considerations in U.S. maritime governance. The new Polar Security Cutter, depicted on the back cover, is key to the Coast Guard's mission to secure U.S. interests in these regions.*



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Proceedings is free of charge and published in April, August, and December.

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Deputy Commandant's Perspective

by Vice Admiral Daniel B. Abel
Deputy Commandant for Operations
U.S. Coast Guard

In November 2018 the Commandant of the Coast Guard released his updated *Coast Guard Strategic Plan,* available at https://www.uscg.mil/Leadership/Senior-Leadership/Resource-Library/. That plan is organized around three strategic priorities to ensure the Coast Guard remains Ready, Relevant and

Champion's Point of View

by Timothy Brown
Office Chief
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Maritime governance is a wide ranging topic, with a nexus to all 11 of the Coast Guard's statutory missions. There is no broadly agreed upon definition of maritime governance, but while preparing for this edition of *Proceedings* we agreed on a working definition that served us well.

Responsive. Specifically, those priorities seek to ensure the Coast Guard will:

- Maximize readiness today and tomorrow;
- Address the nation's complex maritime challenges; and
- Deliver mission excellence anytime, anywhere.

In establishing this strategic framework, the Commandant's plan provides an assessment of the prevailing strategic environment highlighting the many challenges facing the nation and the Coast Guard. Acknowledging the maritime nature of our Nation and our dependence upon the sea for security and economic prosperity, this assessment of the strategic environment acknowledges our dependence on open trade, travel and rules based governance. Yet, despite this dependence, the plan notes that, "… the vastness, anonymity, and inherent challenges of governance over the maritime domain make [the nation] vulnerable to dangerous threats, including transnational crime, terrorist activity, illegal exploitation of natural resources, and territorial expansionism."

Noting these challenges to pose significant threats to our national interests, then strengthening maritime governance is a key objective to enhancing the Coast Guard's ability to police, detect, deter, and counter maritime threats. The articles in this edition of *Proceedings* examine the partnerships, policies and operations that bolster maritime governance. By leveraging the Coast Guard's enforcement and regulatory authorities, our singular capabilities, and cooperating with partners in the public and private sectors, the service is uniquely positioned to work across the full spectrum of maritime operations.

The ability of the government, through direct actions and partnerships with private, non-governmental and international entities, to exercise effective control over its maritime domain.

In the pages that follow, we have attempted to explain the historical and legal underpinnings of maritime governance demonstrate the relevance of an effective maritime governance system and show the value the Coast Guard brings to the nation and the world through implementation of its maritime governance responsibilities. Although not mentioned in every article, I strongly encourage you, the reader, to peruse the Coast Guard's strategy documents at https://www.work.uscg.mil/Strategy/ to learn more about the service's approach to governance at the strategic level.

Proceedings is always a group effort, and this edition on maritime governance relied on an exceptionally broad group of authors across the service, private industry, and academia. It was a distinct pleasure to learn from some of the leading experts and practitioners in the field. I am indebted to the authors, to retired CAPT Ben Hawkins, deputy director of Commercial Regulations and Standards, for review and editorial assistance, and to the professional, full-time staff of *Proceedings*, Samantha Quigley, Antonio Balza, and Leslie Goodwin for their outstanding work putting this edition together. Bravo Zulu!

Introduction

Conceptualizing Maritime Governance

Addressing the challenges of the modern maritime environment

by CAPT Russ Bowman
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It is a daunting task to introduce, let alone to purport to explain, the concept of maritime governance. It is arguably the essence of everything the U.S. Coast Guard does. At the same time, the service is but one of many entities, within one of many governments, whose authorities, capabilities, competencies, and partnerships make it an important player within an array of shared, interdependent governance regimes. The working definition around which the editors of this special governance-focused edition of *Proceedings* solicited input suggests the breadth and depth of the topic at hand:

> *The ability of the government, through direct actions and partnerships with private, non-governmental, and international entities, to exercise effective control over its maritime domain.*

This definition is neither official in any formal sense, nor exhaustive. Indeed, there is no single universally agreed upon approach to, or definition of, governance. Moreover, the inherently transboundary, and increasingly complex, nature of the modern maritime environment leads to especially complicated systems of governance in that particular context.

Here, we examine the concept of governance in three ways. First, we survey disparate uses of the term within the Coast Guard, the broader maritime community, and academia. Second, we briefly highlight the inherent challenges of governance via a specific context—the Arctic. Third, we discuss some of the ways in which the concept is being incorporated into the Coast Guard Academy's curriculum for future leaders. We then conclude by encouraging the Coast Guard and *Proceedings* readers to think broadly, and to adopt a systems approach, when reflecting on what governance means across agencies, actors, and the maritime environment, while considering the examples and challenges set forth in the articles that follow.

Maritime Governance and the U.S. Coast Guard

While there can be little doubt that the Coast Guard is in the business of maritime governance, the meaning and bounds of the concept inevitably vary with the context in which it is discussed. A (very) brief survey of how the term governance in general, and maritime governance in particular, have been used throughout recent key Coast Guard strategy documents aptly illustrates this point.

The 2013 Coast Guard Arctic Strategy made modernizing governance one of its three key strategic objectives. The strategy defines the concept as involving "institutions, structures of authority, and capabilities necessary to oversee maritime activities while safeguarding national interests."[1]

The service's 2014 Western Hemisphere Strategy, for its part, notes that "globalization and advances in technology … present challenges for maritime governance as free markets and commerce continue to expand," while transnational criminal organizations thrive in areas of "poor and weak governance… ."[2] To address these concerns, the strategy notes how "offshore vessel and aircraft presence … support effective governance and sovereignty."[3]

The 2015 Security Sector Assistance Strategy paints an even broader picture of the Coast Guard's governance role explaining how the service's broad mission portfolio touches all aspects of maritime governance, prevention, and response.[4] In it, the Coast Guard is held out as a global leader in maritime governance[5] which acts across separate, but interrelated, civilian, military, and international spheres of governance.[6] The 2015 Coast Guard Cyber Strategy, referencing Presidential Policy Directive 21 on Critical Infrastructure Security and Resilience, makes the point that our nation's critical infrastructure, including throughout our ports, is inherently diverse and complex, in part, because of "*governance constructs* that involve multi-level authorities,

The Coast Guard conducts an asset capabilities demonstration to representatives of the multinational North Pacific Coast Guard Forum in September 2008, in San Francisco Bay. The forum is held every year to foster multilateral cooperation on matters related to combined operations, illegal drug trafficking, maritime security, fisheries enforcement, illegal migration, and maritime domain awareness. Coast Guard photo by Petty Officer 3rd Class Erik Swanson

responsibilities, and regulations."[7]

Clearly, governance is at once a core, multifaceted, and complex Coast Guard function, as well as a pervasive challenge in myriad contexts. Indeed, even the Coast Guard 2016 Human Capital Strategy speaks in terms of the importance of the governance of billets and people.[8]

Modernizing and improving maritime governance remains a top priority for the service's senior leaders. The commandant's 2018 Maritime Commerce Strategic Outlook suggests how maritime risk is best managed through appropriate, shared *maritime governance,* marine planning, and capabilities development.[9] Further, it describes the approach underlying the Coast Guard's existing prevention regimes and authorities as *risk governance.*[10] Relatedly, in opening the 9th Annual Maritime Risk Symposium at the Oak Ridge National Lab, Coast Guard District Eight Commander RADM Paul F. Thomas said that, "… there is no more comprehensive way to manage all risk, including risks to safety, security, environment, and commerce, than through a robust governance system."[11] Strengthening such full spectrum maritime governance is exactly what Objective 2.1 of the commandant *The Coast Guard Strategic Plan 2018–2022* calls for.[12] The plan asserts that by employing the Coast Guard's singular capabilities, authorities, and established partnerships,[13] the service is uniquely positioned to address the challenges of the modern maritime domain. If maritime governance is thus effectively a core Coast Guard mission, if not the essence of all that the service does, how do others view this concept, and where does the Coast Guard's governance space fit within it?

Maritime Governance: What Do the Scholars Say?

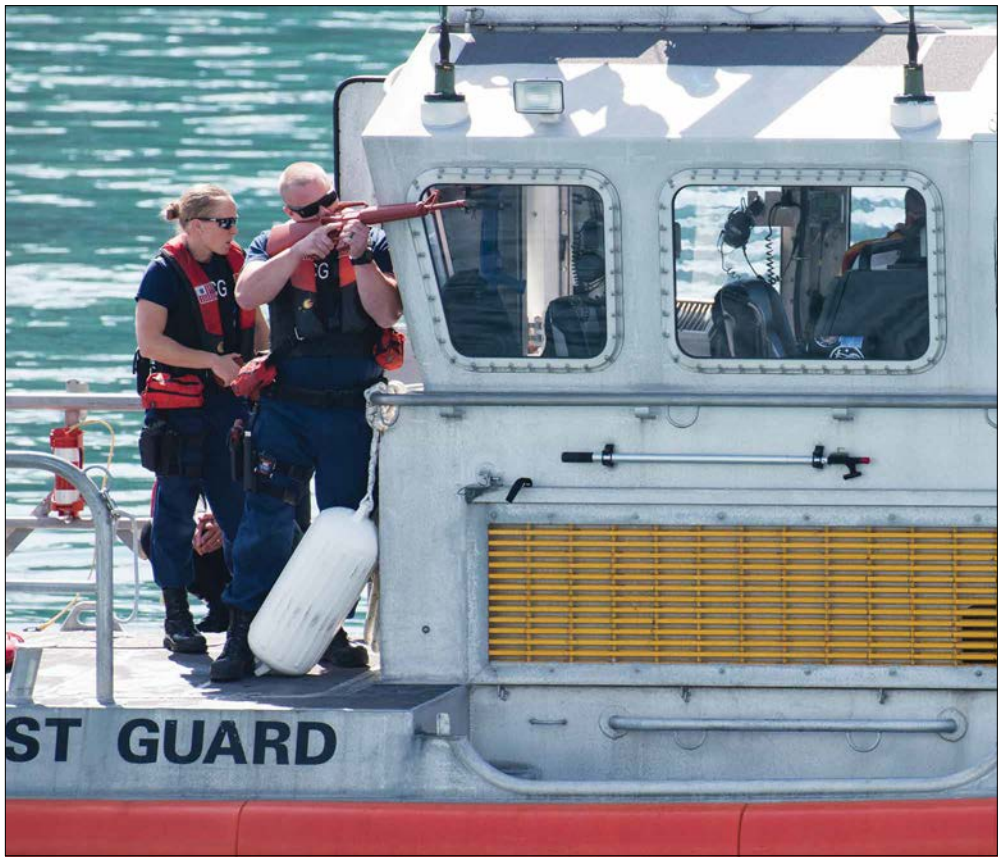
Maritime scholars offer additional insights into these concepts. As within the Coast Guard, there is no one clearly defined or widely-used academic definition of maritime governance. The concept of governance is used in varying ways across the many academic disciplines that study maritime commerce, marine affairs, marine resource management, and other related fields. Similarly, the diverse definitions of maritime governance used within these fields do not all sync with each other or with the Coast Guard's use of the term. However, common themes emerge across the literature which, together, provide a mental model which can be applied to the maritime domain.

Within academia, governance generally refers to a broad range of approaches and processes that influence how individuals and institutions—public and private—address issues. It includes formal institutions, regimes, and processes as well as informal arrangements that shape planning, decision-making, and individual and collective behavior. Importantly, governance includes

non-governmental actors—industry, interest groups, and individuals. Further, it is commonly framed through a systems approach involving networks of actors and the interactions between them.[14]

Of note about the academic view of governance is both what it *is* and what it is *not*. Governance is *not* solely the purview of government. It is *not* hierarchical, top-down, or unilateral. It is not the domain of any one institution, nor is it limited to traditional legal tools and frameworks or the jurisdiction of any one agency or state. Governance *is interactive, inclusive,* and *integrative*. It is *interactive,* encompassing the interconnections between agencies, organizations, and individuals. It is *inclusive,* involving stakeholders and industry equally with government agencies, and incorporating informal means of influencing behavior—values and norms—as much as multilateral agreements and enforceable regulations. It is also *integrative,* reaching across the boundaries between agencies, states, and sectors.

What, then, of maritime governance? Some scholars apply this systems view of governance to parts of the maritime domain. For example, Dutch scholar Judith van Leeuwen writes on maritime governance with a narrow focus on the sustainability of maritime shipping.[15] She adopts the systems approach, defining maritime governance as "the sharing of policy making competencies in a system of negotiation between nested governmental institutions at several levels (international, supranational, national, regional, and local) on the one hand, and state actors, market parties, and civil society organizations on the other, in order to govern the activity of shipping and its consequences."[16] Van Leeuwen takes a regional approach to the sustainability of shipping, reaching across and redefining traditional boundaries between jurisdictions and sectors. Further, she notes governance requires both integration and cooperation: integration among diverse maritime sectors, stakeholder views, and policy goals and cooperation through the interaction between diverse actors, sectors, and policy domains. In a similar example, British scholar Michael Roe produced an in-depth analysis of maritime governance focused solely on shipping.[17] Roe notes that shipping policy failures are due to the mismatch between the globalized nature of the shipping industry and the fragmented patchwork of laws and regulations which characterize shipping policy. He suggests the need for a new approach to maritime governance involving new institutions, means of organization, and interactions, designed for the truly global nature of contemporary shipping.



The Coast Guard, along with members of the FBI, Los Angeles Port Police, Los Angeles Police Department, Los Angeles Sheriff's Department, Los Angeles Fire Department, Long Beach Police Department and Long Beach Fire Department held a full-scale emergency response exercise in the Port of Los Angeles-Long Beach, in March 2017. The homeland security exercise focused on building relationships within the federal maritime security domain to write, review, and update the area maritime security plan, in addition to supporting other transportation entities that rely upon secure ports. Coast Guard photo by Petty Officer 3rd Class Andrea Anderson

Other scholars write of maritime governance or similar concepts, but frame the issue more broadly to consider maritime activities other than shipping. In one example, German scholar Peter Lehr examines whether piracy in the Indian Ocean might incentivize the development of a regional cooperative maritime governance framework. This institutional framework could address both piracy and other shared issue areas like illegal, unreported, and unregulated (IUU) fishing, search and rescue, and general marine resource management.[18] In another example, French scholar Brice Trouillet and

Coast Guard Cutter *Healy* conducts Arctic patrol in support of the Office of Naval Research. USCG missions to the Arctic Region are essential to Arctic maritime governance. Coast Guard photo

co-authors examined maritime governance challenges in West Africa, focusing on fisheries but acknowledging other new and expanding uses of the maritime domain, like energy development and mining.[19] Dutch scholar Katrine Soma and co-authors focus even more broadly, using the term "marine governance" to encompass all activities taking place in the maritime domain—including shipping, fishing, energy development, mining, tourism, and dredging.[20] As with the other examples, these authors apply systems thinking, writing that "marine governance involves interaction between … institutions operating at several levels, and … state actors, market parties, supranational organizations and civil society."[21]

While these and other scholars write of maritime governance in a broad range of contexts, some common themes emerge. Maritime governance comprises formal and informal institutions, arrangements, and processes involved in managing maritime activities. It includes the public and private sectors, both governmental and non-governmental actors. It considers interactions and connections between these many actors, which form networks of communication and influence across the maritime domain. And finally, it requires the literal or figurative crossing of jurisdictional, sectoral, and even disciplinary boundaries.

An Example: The Arctic

To test how well this view of maritime governance reflects the real world, consider the Arctic. This is a region characterized by multiple boundaries—between nations, sea and land, the management of maritime sectors, and cultures. The five Arctic nations whose coastlines border the region effectively share in governance of much of this area through management of their respective territorial seas and exclusive economic zones, not to mention extended continental shelf claims and interests of other nations in this region. Multiple overlapping international legal regimes apply—The United Nations Convention on the Law of the Sea, marine pollution convention, and the Polar Code are just a few. The Arctic Council, a non-regulatory body, serves as an intergovernmental forum through which member states and other interested parties work cooperatively on regional governance issues. Indigenous peoples play a critical role through this and other venues. Meanwhile, conservation groups and other nongovernmental organizations are showing increasing interest in the management of Arctic living and non-living marine resources, and environmental change is creating new opportunities for industry—shipping, energy development, fishing, and tourism. As maritime interests and activities grow in this region, the interactions between all interested parties, jurisdictions, legal frameworks, state and non-state actors, and sectors will only expand.

This means management of all or even part of this region requires applying the broad, systems perspective

U.S. Coast Guard Senior Chief Petty Officer Mark Petty checks the crane as the crew of the buoy tender USCGC *Sequoia* (WLB-215) recovers an illegal fish aggregating device (FAD) located within the Palau exclusive economic zone that presented a hazard to navigation in September 2016. Fishermen use well lit FADs to attract fish to one spot to catch, a practice which is illegal in the Palau EEZ. Coast Guard photo by Chief Petty Officer Sara Mooers

of maritime governance. In the Arctic, we have no choice but to think and work across boundaries and recognize interactions between multiple interests. Arguably, the Arctic Council is, itself, an innovative instrument of maritime governance insofar as it facilitates voluntary cooperation across boundaries. Further, engaging in the Arctic requires us to recognize and partner with both public and private sector actors and, staying in line with the Coast Guard's Arctic Strategy, broadening such partnerships. Finally, working in the Arctic requires us to recognize and manage interactions between actors and sectors, like the potential effects of an oil spill on living marine resources or on subsistence fishing which supports Arctic indigenous communities. The maritime governance approach enables us to recognize and embrace the full complexity of the Arctic region and devise the innovative governance solutions which may be needed in this space.

Teaching Maritime Governance at USCGA

The Coast Guard Academy is preparing future officers to conceptualize and implement such innovative maritime governance solutions to modern maritime challenges. Indeed, the U.S. Coast Guard Academy's Center for Arctic Study and Policy (CASP) was formed in 2014 for the purpose of promoting research, broadening partnerships, and educating future leaders about the complexities of the Arctic region and promoting innovative solutions to its maritime challenges.[22] Governance responsibilities and challenges are addressed on a daily basis, not just by CASP, but throughout all of the Academy's areas of study and faculty research.

The government major, in particular, provides an in-depth look at global stakeholders, civil societies, and political systems. Government majors study governance from a domestic perspective, including regulatory policy through the lens of international engagement and diplomacy, as well as in the complex context of ensuring national and homeland security. The concept of maritime governance itself is central to a variety of maritime policy-focused courses that the Academy offers. In fact, the Academy recently reaffirmed its commitment to teaching governance by creating a tenure-track position focused on the subject—a position filled by a co-author

of this article.

Of course, deep exploration of governance concepts is not limited to government majors. Marine environmental science majors delve into the intricacies and regulation of the interaction between humans and our environment. Operations research and computer analysis majors leverage mathematics, statistics, and computer programming techniques critical to conceptualizing, describing, and analyzing all manner of complex real-world problems, including Coast Guard operational and strategic priorities. Management majors learn how to leverage information systems, accounting and financial acumen, as well as organizational behavior and organizational development theories to effectively adopt new strategies and lead positive change across an organization. Engineering students explore the regulation and standards of marine, electrical, civil, and mechanical systems, as well as the governance of resilient ports and their associated infrastructure. The newly formed cyber systems major will consider the challenges of governance in and of the cyber domain.

While each academic major analyzes maritime governance challenges through its respective lens, the faculty is committed to continually evaluating and improving the way we individually, and collectively, stitch those perspectives together. It is a challenge not at all dissimilar from what the broader Coast Guard faces in integrating its various authorities, capabilities, and partnerships to influence the behavior of myriad actors across an increasingly complex and interconnected maritime domain.

We are integrating these academic perspectives, in part, through our recently refreshed core curriculum. Cadets study domestic governance structures and processes, including the role of the Coast Guard therein, in their American government survey course. They are formally introduced to the commercial shipping industry and the broader Marine Transportation System in our Ships and Maritime Systems course. Some cadets choose to supplement these lessons through a hands-on summer experience in the Marine Safety Training Program, which introduces cadets to prevention missions at various U.S. ports. In their final year, cadets will also soon take a global studies course designed to provide greater appreciation for the international and transnational systems and legal regimes they will immediately encounter upon entering the fleet. Beyond these representative course examples, academic capstone experiences are becoming increasingly interdisciplinary and naturally include governance and ethical components.

Toward a Broader, Systems View of Modern Maritime Governance

As the Coast Guard and its Academy work to strengthen the future of maritime governance, it is increasingly important that we adopt a broad, systems view of all that maritime governance entails. The power of an intentionally expansive view is its ability to get scholars, stakeholders, practitioners and, ultimately, policymakers of all levels and affiliations, studying and thinking about how previously stove-piped studies and issues are increasingly interconnected with other disciplines, literatures, systems, and stakeholders.

This approach is also the hallmark and benefit of systems thinking. MacArthur Fellowship recipient Donella Meadows wrote that a system is a "set of things … interconnected in such a way that they produce their own pattern or behavior over time."[23] Systems are characterized by a series of elements, interconnections, and a function or purpose. Feedback loops exist within systems and are the source of vexing problems. The maritime domain clearly meets this characterization. Indeed, the maritime domain is arguably comprised of many nested complex systems. Consider, for example, global fisheries. The global fishing industry is a worldwide network comprising interactions between diverse elements including fish, fishing vessels, and the markets which drive the fisheries economy. Declining fish stocks, increasing populations, and a global demand for food security comprise a feedback loop which has led to an increase in fishing effort, particularly IUU fishing, one of the great maritime governance challenges of our time. Addressing the global fisheries crisis is a task beyond any one element of, or connection within, this system—it requires understanding the bigger picture. This is systems thinking.

The 21st century is offering us a new era of complex and often transboundary maritime challenges—maritime energy transitions, cybersecurity, environmental change, resource scarcity, an opening Arctic, and more. To take on these challenges, we encourage the Coast Guard and all *Proceedings* readers to embrace their complexity—to think broadly, and to adopt a systems approach, to maritime governance. This means thinking across the maritime sectors of shipping, fishing, energy, and more. It means working across maritime agencies, jurisdictions, and boundaries, both horizontally and vertically, as well as within and beyond the U.S. government. It means reaching outside of government to communicate and partner with non-governmental actors. A broad, systems view of maritime governance will enable us to develop innovative governance solutions that are scaled to the complexity of these new problems. It offers us our best chance of success.

About the authors:
CAPT Russ Bowman, J.D., Ph.D., is a Coast Guard attorney and member of the Academy's permanent commissioned teaching staff. He

The Coast Guard responded to an anhydrous ammonia leak aboard the fishing vessel *Ying Fa* after it was seized for illegally fishing in U.S. waters. The vessel claimed a Chinese flag, but became stateless when the Chinese government didn't recognize them as a Chinese vessel. The Coast Guard was then able to seize the boat and the six tons of salmon aboard. Coast Guard photo

currently serves as the program chair for the Academy's government major and teaches courses in its politics, policy, and law concentration.

Tiffany Smythe is an assistant professor of maritime policy, strategy and governance at the U.S. Coast Guard Academy. She earned her Ph.D. in marine affairs from the University of Rhode Island and specializes in ocean governance. She teaches courses in maritime policy and government at the Academy.

Endnotes:

1. U.S. Coast Guard. (2013). *Arctic Strategy.* p. 10.
2. U.S. Coast Guard. (2014). *Western Hemisphere Strategy.* p. 9
3. Ibid, p. 15.
4. U.S. Coast Guard. (2015). *Security Sector Assistance Strategy.* p. 2.
5. Ibid, p. 11.
6. Ibid, p. 18.
7. U.S. Coast Guard. (2015). *Cyber Strategy.* p. 14.
8. U.S. Coast Guard. (2016). *Human Capital Strategy.* pp. 12–13.
9. U.S. Coast Guard. (2018). *Maritime Commerce Strategic Outlook.* p. 13.
10. Ibid, p. 20.
11. Thomas, P., RADM. (2018). Welcoming Keynote of 9th Annual Maritime Risk Symposium. Oak, Ridge, Tennessee, November 15, 2018.
12. U.S. Coast Guard. (2018). *Coast Guard Strategic Plan 2018–2022.*
13. Ibid, p. 17.
14. Roe, M. (2013). *Maritime Governance and Policy-Making.* London: Springer-Verlag.
15. Van Leeuwen, J. (2015.) The regionalization of maritime governance: Towards a polycentric governance system for sustainable shipping in the European Union. *Ocean & Coastal Management 117,* 25–31. https://doi.org/10.1016/j.ocecoaman.2015.05.013
16. Ibid, p. 24.
17. Roe, M. (2013). *Maritime Governance and Policy-Making.* London: Springer-Verlag.
18. Lehr, P. (2013). Piracy and maritime governance in the Indian Ocean. *Journal of the Indian Ocean Region 9* (1), 104–119. https://doi.org/10.1080/19480881.2013.793912
19. Trouillet, B., T. Guineberteau, M. Bernardon, and S. Le Roux. (2011). Key challenges for maritime governance in West Africa: Fishery-based lessons from Guinea and Mauritania. *Marine Policy 35* (2), 155–162. https://doi.org/10.1016/j.marpol.2010.09.001.
20. Soma, K., J. van Tatenhove and J. van Leeuwen. (2015). Marine governance in a European context: Regionalization, integration and cooperation for ecosystem-based management. *Ocean & Coastal Management 117,* 4–13. http://dx.doi.org/10.1016/j.ocecoaman.2015.03.010
21. Ibid, p. 5.
22. For further information please see www.uscga.edu/casp
23. Meadows, D. (2008). *Thinking in Systems: A Primer.* White River Junction, Vermont: Chelsea Green Publishing.

Ocean Governance Perspectives

The case of the Arctic

by LCDR Megan Drewniak
Commanding Officer
U.S. Coast Guard Marine Safety Unit Toledo

Dimitrios Dalaklis
Associate Professor, Safety and Security
World Maritime University

With water covering almost three-quarters of the Earth's surface, and well over 80 percent of all international trade being transported via our planet's seas and oceans, shipping activities are rightly viewed as the backbone of the complex globalization phenomenon. It is, therefore, no coincidence that maritime transport and the issue of freedom of navigation are considered extremely vital for all "just-in-time economies," like those in Europe and the United States.[1]

It is also a well-known fact that the maritime transport industry is strongly impacted by prevailing environmental conditions—weather, currents, etc.—and can be directly affected by the latest developments in the Arctic. Specifically, the on-going retreat of ice cover is opening new routes for navigation. This makes exploration/exploitation of natural gas and oil, as well as various precious minerals, more feasible in the wider region. When considering all of this, the freedom of the seas doctrine is an important issue to factor in when examining the topics of governance and the Arctic together. This very influential principle put forth in the 17th Century essentially limited national rights and jurisdiction over the oceans to a narrow belt of sea surrounding a nation's coastline, reflected today in the "territorial sea" concept. The remainder of the seas was proclaimed to be free to all and belonging to none.

While this situation prevailed into the 20th Century, by mid-century there was an impetus to extend national claims over offshore resources. Various drivers behind that approach include one that remains applicable today—the growing concern over the toll long-distance fishing fleets have taken on coastal fish stocks. The threat of pollution and waste from transport ships is another. The hazard of pollution was, and unfortunately still is, ever present, threatening coastal cities-communities and all forms of ocean life.

To add an element of geopolitics to the equation, the navies of the great maritime powers of that era fiercely competed to maintain a presence across the globe, above and below the seas. Considering the oceans were generating a multitude of claims, counterclaims, and sovereignty disputes, coordinated action was needed to achieve a more stable order. It also needed to promote greater use and better management of ocean resources while generating harmony and goodwill among states so they would no longer eye each other suspiciously

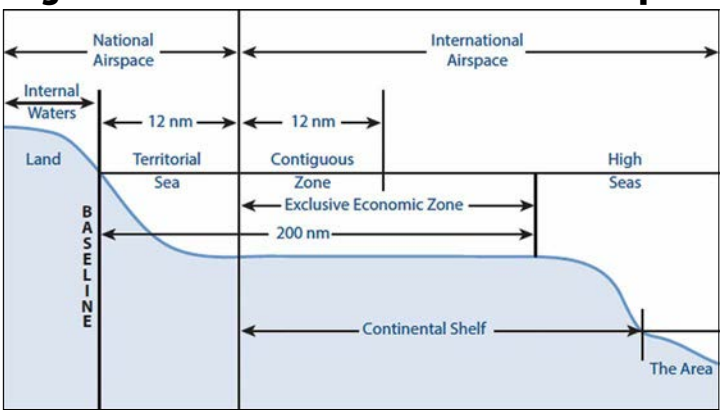
Coast Guard Cutter *Healy* crew members make contact with a mariner aboard his 36-foot sailboat trapped in Arctic ice about 40 miles northeast of Barrow, Alaska, in July 2014. North Slope Borough Search and Rescue alerted Coast Guard District 17 watchstanders in Juneau that a man sailing from Vancouver, British Columbia, to eastern Canada via the Northwest Passage, needed assistance after his vessel became trapped in ice. Coast Guard photo

over conflicting claims.[2] This order was found in the United Nations Convention on the Law of the Sea (UNCLOS).

The purpose of the current analysis is not to provide a complete history of the events leading to the establishment of the UNCLOS. However, certain details will be discussed to highlight UNCLOS' extremely important influence on the topic of ocean governance. Furthermore, by considering that environmental data recorded during the past four decades clearly indicates a continuous decline of Arctic ice cover, it's reasonable to expect that human presence and operations will intensify in the region. These activities will be often associated with contradicting priorities; the issue of effective Arctic governance is clearly standing out.

It is also important to note that according to the latest scientific estimates, the number of navigable days in that region are expected to follow an upward trend from around the current 70 days up to 125 in 2050, and as many as 160 in 2100.[3] Therefore, apart from discussing how certain provisions within UNCLOS relate to recent developments in the Arctic, the current analysis will also highlight the recent search and rescue (SAR) agreement, an important achievement of international cooperation that comes under the auspices of the Arctic Council.

Legal Boundaries of the Oceans and Airspace



nm – nautical mile

Maritime Zones according to UNCLOS, The Fletcher School, Tufts University, Medford, Massachusetts. Courtesy of Tufts University

United Nations Convention on the Law of the Sea

UNCLOS was opened for signature on December 10, 1982, in Montego Bay, Jamaica. This marked the culmination of more than 14 years of intensive work involving more than 150 countries representing various legal and political systems, and the spectrum of socio-economic development. The convention entered into force in accordance with Article 308 on November 16, 1994, a year after the date of deposit of the 60th instrument of ratification or accession. Today, it is the globally recognized system dealing with all matters relating to the law of the sea. In a very simplistic approach, it replaced the four Geneva Conventions of April 1958, which respectively concerned the territorial sea and the contiguous zone, the Continental Shelf, the high seas, fishing, and conservation of living resources on the high seas. Unlike the previous conventions, the new text addresses all the various aspects—the maritime areas as well as the maritime activities and consequences including, for example, various kinds of pollution. Its preamble clearly describes the global approach it adopted: *"… the problems of ocean space are closely interrelated and need to be considered as a whole."*

UNCLOS is commonly presented, and quite rightly so, as a "legal order for the seas and oceans."[4] It confirmed already existing marine areas, from the coast to the open sea, and from the surface to the seabed or, as in the case of exclusive economic zone (EEZ), created them. It is also interesting to note that the establishment of the EEZ has resulted in a drastic reduction of the area designated as high seas. Thus, about 95 percent of the world's fishing areas and more than 80 percent of the known underwater oil reserves have come under the exclusive control of coastal states.[5]

It is necessary to highlight that everything from the UNCLOS baseline—the low-water line along the coast derived from the state's coastal charts—to a distance of not more than 12 nautical miles is considered the state's territorial sea. Coastal states have the same sovereign jurisdiction over these waters, at surface, above and below, as they do internal waters—lakes, rivers, and tidewaters. The vast majority of states have established their territorial sea at the 12-nautical-mile limit, but a handful have established shorter thresholds. Of particular interest is that, while territorial seas are subject to the exclusive jurisdiction of the coastal states, the coastal states' rights are limited by the passage rights of other states, including innocent passage through these waters and transit passage through international straits.

According to UNCLOS, a coastal state cannot prohibit or limit this freedom of navigation or overflight, with a few limited exceptions. It is also necessary to note there is no right of innocent passage through internal waters, which is the primary distinction between internal waters and territorial sea. Finally, states may claim an EEZ that extends 200 nautical miles from the baseline. In this zone, a coastal state has the exclusive right to exploit or conserve any resources found within the water, on the sea bed, or in the subsoil. These resources encompass living resources and non-living resources, like oil and natural gas. The EEZ establishes rights in relation to resources and the law enforcement capacity to protect those rights.

Arctic Jurisdictions

The right of coastal states to regulate and exploit areas of the ocean under their jurisdiction is one of the foundations of UNCLOS. However, these rights need to be balanced with the freedom of navigation and access to resources outside state control—the freedom of the seas. UNCLOS permits coastal states to establish several different maritime zones which provide coastal states different jurisdictional rights. In general, a state has more rights in zones nearer its coastline than it does further into the ocean. The main challenges associated with these zones are how variations in geography affect where one zone ends and a new zone begins.[6]

Given the high stakes involved in acquiring exclusive rights to Arctic Continental Shelf resources, coastal states interested in extending their EEZ face "disagreements" over maritime jurisdiction in the Arctic Ocean and the possibility of unnecessary friction.[7]

UNCLOS allows a state to conduct economic activities for a distance of 200 nautical miles from the baseline, or the so-called continental margin where it extends beyond 200 nautical miles. With the continuous decline of ice coverage leading to the opening of the Arctic Ocean, the potential for access to new resources, including natural resources and shipping lanes, has increased interest in who owns what in the Arctic Ocean. It has also brought up the possibility for a "race of claims" amongst coastal states looking to claim an extended continental shelf up to 350 nautical miles from their baselines. By presenting a timely submission of claims to the Commission on the Limits of the Continental Shelf (CLCS) and firmly establishing that the additional area is a natural prolongation of the state's land territory, these claims could ultimately determine a coastal state's sovereign right to explore and exploit natural resources.

In 2009, Norway was the first coastal state to have its territorial claim in the Arctic approved by the CLCS. Denmark's 2014 submission and Russia's 2015 resubmission still await review by the CLCS.[8] While Canada's initial partial claim in 2013 for the Continental Shelf in the Atlantic Ocean required further mapping, it announced plans to submit its Arctic Continental Shelf claim in 2019. This claim is expected to include the North Pole, overlapping with both Russian and Danish submissions that also claim ownership of the planet's northernmost point.[9] Russia's 2015 resubmission is claiming an additional 103,000 square kilometers of seabed near the North Pole, some of which Denmark and Canada already claim to own. Before we jump to conclusions about Russia's intent, it is important to recall that UNCLOS granted each coastal state control over an EEZ that extended only 200 nautical miles off its shoreline until geological proof indicated they may be entitled to more. Therefore, the 2015 Russian resubmission simply updates its original 2001 request. It's important to note that the U.S. has not ratified UNCLOS, so it is difficult to speculate about its future course of action.

Freedom of Navigation in the Arctic and the SAR Agreement

There are two main routes of interest in the Arctic—the Northwest Passage (NWP) and the Northern Sea Route (NSR), both serving as intercontinental maritime connectivity alternatives. The NSR is a well-established commercial seaway that was used for domestic transportation and played an important economic role for the Soviet Union around World War II.[10] To date, the NSR is vitally important because it connects Europe and Asia north of the Eurasia landmass and offers a very attractive alternative to the Suez Canal route by reducing the respective distance approximately 40 percent. For countries like China, Japan, and South Korea, the NSR could provide a way of avoiding the extremely busy, overcrowded Strait of Malacca.

Apart from the Norwegian coastline, the great majority of the NSR—about 90 percent of the route—runs along the Russian coastline. On December 17, 1932, the Council of People's Commission of the USSR legally asserted the NSR from the Novaya Zemlya archipelago in the Arctic Ocean, 168° 37'W, to the Bering Strait, 66°N, fell under

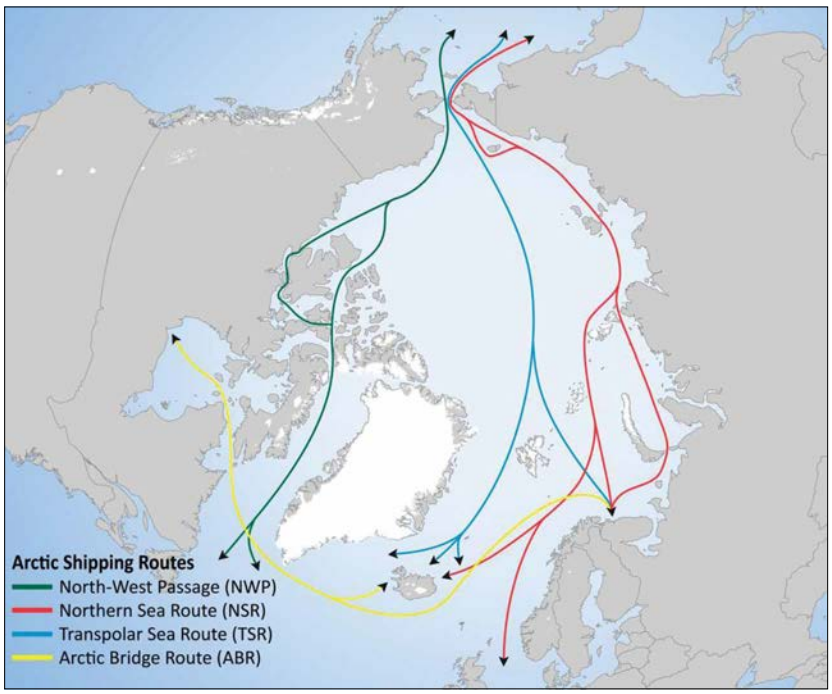
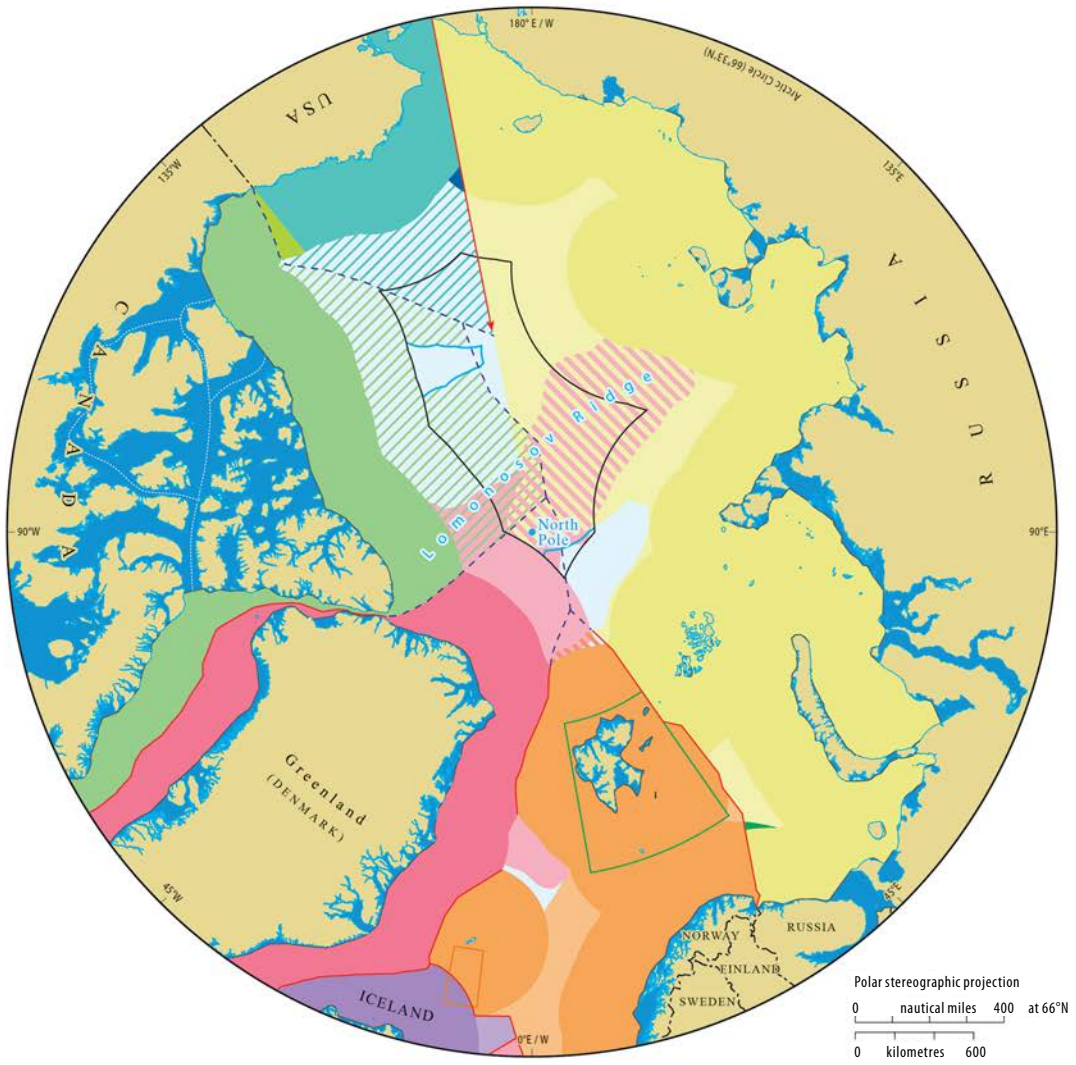


Image courtesy of The Arctic Institute, Center for Circumpolar Security Studies

Maritime Jurisdiction and Boundaries in the Arctic Region



- Internal waters
- Canada territorial sea and exclusive economic zone (EEZ)
- Potential Canada continental shelf beyond 200 M
- Denmark territorial sea and EEZ
- Denmark claimed continental shelf beyond 200 M
- Iceland territorial sea and EEZ
- Iceland claimed continental shelf beyond 200 M
- Norway territorial sea and EEZ/Fishery zone (Jan Mayen)/Fishery protection zone (Svalbard)
- Norway claimed continental shelf beyond 200 M
- Russia territorial sea and EEZ
- Russia claimed continenetal shelf beyond 200 M
- Norway-Russia Special Area
- USA territorial sea and EEZ
- Potential USA continental shelf beyond 200 M
- Overlapping Canada/USA EEZ
- Russia-USA Eastern Special Area
- Unclaimed or unclaimable continental shelf
- Strait baselines
- Agreed boundary
- Median line
- 350 M from baselines
- 100 M from 2500 m isobath (beyond 350 M from baselines)
- Svalbard treaty area
- Iceland-Norway joint zone
- Main 'Northwest Passage' shipping routes through Canada claimed internal waters

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Image courtesy of Courtesy IBRU and Durham University, UK

Soviet jurisdiction and control. Today, there are Russian administrative procedures in place that require preapproval to transit the NSR and payment of associated escort fees, operations that can only be performed by icebreakers under Russian flag. These requirements to use the NSR could be viewed as a de-facto restriction of the freedom of navigation.

The Arctic is comprised by the Arctic Ocean and the territories within the Arctic Circle belonging to Canada, the United States, Norway, Denmark, and Russia, also known as the Arctic Five.

On the western edge of the Arctic Ocean, the NWP runs between Greenland and Newfoundland in the Atlantic Ocean, and along the northern coast of Canada and Alaska, ending in the Bering Strait. It links the Atlantic and Pacific oceans through the Canadian Arctic Archipelago. Compared to the NSR, the NWP is extremely underdeveloped, especially around the waterways of the Canadian Arctic, and the number of vessels navigating these waters is significantly lower compared to the NSR. There are various reasons for this, including complex geography—many narrow, shallow corridors—as well as ocean currents, along with drifting ice packs that block many entrance and exit sites. There are differing views between Canada and the U.S. regarding the legal regime for that passage. Canada considers these waters internal, but the U.S. and certain European countries maintain the high seas status respectively.[11,12] Designating the maritime zones and boundaries along these strategic routes in the Arctic for each coastal state is imperative given the sovereign rights granted by UNCLOS for internal waters and the territorial sea. This will be an issue CLCS will need to address.

With shipping activities expected to intensify in the Arctic, it is important to note that flag states and coastal states have a duty to render assistance, search and rescue services, to persons found at sea in danger of being lost and those in distress, according to Article 98 of UNCLOS.

Coastal States and the CLCS: Bridging Communications

The Arctic Council clearly stands out as an example of very promising cooperation in the Arctic. This interesting partnership paradigm was established as an intergovernmental forum in 1996 with eight member states—Canada, Denmark, Norway, Russia, and the United States of America, known as the Arctic Five, plus Finland, Iceland, and Sweden. Its goal is to facilitate communication and cooperation among Arctic states, and with its consensus decision scheme it constitutes a unique governance model.

The environment, sustainable development, and SAR operations, among others, feature high in its agenda. In the last few years it has made some important contributions through the Agreement on Cooperation on Aeronautical and Maritime SAR in the Arctic as well as the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic. These are extremely important developments for the enhancement of navigational safety and strengthening the domain of environmental protection. While both the U.S. and Canada belong to the Arctic Five and have certain responsibilities outlined in the 2011 Arctic SAR Agreement, both countries are inadequately prepared to respond to growing Arctic needs with respect to icebreaking asset availability and response.[13] Therefore, as Arctic icebreaking needs grow, the current available assets and marine transportation system of both the U.S. and Canada will increasingly be unable to meet the growing needs due to lengthy acquisition and production processes required for new icebreaking fleets.

Conclusion

From oil and gas, to various precious metals—even diamonds—the resources of the sea are enormous. The importance of fish stocks is bringing the issue of food security into the long list of issues under UNCLOS' influence. At the time of its adoption, this convention embodied, in one instrument, traditional rules for the uses of the oceans and, at the same time, introduced new legal concepts/regimes in order to address specific concerns. The reality of ocean exploitation grows day by day, as on-going technological developments are opening new ways to tap those resources.

On the positive side, UNCLOS is strongly regulating the exploitation of all these resources, as is the case with EEZs. A coastal state can exercise its sovereign rights within its EEZ for research and exploitation purposes, except in the justified case where its continental shelf extends beyond that limit.[14] The concept of EEZ has been described as a "peaceful revolution" in international law and as the most significant development in the Law of the Sea, since Hugo Grotius wrote "mare liberum." With the establishment of the EEZ, the conflict between Grotius (mare liberum) and John Selden (mare clausum) seems to have been won by the latter. Although this is true, what is most important is that the rational and functional use of the sea by all its users should prevail in conformity with UNCLOS provisions. This stands true since the promotion of international co-operation to achieve a more rational exploitation of the oceans' wealth is paramount for the global community. UNCLOS provides the

necessary framework to deal with the spectrum of ocean governance issues.

Furthermore, among the rights of coastal states within their EEZs is the issue of offshore energy resource exploration/exploitation, which has traditionally created tensions between neighboring states regarding the delimitation of that zone. Therefore, UNCLOS has not clearly resolved all issues that relate to energy exploration activities. Maritime delimitation issues between adjacent states could be associated with a race of claims that negatively impacts international relations, as is the case in the Arctic. Regarding maritime delimitation issues, UNCLOS is the cornerstone for setting the basic principles and regulations in relation to ocean governance. Nevertheless, there is a very important actor of international affairs that has not yet proceeded towards signing and/or ratifying that very influential legal toolbox. Generally speaking, the United States is the most important non-subscriber to the UNCLOS, attributable to its strong opposition to the regime concerning exploitation of natural resources on the seabed beyond national jurisdictions.

The crew of the Coast Guard Cutter *Stratton* patrols above the Arctic Circle near the Bering Strait in support of Operation Arctic Shield 2018. Operation Arctic Shield began in 2009 to support Coast Guard response to increased maritime activity in the Arctic. Coast Guard photo by LT Brian Dykens

Finally, it is crystal clear that for the time being, maritime traffic within the Arctic varies significantly from year to year, and numerous hindrances persist. There is also a real concern over whether there are enough ice breakers available to keep maritime corridors open and escort vessels throughout the region.

The Russian interest of promoting the use of the NSR follows the basic principles of geopolitics. Should the so-called Arctic passages become part of regular maritime routes in the future, coastal states and their respective ports would see an upgraded position within the international trade domain due to considerable time and fuel savings. Russia requiring a permit and payment for an obligatory escort by Russian icebreakers to cross the NSR can be viewed as a de facto limitation on the freedom of navigation. The argument behind this approach is that state sovereignty extends over waters where freedom of navigation applies and therefore transit modes established via UNCLOS become null.

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Endnotes:

1. Dimitrios Dalaklis, "Piracy in the Horn of Africa: Some good news, but a lot of work has still to be done…," *Maritime Security Review*, No.9, 2012, p. 2
2. un.org/Depts/los/convention_agreements/convention_historical_perspective.htm, accessed 18 Oct 2018
3. Pierre Cariou & Olivier Faury, "Relevance of the Northern Sea Route (NSR) for Bulk Shipping" *Transportation Research Part A*, 78, 2015, pp. 337–346
4. www.un.org/Depts/los/, accessed 18 Oct 2018
5. Georgios Chrysochou & Dimitrios Dalaklis, (2018) "Offshore Energy Exploration Activities and the Exclusive Economic Zone Regime: A Case Study of the Eastern Mediterranean Basin," in Chaumette P. (eds), Wealth and Miseries of the Oceans: Conservation, Resources and Borders, Gomylex, Bilbao-Spain, p. 139
6. https://sites.tufts.edu/lawofthesea/chapter-two/, accessed 18 Oct 2018
7. IBRU: Centre for Borders Research, Durham University, UK, www.durham.ac.uk/ibru/resources/arctic
8. Ibid
9. www.rcinet.ca/en/2016/05/03/canada-to-submit-its-arctic-continental-shelf-claim-in-2018//, accessed 15 Nov 2018
10. Arctic Portal, the Arctic Gateway, (2011), available online: http://arcticportal.org/ap-library/news/344-northeast-passage
11. F. Griffiths, R. Huebert, and P. Whitney, Canada and the Changing Arctic: Sovereignty, Security, and Stewardship, Waterloo, ON: Wilfrid Laurier University Press, (2011), p. 130
12. W. Østreng et al., Shipping in Arctic Waters: A Comparison of the Northeast, Northwest and Trans Polar Passages, Berlin: Springer Science and Business Media, (2013), p. 335
13. Megan Drewniak & Dimitrios Dalaklis, (2018), Expansion of Business Activities in the Arctic: The Issue of Search and Rescue Services, (Eds) Chircop A., Coffen- Smout S. & McConnell M., Oceans' Yearbook 32, Brill Nijhoff, Leiden-The Netherlands, pp. 425–455
14. UN (1982), United Nations Convention on the Law of the Sea (UNCLOS), Articles 76, 77, 83, 121

A History of Governance in the Antarctic Region

by LT Samuel Krakower
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U.S. Coast Guard

The dynamics of today's world require territory, be it land or water, to be sovereign. Everything seems to be owned by someone, and to that end, governance is relatively simple. The country which oversees its territory, whether by land or sea, has asserted its control over the domain, and should effectively carry out the jurisdiction it so requires. It is rare, other than the obvious metric of the high seas, to note any one place as a location of sovereign immunity and quite limited in scope of its governance. As the focus of the world turns north toward the Arctic and the fight for maritime governance there, there is another location on the other side of the world that shows the opposite.

With the signing of the Antarctic Treaty in 1959, the international community mutually agreed that Antarctica is a peaceful place, devoid of international discourse, benefiting mankind and its research in the scientific fields. When discussing Antarctica and its maritime concerns, it is important to note that the treaty in force states that all waters poleward of 60 degrees south latitude, the accepted start of the Southern Ocean, are under the provisions of the treaty. Thus, a substantial portion of the limits of the treaty relate directly to maritime governance within the region. It is rare that a landmass so large, with a large body of water also included in its territory, has been successful in preserving itself

Military Sealift Command chartered ship M/V *Ocean Giant* arrives at McMurdo Station's ice pier in Antarctica, as part of Operation Deep Freeze 2018. The ship was met by members of the Navy Cargo Handling Battalion One who worked to offload 409 pieces of cargo made-up of nearly 7 million pounds of supplies such as frozen and dry food stores, building materials, vehicles, and electronic equipment and parts. That equates to 80 percent of the materials needed for the winter over period. Military Sealift Command photo by Sarah Burford

Above: The Coast Guard Cutter *Polar Star* breaks ice in McMurdo Sound near Antarctica on January 10, 2018. The crew of the Seattle-based *Polar Star* was on its way to Antarctica in support of Operation Deep Freeze 2018, the U.S. military's contribution to the National Science Foundation-managed U.S. Antarctic Program. Coast Guard photo by Chief Petty Officer Nick Ameen

Left: Battling high winds and frigid temperatures, seismic maintainers from the Air Force Technical Applications Center, Patrick AFB, Florida, receive fuel resupply via helicopter from the National Science Foundation at AFTAC's repeater site at Mt. Newell, Antarctica. The airmen use the fuel to power the batteries that are the energy source for their seismic data collection equipment, radios and other communications functions. Air Force photo by Brian Fox

from exploitation and state governance. So, the question posed is simple: How did Antarctica successfully avoid sovereignty claims and become the scientific preserve it is today?

The governance of Antarctica and its surrounding waters is relatively new in the span of its history with human interaction. By the time the Antarctic Treaty was signed, seven countries—the United Kingdom, Australia, New Zealand, France, Chile, Argentina, and Norway—already claimed some portion of Antarctica, with the United States and Soviet Union attempting to follow suit. Argentina and Chile's claims over parts of Antarctica can be traced back to the Treaty of Tordesillas in 1494, allowing the then-Spanish Empire full political sovereignty over all waters and lands 1,180 nautical miles west of the Cape Verde Islands.[1] The Spanish Empire then owned vast portions of a continent and its waters the world did not know existed. That claim, as old as it is, has held as good as any other countries' claims to Antarctica. The greater majority of territorial claims came in the 19th and 20th centuries after the continent was discovered. Great Britain claimed parts of Antarctica and its surrounding waters as early as 1833. France followed in 1840, and Norway in 1929. In 1931, Great Britain would cede much of its claim to Australia and New Zealand, adding more countries to the confusion of Antarctic territory. Despite all of the Antarctic claims by these countries, the claims were truly in name alone, with just a few temporary buildings and stations, and no permanent bases across 5.4 million square miles of land and ice. There was no maritime governance, or any governance for that matter, over the continent and its waters.

As the world continued toward the middle of the 20th Century, claims would continually be attempted and contested. In 1938, Nazi Germany dispatched an expedition to dispute Norway's claims over the continent, and though they never made a formal claim over the continent, the action led to other countries further exercising their claims. During World War II, Argentina and Chile each established claims for land already claimed by Great Britain. In response, Great Britain launched a military operation to reassert their own claims and establish a permanent presence in the region.[2] Friction would continue to develop post-war between those nations, culminating with Great Britain unsuccessfully attempting to bring Argentina and Chile to the International Court of Justice for arbitration procedures over their claims. The

United States also began to take interest in the region in 1947 with Operation Highjump, establishing a research base and secretly looking to extend United States sovereignty over the largest area of the Antarctic continent.[3] Realizing claims were quickly getting out of hand, the eight countries with vested interest in the continent came together in an effort to keep further countries from adding to the muddle. These meetings were disrupted in 1950 when the Soviet Union disregarded all claims on the continent and reserved the right to make its own claims over Antarctica. With Cold War tensions on the rise and still no official governance over the continent by any country, a need to effectively govern the continent and its waters was needed more than ever.

The saving grace of Antarctica's current sovereign-free status can best be attributed to the International Geophysical Year (IGY), which began July 1, 1957. The IGY was a collaborative 18-month global effort encouraging countries to devote their efforts to improving science and knowledge of Earth. This included work in Antarctica, and allowed countries with and without claims to develop intensive Antarctic studies. In preparation for the event, 55 science stations were built throughout the continent, to include the Scott-Amundsen South Pole Station, the first permanent base at the Pole.[4] The cooperation between nations on both sides of the Cold War lent itself toward a shift in thought regarding Antarctica—that the continent was more a tool for science rather than a contest of sovereign claims. By October 1959, all countries with a vested interest in Antarctica, those that had at least one station on the continent, determined that the continent required some form of governance over all member states to ensure it would be used for further exploration, and kept safe from political discord.

The signing of the Antarctic Treaty in December 1959 created the first true governance over Antarctica. The treaty, signed by 12 countries with stations and bases on the continent, put forth that Antarctica was to be used for peaceful purposes only, and that any measures of a military nature were prohibited.[5] As previously mentioned, it also stated that all waters poleward of 60 degrees south were under the provisions of the treaty. The treaty also noted that the Southern Ocean waters were high seas, and that the treaty did not affect the rights of any state under international law within those waters, an important piece to effectively cease any disputes over maritime jurisdiction between nations.[6] Perhaps the most notable piece of the treaty was that it ceased the establishment of claims to the continent. The treaty did not interpret its establishment as a renunciation of claims, but did stop enlargement of claims already made by nations with territory in Antarctica.[7] In addition, the Soviet Union and United States both were given the right to make future claims, but not for as long as the treaty was in force, stalling any foreseen attempts to do so. The treaty is still active to this day, and is signed onto or observed by 53 parties, with no major disputes since it entered into force. The Antarctic Treaty is considered an excellent representation of mankind holding special areas in trust for the future and protecting them from exploitation.[8] Antarctica has been steadily governed under this treaty to which all member states involved with the continent adhere.

Over time, the Antarctic Treaty System has produced further legislation to improve effective governance over the continent and its waters. Agreements concerning animal protection rights, to include marine life, have been added into the Antarctic Treaty System to ensure the preservation of environmental integrity. The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) was put together in 1982 specifically for this reason, largely due to concerns that the overfishing of krill in the Southern Ocean would drastically reduce marine life in Antarctica.[9] Today, the CCAMLR oversees the vast majority of marine concerns in the Antarctic, and

The Military Sealift Command-chartered container ship M/V *Ocean Giant* conducts cargo offload at the National Science Foundation's ice pier at McMurdo Station, Antarctica, on January 31, 2019. The operation is part of Military Sealift Command's annual resupply mission in support of Operation Deep Freeze, the Joint Task Force Support for Antarctica mission to the National Science Foundation-managed U.S. Antarctic Program. Coast Guard photo by Sarah Burford

Members of the New York Air National Guard's 109th Airlift Wing load cargo onto an LC-130, ski equipped aircraft at McMurdo Station, Antarctica, on December 28, 2018. The 109th Airlift Wing provided aviation support to U.S. Antarctic research mission from October 2018 to February 2019 as part of Operation Deep Freeze, the U.S. military support of the National Science Foundation-managed U.S. Antarctic Program. Air National Guard photo by Tech Sgt. Gabriel Enders

has proven achievements. In 2016, CCAMLR successfully made the Ross Sea a marine park, protecting more than 930,000 square miles of water. Other agreements, including prohibiting mineral resource activities, improving waste management procedures, and combatting marine pollution have been voted on by member states. All of the signed amendments and protocols improved protections of Antarctica's environment and conservation efforts.

Perhaps contrary to the current worries in the Arctic, Antarctica and the Southern Ocean will, for the foreseeable future, remain a place of peace and international cooperation. Shipping traffic, living marine resources, mineral resourcing, and marine pollution are normal concerns of any country with waters subject to their jurisdiction. Through the Antarctic Treaty System, 53 countries, each with vested interests in the region, have stunted their nations' jurisdiction and territorial opportunities to preserve the land and surrounding waters in the name of science and the betterment of mankind. While it is unlikely anything of this nature can be accomplished in any other part of the world, to include the Arctic, Antarctica is a representation of what can be achieved when the international community cooperates and produces governance on a global scale.

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Endnotes:

1. Bourne, Edward. The History and Determination of the Line of Demarcation by Pope Alexander VI, between the Spanish and Portuguese Fields of Discovery and Colonization. *Senate Miscellaneous Documents,* Washington, Vol. 5, 1891–1892
2. "About-British Antarctic Survey." www.antarctica.ac.uk
3. Kearns, David. (2005). Operation Highjump: Taskforce 68. *Where Hell Freezes Over: A Story of Amazing Bravery and Survival*. New York: Thomas Dunne Books
4. Siple, Paul. (1959). *90° South*. New York: G.P. Putnam's Sons
5. "The Antarctic Treaty." *United Nations Office for Disarmament Affairs.* United Nations. December 1, 1959. p. 2
6. Ibid. p. 4
7. Ibid. p. 3
8. Frakes, Jennifer. "The Common Heritage of Mankind Principle and the Deep Seabed, Outer Space, and Antarct ica: Will Developed and Developing Nations Reach a Compromise?" *Wisconsin International Law Journal*. 2003
9. "Commission for the Conservation of Antarctic Marine Living Resources." www.ccamlr.org

Common Sense Regulatory Practices

Coast Guard economic analysis from the beginning to Executive Order 13771 and beyond

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The promulgation of regulations is one of the main tools by which the Coast Guard implements its maritime governance initiatives. From onboard safety to environmental stewardship, regulations can help ensure the U.S. maritime fleet operates in a safe, secure, and sustainable manner. As the commandant has mentioned on several occasions, the Coast Guard views itself as a "common sense regulator."[1]

The Coast Guard's Regulatory Development Program has evolved, driven by presidential memorandums, executive orders (EO), and political and presidential priorities, to develop regulations in a common sense manner. Since the early 1970s, the Coast Guard has been producing economic analyses to evaluate the likely effects of regulations in line with the Department of Transportation's policy. These analyses have always been meant to evaluate whether a regulation will produce benefits in excess of costs, a basic common sense principle. Presidential actions beginning with President Reagan's 1981 Executive Order 12291 not only required better and more detailed economic analyses, they increasingly embodied a basic tenant of common sense thinking: When issuing a new regulation, options with the greatest net benefits for society should be chosen.[2] We have taken this principle to heart at the Coast Guard and try to select regulations that maximize net benefits.

With EOs 13771 and 13777, President Trump requires agencies to go one step further.[3] These orders instruct agencies to tally the costs of new regulations and offset their costs by removing existing regulations on the books. These requirements help ensure that while each regulation, at the moment it was issued, was evaluated and changed so as to maximize the net benefits to society and ensure the overall totality of regulations does not become too burdensome on each industry. The Coast

The towing vessel *Bridgett McAllister* sits moored at the McAllister Towing Facility in Baltimore on February 4, 2019. All towing vessels over 26 feet in length are now required to be inspected by the Coast Guard. *Bridgett McAllister* is the first vessel in Sector Maryland-National Capital Region's history to receive a Subchapter M towing vessel Certificate of Inspection. Coast Guard photo

Petty Officer 1st Class Jeffrey Deronde, Chief Petty Officer David Labadie, and Mike Pearson, all marine inspectors at Marine Safety Unit Portland, inspect the sacrificial anodes attached to the hull of the tug *Washington* in Portland, Oregon, on March 5, 2019. Marine inspections conducted by the Coast Guard ensures the integrity of the vessels operating in the area and the safety of the crew members aboard them. Coast Guard photo by Seaman Paige Hause

Guard thoroughly reviews all new regulations with high quality analyses and attempts to maximize the net benefits of each regulation, while also considering whether new regulations could reduce the regulatory burden.

The History of Presidentially Required Economic Analysis of Regulations

Executive requirements for economic analysis of rulemaking began when the Johnson administration repurposed the method of cost-benefit analysis used to review Army Corps of Engineers flood control projects for regulations.[4] The Nixon administration then centralized the review of regulations through his "Quality of Life Review" (QLR), although QLR was primarily focused almost exclusively on environmental regulations. The QLR program ended with the Ford administration, but the Carter administration added the ability to review rules directly within the Office of Management and Budget (OMB). President Carter also created the Office of Information and Regulatory Affairs (OIRA) inside the OMB for the implementation of the Paperwork Reduction Act. President Reagan turned OIRA into the center of presidential review of regulations with EO 12291, which required all proposed regulations be submitted to OMB for review.[5]

EO 12291 was significant for a number of reasons. It required all rules, no matter the size and scope, to be reviewed by OIRA. It was also the first EO to require rules to produce a cost-benefit analysis. Routinely, OIRA reviewed well over 2,000 rules per year when 5,000 to 6,000 rules were published per year during the Reagan administration.[6]

President Clinton issued EO 12866[7] charting a course that was more focused than EO 12291 by requiring the review of only "significant" rules, while deepening the analysis requirements of rules in general.[8] President Clinton's OIRA also published two guidance documents, one in 1996 and one in 2000, expanding upon how agencies could best conduct economic analyses in fulfillment of EO 12866. The second Bush administration

clarified EO 12866 with the 48-page Circular A-4 issued September 17, 2003, by OIRA.[9] Circular A-4 deepened the economic review requirements established by EO 12866 and described in the two guidance documents superseded by Circular A-4.

Indeed, this guidance increased the detail, depth, and extent of economic analysis of federal rulemakings. At the close of the Clinton administration, the average regulatory analysis was 31,072 words. By the close of the second Bush administration the average word count of a regulatory analysis more than tripled to 111,646 words.[10]

In Pago Pago Harbor, American Samoa, Chief Warrant Officer James Gardner, a senior marine inspector at Coast Guard Marine Safety Detachment American Samoa, conducts an international oil and air pollution prevention survey with the captain, chief engineer, and port engineer aboard the commercial fishing vessel, *American Triumph*, on February 15, 2018. Coast Guard photo by Petty Officer 2nd Class Tara Molle

Taken together EO 12866 and Circular A-4 required that agencies tabulate all costs and benefits of a potential regulatory action, consider multiple alternatives, and select the alternative with a common sense reason why it was chosen. In practice, most agencies, and the Coast Guard in particular, tend to search for the regulation with the most benefits and least costs. Economists estimate the costs and benefits to these alternatives, subtract the costs from the benefits, and select the option that will improve U.S. welfare the most.

Captain Lobachev Evgenii, the skipper of the *Energy Atlantic*, signs forms presented by Chief Petty Officer Aaron Harcourt, a Coast Guard inspector, that release the tanker for entrance into Port Arthur, Texas, in January 2016. The *Energy Atlantic* is a liquefied gas carrying tanker that carries U.S.-exported shale natural gas. Coast Guard photo by Petty Officer 3rd Class Dustin R. Williams

Similarly, President Obama kept both 12866 and Circular A-4. His chief addition was primarily managerial, changing the focus and extent of review. He issued EO 13563 "Improving Regulation and Regulatory Review" on January 11, 2011, which placed greater focus on retrospective analysis of existing rules.[11] EO 13563 also emphasized maximizing net benefits to the greatest extent possible, enshrining a long-established common sense principle.

Despite calling on agencies to retrospectively review rules, EO 13563 did not call on agencies to conduct a holistic review of the total economic burden. While each regulation may, itself, be beneficial, the cumulative effect of all regulations may not have been beneficial. It is against this backdrop that President Trump issued EO 13771 "Reducing Regulations and Controlling Regulatory Costs" on January 30, 2017, requiring the elimination of two existing regulations for every one added, along with fully offsetting the cost of each new regulation.[12] EO 12866 and Circular A-4 will remain in effect as noted by the recent OMB memoranda from February 2, 2017, and April 5, 2017, providing additional details on the implementation of EO 13771. EO 13771 permits agencies to offset costs by changing interpretive policies and guidance, as well as regulations in the Code of Federal Regulations. To that end, the Coast Guard has begun evaluating how changing policies may also

LT Sarah VanEenenaam, assistant chief of inspections at Coast Guard Sector Anchorage, conducts a foreign tank vessel inspection on the oil and chemical tanker *Nordisle* in Norton Sound, near Nome, Alaska, on June 11, 2018. The *Nordisle* is homeported in Limassol, Greece. Coast Guard photo by Petty Officer 3rd Class Lauren Dean

result in cost savings and has revised three such policies, saving the maritime industry more than $31 million per year.

Upon drafting new regulations, the Coast Guard is called to both ensure that each regulation has benefits in excess of its costs and that the sum of the costs of all our new regulations are not greater than the cost savings that we attain by removing or amending regulations. Together, these mandates bring about discretionary actions by the Coast Guard that only result in regulations that improve U.S. welfare.

Every president for the past 40 years has made economic analysis increasingly central to each regulatory agency's decision making. More and more frequently, rules are required, formally and informally, to have an economic analysis, and the economic analyses have become more extensive. We undertake such actions to aid in the development of cost-effective regulations and ensure they lead to maximum achievable benefits for society while advancing the Coast Guard's mission of marine safety, security, and stewardship.

Benefits of this Economic Review

The core elements of rulemaking, as set out by the Administrative Procedure Act (APA), are information, participation, and accountability.[13] Substantive economic analyses across all rules and many guidance documents the Coast Guard have produced increased the quality of information, the degree of participation, and the agency's accountability.

EO 12866 and Circular A-4 tightened and focused economic analyses around a coherent structure. This imposed structure increased the transparency of agency decision making and made agencies more accountable. By laying out the logic of the rule, how the rule will benefit society, and how it was determined the rulemaking will be beneficial, our regulatory process becomes more transparent. The Coast Guard becomes more accountable since the public can challenge the logic of our analysis through the notice and comment process and we are legally required to respond to all such challenges.

President Trump's EO 13771 called on agencies to identify items that could reduce costs imposed on the maritime industry. The Coast Guard launched multiple inquiries to further this objective. On June 8, 2017, we published a notice calling for potential deregulatory items.[14] That notice received 950 comments. A simultaneous call for comments from all of the divisions within the Coast Guard received 389 comments, and a request to each of the service's federal advisory committees for potential deregulatory actions

resulted in 382 recommendations from 11 different committees.

All of the 1,721 comments were reviewed and, after eliminating all duplicate comments, 591 potential deregulatory actions remained. From these, six deregulatory projects were completed prior to 2019, saving a total of just under $32 million per year. An additional 27 deregulatory projects were selected for the 2019 fiscal year. Table 1 above lists the projects already completed.

Deregulatory Projects

Based on internal review, the Coast Guard completed six deregulatory projects split evenly between rules and policies. These projects were published between mid-2017 and the end of 2018, and included:

- Equivalency Determination for "Marine Charts," "Charts," or "Maps," "Publications," and Navigation Functions Navigation and Vessel Inspection Circular 01-16 Change 1
- Removal of Conditions of Entry for Certain Vessels Arriving to the United States From Two Port Facilities in Côte d'Ivoire
- Marine Casualty Reporting Property Damage Thresholds
- Lifejacket Approval Harmonization
- Ballast Water Management-Annual Reporting Requirement
- Tanker Automatic Pilot Systems

As another line of inquiry, in September 2018, the Coast Guard began a contract to retrospectively analyze the costs and benefits of some of our largest regulatory actions over the past two decades. Our hope is that this analysis can inform whether there are places for deregulatory actions. Similarly, economists have begun reviewing the Coast Guard's regulations one part at a time to see if they still have benefits justifying their costs today.

Conclusion

The Coast Guard is a common sense regulatory agency, meaning we only pursue those regulatory actions in the best interests of the United States. Per internal Coast Guard policy and presidential orders, we produce high quality economic analyses to help us identify regulatory actions that best improve the welfare of the United States.

Recently, due to President Trump's EOs 13771 and 13777, we are also removing regulations in order to ensure our regulatory stock has not become overly burdensome on the U.S. economy or maritime industry. Since 2016, our deregulatory actions have saved the U.S. economy just under $32 million per year, and we have another 27 deregulatory actions we believe will further reduce the regulatory burden leading to a potential of more than $20 million in estimated annual cost savings.

About the authors:

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Mr. Jeffrey Horn has been with the U.S. Coast Guard as deputy chief economist in CG-REG since June 2014. Prior to this, he worked at the U.S. Department of Transportation in the regulatory program for railroads for almost 21 years. A graduate of Berry College, he also earned a master of arts in economics from the University of Florida and a master of public administration from the University of Southern California.

Endnotes:

1. www.marinelink.com/news/insights-admiral-karl-schultz-commandant-462304
2. President Ronald Reagan's Executive Order (EO) 12291, President Bill Clinton's EO 12866, President George W. Bush's Circular A-4, and President Barack Obama's EO 13563
3. EO 13771 (www.federalregister.gov/documents/2017/02/03/2017-02451/reducing-regulation-and-controlling-regulatory-costs) requires all incremental costs associated with new regulations to the extent permitted by law, be offset by the elimination of existing costs associate with at least two prior regulations
4. The Army Corps of Engineers had been using cost-benefit analysis to review projects since at least the 1930s. Jim Tozzi. 2011. "OIRA's Formative Years: The Historical Record of Centralized Regulatory Review Preceding OIRA's Founding." *Administrative Law Review*, 63(Special Edition): 37–69 www.thecre.com/pdf/20111211_ALR_Tozzi_Final.pdf
5. Ibid
6. Curtis W. Copeland. 2013. "Length of rule Reviews by the Office of Information and Regulatory Affairs." Draft Report for the Administrative Council of the United States. www.thecre.com/pdf/20131025_copeland_report.pdf
7. EO 12866 revoked EO 12291
8. See EO 12866 where "significant" is defined in Sec. 3 (f); 58 FR 51735; October 4, 1993.
9. www.regulationwriters.com/downloads/Circular-A-4.pdf
10. Christopher Carrigan and Stuart Shapiro. 2014. "What's Wrong with the Back of the Envelope? A Call for Simple (and Timely) Benefit Cost Analysis." Working paper, GW Regulatory Studies Center at George Washington University. www.thecre.com/pdf/20141046_Carrigan-Shapiro-Back-of-the-Envelope.pdf
11. https://obamawhitehouse.archives.gov/the-press-office/2011/01/18/executive-order-13563-improving-regulation-and-regulatory-review
12. www.whitehouse.gov/the-press-office/2017/01/30/presidential-executive-order-reducing-regulation-and-controlling
13. Cornelius M. Kerwin and Scott R. Furlong. 2011. *Rulemaking: How Agencies Write Law and Make Policy.* Washington, D.C.: CQ Press
14. 82 FR 26632

Charting a Course for Rulemaking

by Dominique Christianson
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At the U.S. Coast Guard, the rulemaking process can be thought of in the context of a sea voyage. There is the initiation stage of rulemaking—preparing to set sail—which is followed by the period where the proposed rule is out for notice and comment—out to sea. Completing the rulemaking, normally with publication of a final rule—dropping anchor—is the final step. Similar to challenges a mariner may experience on a sea voyage, so does the Coast Guard encounter similar issues in rulemaking. This article provides an overview of the Coast Guard regulatory process, with a particular emphasis on informal rulemaking, and the potential pitfalls that may arise.

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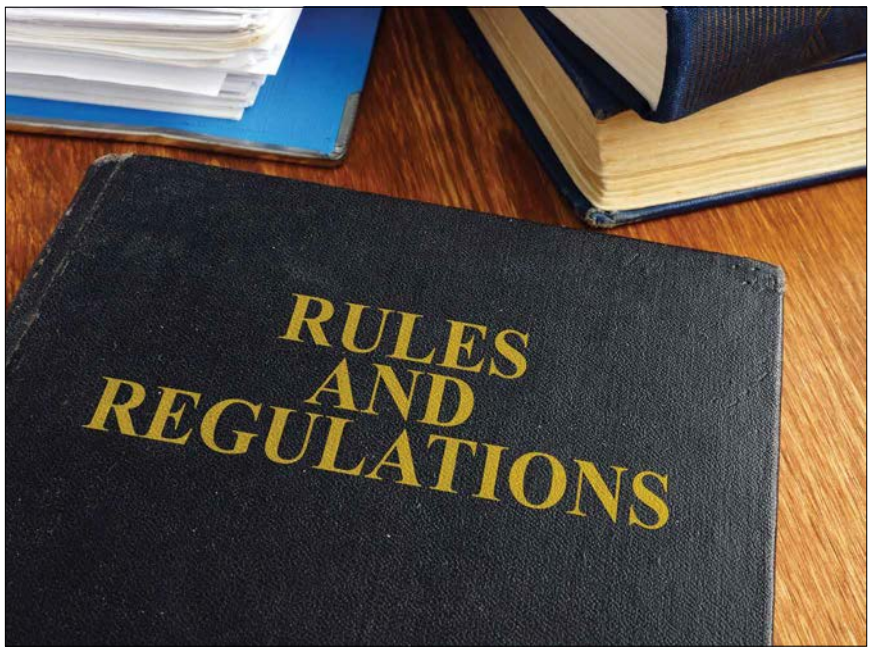
Setting Sail

Rulemaking has multiple points of origin. The Coast Guard rulemaking process begins in a variety of ways including with an act of Congress requiring or permitting the issuance of regulations to implement specific statutory requirements. An International Maritime Organization (IMO) requirement requiring the Coast Guard to implement treaty provisions through regulations, is also a launching point for the rulemaking process. Aside from statutes or treaties that issue requirements or recommendations, Coast Guard rulemaking is also undertaken to accommodate technological advances or to remove deficiencies in existing regulations.

The legal basis for a rulemaking can be drawn from many authorities, including statutes,[1] executive orders (EO), and rules codified by the Code of Federal Regulations (CFR).[2] The Administrative Procedure Act of 1946 (APA) is the predominant statute related to the rulemaking process. At the Coast Guard, the most common type of APA rulemaking is colloquially referred to as informal rulemaking, governed by 5 U.S.C. § 553.[3] Pursuant to the APA, informal rulemaking requires publication of a notice of proposed rulemaking (NPRM), opportunity for public participation in the rulemaking by submission of written comments, and publication of a final rule and accompanying explanation. In addition to the statutory procedural requirements listed in the APA, EO 12866 also imposes a set of procedural requirements on rulemaking projects, including establishing reviews of most agencies' rulemaking by the Office of Management and Budget's (OMB) Office of Information and Regulatory Affairs (OIRA). This means the agency submits summaries of most rules to OIRA, which then decides which rules are significant. However, the Coast Guard does not publish many significant rules.



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Rulemaking projects in the Coast Guard are manned by several crew members, starting with the program office that sponsors the rulemaking. An office chief, or proponent, from one of the Coast Guard's program offices, such as engineering, initiates the project and a project team is formed. The team consists of the regulations development manager, tasked with developing project milestones and keeping the crew aware of those milestones and the subject matter expert appointed by the sponsoring office. This is in addition to the project counsel, economist, environmental analyst, technical writer, and any other subject matter experts necessary depending on the project's complexity.

When the crew is assigned for the rulemaking voyage, the team holds an initial kick-off meeting where they discuss the goals of the project and create a work plan. Referred to as the Regulatory Project Proposal, the work plan describes, among other things, the need for the project, the proposed regulatory policy, preliminary economic and environmental analyses, and whether the rule is likely to be considered significant under EO 12866. Additionally, the team must consider alternatives to regulations, which can include policy, other guidance documents, or no action at all. If, after considering such alternatives, rulemaking is still needed, then the work plan will be routed for clearance through senior leadership and submitted to the Marine Safety and Security Council (MSSC). Before the project can continue, the MSSC must clear the work plan for the regulation, regardless of whether it is considered significant under EO 12866. After the team has received MSSC approval, the journey may officially begin.

Underway

The project team has officially embarked on the regulatory journey and will now receive a docket number and, if publication is anticipated within 12 months, generate an entry in the Unified Regulatory Agenda, or "unified agenda," as it is more commonly known. Per the APA, rulemaking projects typically solicit public comments, unless there is a good cause or other APA exception to deviate from notice and comment rulemaking procedures. Announcing the rulemaking project and providing a description in the unified agenda is one method of notifying the public. However, for notice and comment purposes, public participation occurs when other rulemaking documents are published in the *Federal Register*. These documents are typically an NPRM or an Advance Notice of Proposed Rulemaking (ANPRM). An ANPRM may be appropriate when the rulemaking requires early public engagement before drafting proposed regulatory text. ANPRMs are used in complex regulations which require the input and engagement of the public to provide crucial information. If a NPRM is more suitable, the rulemaking team then drafts the document which provides information on:

- how public input may be provided
- the legal basis for the proposed rule
- a brief statement of the rule's purpose or the problem it's intended to solve
- a discussion of the rule's substance and issues involved
- a determination of economic significance
- any previous comments received from prior notices—comments received from a preceding ANPRM, for example

In most cases the comment period for the NPRM should be at least 60 days, per EO 12866, but 33 CFR 1.05-15 prescribes a comment period of at least 90 days, if possible. But this period can be shortened if there is a good reason such as an ANPRM has preceded the NPRM, for instance. During the comment period, public meetings may also be held to provide additional written and verbal feedback to the rulemaking team. Public meetings must

Coast Guard rulemaking can be likened to a cutter's deployment. Both journeys can present challenges, but end with a final rule or a completed mission. Here, Coast Guard Cutter *Citrus* is seen in 1984 after its conversion to a medium-endurance cutter. Coast Guard photo

U.S. Navy photo by Mass Communication Specialist 2nd Class Kyle Carlstrom

follow the general guidelines that have been provided in 33 CFR 1.05-15. While the comment period is open, the rulemaking team meets, begins drafting responses to comments, and considers whether changes to the proposed rule may be needed to arrive at the best solution to the problem. Section 553(c) of the APA requires that agencies show they "considered relevant matter presented" in public comments before publishing the final, effective rule. This is achieved by discussing the comments received and providing responses to those comments individually, or if there are a number of similar comments, collectively. If the rulemaking project satisfies public scrutiny and the policy is not changed substantially by the comments and Coast Guard responses, then the final rule can be routed for clearance and, ultimately, publication. However, if public comment exposes a discrepancy or highlights some policy change that is necessary, the team may need to go back to the drawing board, so to speak, and issue a supplemental NPRM (SNPRM). The SNPRM affords the Coast Guard with another opportunity to solicit public comment on the revised rule. The procedures for SNPRM publication and response are identical to the NPRM stage, with the Coast Guard responding to public comment on the proposed rule described in the SNPRM.

Another hurdle a rulemaking project may encounter is in the clearance process. Before the document is published in the *Federal Register* and subject to public comment, it must be cleared within the Coast Guard, a sub-cabinet agency, and also by the Department of Homeland Security and finally, if the rule is significant, by OMB. Because regulatory projects are coordinated among several different offices within the Coast Guard, several different offices will need to clear the document. Overall, the review and clearance process can take a significant amount of time, but is generally no less than 90 days. After the rule is cleared at all these levels, it may go for publication. It should be noted that these different levels of clearance must be done for both the NPRM and the final rule.

Dropping Anchor, Preparing for Future Voyages

After the notice and comment process has been completed, the project team responds to the public comments and the final rule is drafted. The final rule then goes through the clearance process outlined in the previous section and, after it has been cleared, is submitted for publication in the *Federal Register.* When the final rule is effective and enforceable depends on what the rule states. Typically, final rules are effective 30 days after the date of publication—60 days if the rule is significant. The delay affords the public and the Coast Guard the opportunity to gradually implement any new requirements. Additionally, the delay in publication allows regulated entities to prepare for, or challenge, the rule.

After publication, the team will disband and go on to different projects. These new projects may be similar to previous rulemaking projects, or they may have an entirely new and unique set of challenges.

About the author:

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Endnotes:

1. Predominant statutes that provide legal authority for Coast Guard rulemakings include 33 U.S.C. 471 (the Rivers and Harbors Appropriations Act of 1925, as amended); 33 U.S.C. 1231 (the Ports and Waterways Safety Act), 33 U.S.C. 1509 (the Deepwater Port Act) and 46 U.S.C. 3306 (provides the Coast Guard with regulatory authority)
2. The Coast Guard regulations on rulemaking procedures may be found at 33 CFR subpart 1.05
3. A significant regulatory action is defined in E.O. 12866, paragraph 3(f) as one that, among other things, has an annual effect on the economy of $100 million or more, or adversely affects in a material way the economy. The Coast Guard issued zero significant rules in 2018

Strengthening the Chain of Responsibility Through the Genuine Link

An executive review of flag state control in the United States

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The 1970s saw a rash of commercial shipping disasters involving oil tankers that had far-reaching implications on maritime governance, especially for flag-state accountability.[1] Two cases in particular shaped the contemporary port state control paradigm as a counteraction to the perception of impotent flag states—the groundings of the *Argo Merchant* south of Nantucket, Massachusetts, in 1976 and the *Amoco Cadiz* off the coast of Brittany, France, in 1978.[2] In the case of the *Argo Merchant,* the wreck and subsequent spillage of 7.6 million gallons of fuel oil was largely attributed to ineffective navigation caused by faulty equipment and human error. A winter gale exacerbated the situation. Similarly, the fate of the *Amoco Cadiz* and resultant record-setting oil spill was traced to a failed steering gear and substandard technical condition. The aftermath of these casualties fueled widespread criticism over the long-suspected shortcomings of flag states to effect control, which had been largely delegated to third-party organizations.[3]

Today, when flag states fail to meet their obligations, port state control often is the default proxy in a chain of responsibility already including the master and crew, company and management, insurers, charterers, third-parties, and the flag state. Nevertheless, port state control is not a substitute for the proper execution of duties by the flag state authority. The presumption of flag state authority is a fundamental and essential aid to the principle of the Freedom of the Seas, deeply rooted in maritime law and upheld by international tribunal.[4] Central to this premise is the "genuine link," an inherent function of the flag state to enhance maritime governance for ships entitled to fly its flag by ensuring each responsible party meets its obligations to collectively implement, maintain, and raise the standards of shipping.[5]

As the primary U.S.-flag authority, the U.S. Coast Guard is advancing a cognitive compliance posture to draw upon the collective knowledge of the chain of responsibility. This data-informed effort is concentrated on the needs, leading trends, and direction of the

American President Lines' Maritime Security Program ship, *President Kennedy,* departs the Port of Los Angeles-Long Beach for Yokohama, Japan, carrying U.S. military cargo. Photo courtesy of APL Co. Pte. Ltd.

Sector Honolulu's CWO Bryan Anderson inspects sea valves on the U.S. flag cruise ship *Pride of America*. Photo courtesy of Bill Taylor.

A ship's flag is symbolic of sovereignty and national character. The institution of the flag state is emblematic of the common responsibility to implement, uphold, and adhere to the global principles of safe navigation and environmental security as enacted through applicable laws, regulations, and rules.

U.S.-flag fleet in order to tailor effective and uniform flag state control. By contrast, the traditional vessel-centric inspection ideology is singularly oriented and symptom-based. Leveraging the chain of responsibility to enhance maritime governance will require an expanded focus and integrated approach. The significance of systemic accountability cannot be overstated and is an ongoing effort. This is emphasized in the Coast Guard's Final Action Memo (FAM) on the loss of the U.S. cargo ship SS *El Faro* in 2015 and the 2018 Maritime Commerce Strategic Outlook.

The "Genuine Link"

The concept of the genuine link as it applies to ships formally dates to the 1958 Convention on the High Seas:

Ships have the nationality of the State whose flag they are entitled to fly. There must exist a genuine link between the State and the ship; in particular, the State must effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag. (Article 5(1)).

While reiterating the genuine link provision, the 1982 United Nations Convention on the Law of the Sea (UNCLOS) went on to detail the duties of flag states with regard to jurisdiction and control. These duties include the obligation to ensure safety at sea by undertaking measures regarding construction, equipment, and seaworthiness of ships as well as manning, labor conditions, crew training, preventing collisions, survey, and casualty investigation (Article 94).[6]

Despite much debate and controversy over the significance of the genuine link, neither convention directly addressed preconditions for the purposes of granting nationality. However, in a 1999 decision, the International Tribunal for the Law of the Sea concluded that the purpose of the "genuine link" provision is "to secure more effective implementation of the duties of the flag state, and not to establish criteria by reference to which the validity of the registration of ships of a flag state may be challenged by other States."[7,8] Thus, maintaining the genuine link is the flag state's legal and functional obligation to effectively exercise jurisdiction and control over ships entitled to

fly its flag.

A competent and functional national administration is central to effective flag state control. For non-commissioned U.S.-flag vessels operating internationally or domestically, and subject to navigational servitude, the Coast Guard serves as the principal federal agency responsible for ensuring compliance with relevant rules, regulations, and international instruments.[9,10] Distinct from regional port and coastal state authorities, the perpetual flag state role reflects decades of overarching responsibilities vested in the Coast Guard, and predecessor agencies. The reason is that flag state authorities are traditionally governmental, inherently federal, and are interrelated such that their responsibilities can be best accomplished by a single military, multi-mission, maritime force.[11,12]

Forming the Flag

The origins of flag state control in the United States can be traced to a series of propulsion boiler explosions that plagued the steamboat industry from 1816 to 1852. These events prompted the federal government to enact precedent-setting public welfare regulations over the private sector in 1838.[13] Included in the legislation was a mandate for U.S. district court judges to license and appoint hull and boiler inspectors. Over the next century, the authority for vessel safety was expanded and reassigned, but remained largely separated from the federal agencies responsible for defense, maritime law enforcement, and life-saving services.[14] The need to consolidate maritime functions became evident as the United States entered World War II and enemy attacks on U.S. ships compelled the need to provide adequate safety measures to meet the conditions of modern warfare. Under pressure, various federal agencies attempted to respond with well-intentioned, but conflicting and ill-considered, policies that resulted in delays and unsafe conditions. Recognizing that a successful and expeditious prosecution of the war depended on a safe and efficient merchant marine, President Franklin D. Roosevelt signed Executive Order 9083 on March 1, 1942. This action transferred the bulk of flag state authority and responsibilities to the Coast Guard.[15] Admiral R.R. Waesche's comments remain especially relevant, considering the Coast Guard continues to facilitate national defense by ensuring military sealift is safe and secure.

"If America and its Allies are to win the devastating war now raging over the surface of the entire globe, the ships that carry the food, the guns, the tanks, the planes, and other implements of war to our fighting forces on battlefields beyond the seas, must reach their destination safely," the eighth commandant of the Coast Guard, said. "Therefore, the Coast Guard at war is still carrying on its basic job of protecting the merchant marine of the United States."

The Coast Guard's multimission character is defined by an ability to conduct distinct yet complementary functions in the maritime domain. The advantages of these interdependent capabilities are realized through network efficiencies, which are measured not solely by the number of lives saved through rescue sorties but by an array of maritime duties including coordinated efforts with prevention programs.[16] Ultimately, success reflects an integrated approach to providing mariners with safe and seaworthy ships, proper equipment, training, and the relevant information to operate in the marine environment.

Admiral Waesche promoted this life-saving-through-prevention ideology during a 1944 congressional hearing, saying "Less dramatic than rescue services, but of equal or greater importance, are the contributions of the service to the prevention of disasters and the promotion of safe navigation. It is only natural that the agency responsible for rescue activities should be concerned with the prevention of marine casualties."

Flag-onomics

As it turned out, "protecting the merchant marine" was not only necessary from a safety perspective, but also for economic and national security purposes. This association is significant considering that the Coast Guard must necessarily balance regulatory compliance with the economics of vessel operations. These factors are not

Coast Guard LT Katherine Cameron and Mollie Morgan perform a quality control check on merchant mariner credentials at the National Maritime Center. Coast Guard photo by LCDR Brett Sprenger

MSU Morgan City's CWO Cory Claybrook inspects a Kort nozzle on the 267-ft U.S. flag Dredge *Padre Island*. Coast Guard photo by LTJG James Coppola

mutually exclusive and are of the utmost consequence when reconciling maritime economics and national security with the reliability and efficiency of a safe and secure U.S.-flag fleet. This indelible concept was acknowledged in the early years following the consolidation of marine safety functions.

A 1948 *U.S. Naval Institute Proceedings* article stated, "In administering the functions of marine inspection, it is the Coast Guard's aim to improve standards for minimizing marine accidents and irregularities and, at the same time, to effectuate a reasonable balance between humanitarian and practical factors. In time of peace, the problem is one of balancing preventive safety with the factors of shipping management economy. In time of war, the fulcrum is shifted to balance marine safety with the factors of military necessity. At either time, the Coast Guard serves as a vital link between the merchant marine and the interests of the nation. As the nation becomes more and more dependent upon a merchant marine for its national welfare and survival, merchant marine inspection will play a correspondingly significant role in the future of the Coast Guard."

During World War II, U.S. shipyards launched thousands of ships, crewed by more than 200,000 U.S. mariners, to provide the strategic sealift capacity necessary to move troops and equipment around the globe.[17,18] Following the war, globalization and the expansion of open registries led to the gradual reduction in the number of commercial U.S. cargo vessels engaged in international trade. Data from the U.S. Maritime Administration (MARAD) shows that over the last 25 years the number of commercial U.S. flagged cargo vessels engaged in international trade has varied from 183 ships in 1992 to 82 in 2017.[19]

Despite this trend, U.S.-flag commercial vessels transported 63 percent of all military cargoes moved to Afghanistan and Iraq during operations Enduring Freedom and Iraqi Freedom. An additional 35 percent of the total cargo was carried on government-owned vessels crewed by U.S. merchant mariners. Domestically, waterborne transportation continues to contribute billions to the U.S. economy moving approximately 155 million passengers and nearly $300 billion in goods between U.S. ports annually, as well as supporting the offshore energy and research sectors.[20] This diverse fleet demographic is comprised of public and commercial passenger vessels, cargo, tank and towing vessels, barges, offshore supply vessels, research vessels, and school ships.

In 2017, the inspected U.S.-flag fleet, including school ships, totaled 12,189 vessels,. The overall regulated U.S.-flag fleet also contains a number of "uninspected" vessels, including nearly 58,000 commercial fishing vessels and more than 5,500 soon-to-be certificated towing vessels.[21]

While "uninspected" U.S. vessels may not be subject to Coast Guard inspection for certification pursuant to Title 46 U.S.C. Chapter 33, various international

instruments and/or national requirements may govern operations. For the purposes of flag state jurisdiction, a "vessel of the United States," as defined by 46 U.S.C. 116, is considered U.S.-flag regardless of inspection status.

Having recognized the strategic and economic importance of U.S. sealift capability, including a qualified maritime workforce, the government has enacted a series of legislative actions and regulatory reforms to bolster the position of the U.S.-flag fleet through economic incentive programs and cost-saving initiatives like the Alternate Compliance Program (ACP). The ACP, in particular, changed the dynamic of the traditional approach by delegating certain Coast Guard vessel inspection responsibilities to authorized classification societies. In doing so, the Coast Guard sought to realize efficiencies by eliminating duplicative inspections. Since the inception of the ACP, this system of delegations and related oversight mechanisms has been extended to other vessel inspection programs in an effort to efficiently facilitate lawful domestic and foreign trade.

MSU Morgan City's ENS Joseph B. Kolb supervises new construction of a U.S.-flag tank barge. Coast Guard photo by CDR Jennifer Hnatow

Fundamental Functions

The enduring clause, Article 57, for the delegation of statutory services from the International Convention on Safety of Life at Sea, 1914, in all its successive forms, includes the consequent provision for the flag state to ultimately guarantee the completeness and efficiency of the inspection and survey. While leveraging third-parties has led to numerous efficiencies for both the Coast Guard and the maritime industry, their roles within the regulatory compliance framework has not been without challenge or controversy. Over time, multiple marine boards of investigation have recommended that flag states be more directly involved in the third-party delegation of statutory services for commercial vessels.


ADM James S. Gracey

Responding to the recommendations on the 1983 capsizing and sinking of the SS *Marine Electric*, ADM James S. Gracey, 17th Coast Guard commandant, concluded that the poor quality of surveys cannot be justifiably expanded to condemn the entire system of third-party delegation. Rather, the casualty supported the need for a more formalized oversight program. Similarly, the Permanent Commission of Enquiry into Accidents at Sea report on the 1999 loss of the oil tanker *Erika* called for flag states who delegate the issuance of international certificates to endow themselves with the necessary legal and technical means to monitor how the delegations are implemented. Following the joint investigation into the 2010 explosion, fire and sinking of the *Deepwater Horizon*, Commandant Robert J. Papp Jr. reckoned that an underlying factor may have been inadequacies with the guidelines used to govern the activities of recognized organizations acting on behalf of flag states.

"The Coast Guard entrusts classification societies to carry out an extensive list of delegated functions that impact the safety of U.S. ships," Commandant Paul Zunkunft wrote in the FAM related to the 2015 loss of the SS *El Faro*, which resulted in 33 deaths.

However, throughout the investigation it became clear that the classification society "failed to uncover or otherwise resolve longstanding deficiencies that adversely affected the safety and seaworthiness of vessels on multiple occasions." He went on to explain that "the Coast Guard failed to adequately oversee the third party in this case, and the investigation revealed that the Coast Guard has not sustained the proficiency and policy framework to do so in general. The Coast Guard is

USCGC *Polar Star* escorts U.S. flag Maritime Security Program cargo ship *Ocean Giant* during the annual replenishment of Antarctica's McMurdo Station. Coast Guard photo by Chief Petty Officer David Mosley

fully committed to rectifying the shortcomings that led to these failures."

In short, the chain of responsibility had been compromised and shoring-up the genuine link would be necessary to reinforce it.

Framing the Flag

In October 2018, the Coast Guard published the *Maritime Commerce Strategic Outlook,* delineating three lines of effort, the first of which is facilitating lawful trade and travel on secure waterways. Central to this effort is ensuring vessels are subject to uniform and consistent standards to support the safe and efficient flow of commerce. This requires a unity of effort across the chain of responsibility, close coordination with partner agencies and third-party organizations, as well as collaboration with industry and external stakeholders to achieve common goals.

As the lead federal agency charged with the administration of flag state functions covered by the International Maritime Organization's Instruments Implementation (III) Code and associated international conventions, the Coast Guard works in partnership with other federal components to discharge its obligations through an interagency approach.[22] National regulations, policies, and mutual agreements prescribe the organizational framework and cooperative arrangements for the various agencies comprising the U.S.-flag state. Under this arrangement certain technical functions have been delegated to both civil and non-governmental third-party organizations. However, regulatory authority has not been divested. Rather, the flag state authorizes third-parties to perform certain technical tasks to assess conformity and then considers those assessments—surveys, audits, certification, and reports—when gauging regulatory compliance.[23]

This blended delegation strategy makes use of third parties' mutually dependent global networks, like authorized classification societies, with management systems and impartial Coast Guard oversight. Programs anchored by international standards, like the ACP and Maritime Security Program, permit the Coast Guard to evaluate and certify U.S. vessels based on authorized classification societies' reports that the vessel complies with applicable class rules, international treaties, agreements, and other prescribed standards. This hybrid arrangement allows the Coast Guard to concentrate marine compliance resources on core flag state duties, including third-party performance monitoring, manning/human factors, maritime security, casualty investigation, and higher risk activities. A similar framework has been adopted for domestic compliance programs, like the inspection of towing vessels—Subchapter M—which requires third-party organizations to adhere to quality management standards, and a towing safety management system for towing vessel operators.

The objective is to leverage third-party expertise and resources to serve regulatory purposes. The Coast Guard, is ultimately responsible for regulatory compliance, however. It must maintain an awareness of the effectiveness of these programs, the performance of third parties, as well as company and vessel compliance with applicable U.S. and international safety, security, and environmental standards. Regardless of the circumstance, the flag state must be the last, best arbiter of a vessel's seaworthiness and navigability. Diligent Coast Guard oversight ensures third parties perform their duties in accordance with the terms and conditions of their authorization agreement. This oversight also provides a means for the Coast Guard to monitor the performance of plan reviews, marine equipment type approvals, and vessel surveys conducted on behalf of the flag state.

To accomplish this, the Coast Guard draws upon the quality systems of third parties, such as authorized classification societies—46 CFR 8.230(a)(15)—as well as safety management systems—33 CFR 96—where applicable, to ensure adequate oversight of safety and environmental protection compliance schemes. Corporate methodology and framework for authorizing, monitoring, and assessing third parties is maintained within the common structure of the Coast Guard's Mission Management System—III Code, Resolution A.1070(28), Part 1.3, COMDTINST 5200.4. In this sense, the three constituents bond together to form a mutualistic tri-party compound with defined, but overlapping and

complementary, roles and responsibilities. This comprehensive approach ensures that, by leveraging management systems, effective corrective action will be implemented to address non-conformities in the spirit of continual improvement. Additionally, it supports trend analysis of performance issues as an isolated event or a systematic problem requiring intervention.

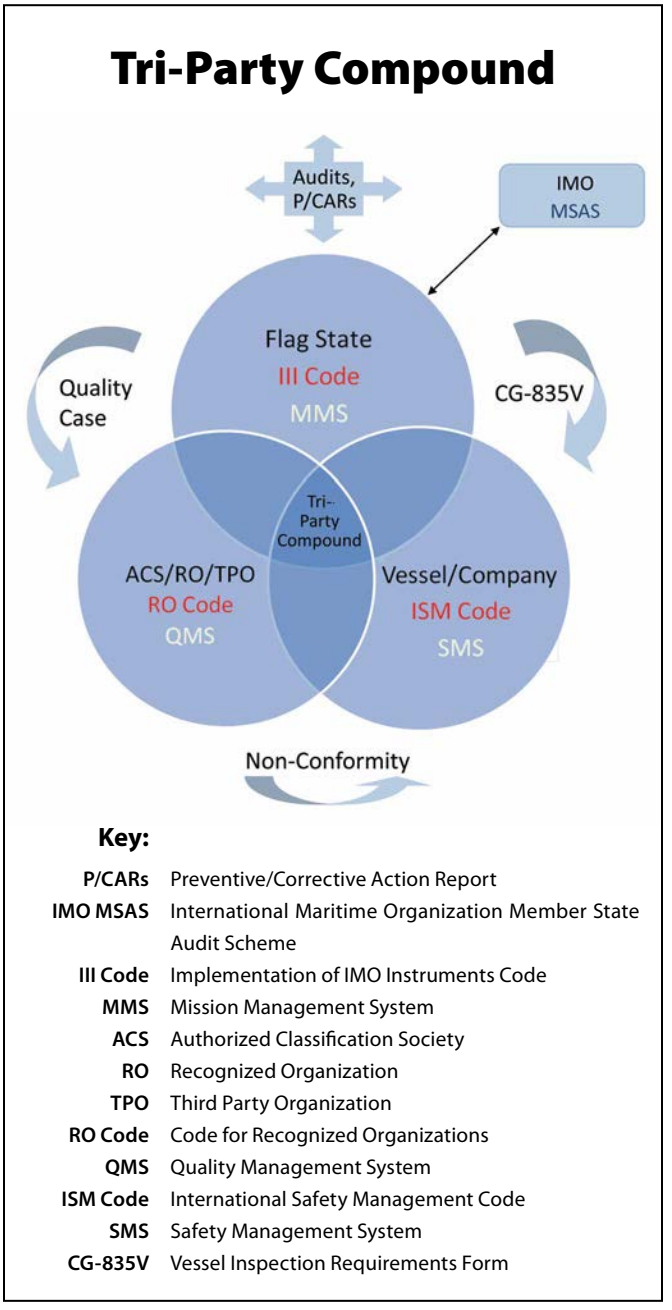
Flag State Accountability

As the Coast Guard marine inspection approach evolves through maturing flag state control mechanisms across the chain of responsibility, the health of the genuine link is checked by rigorous corporate oversight. Internationally, flag states are subject to the IMO Member State Audit Scheme, which provides a comprehensive and objective assessment of how effectively mandatory IMO instruments are implemented and administered. Nationally, the Coast Guard is subject to organizational oversight by multiple federal agencies and congressional committees providing accountability via frequent engagements and related direction. For example, Title II of the recently passed Save Our Seas Act of 2018 contains several provisions for improving maritime safety as a result of the SS *l Faro* tragedy.

Flag's Focus

In the SS *El Faro* FAM, the commandant directed the Coast Guard to "establish a risk-based and enduring policy framework that is simpler to execute and enables more robust oversight of delegated functions." It is important to note that developing such an oversight policy does not simply mean a wholesale increase in the number of ship inspections or audits. Doing so would induce the very duplicity and additional regulatory burden that third-party programs were intended to eliminate, resulting in adverse impacts on commerce and strategic sealift capabilities as well as national security. With this in mind, the Coast Guard chartered a cross-functional team to implement those actions prescribed in the commandant's FAM. While initially focused on the ACP, due to the SS *El Faro's* enrollment, it was further recognized that any corrective actions must be applied uniformly to all programs that rely on a similar third-party structure.

In response, the Coast Guard is implementing several initiatives specifically designed to strengthen the oversight and accountability of third parties and encourage effective implementation of safety management systems within the U.S.-flag fleet. These initiatives are generally grouped into four focus areas with the aim of collecting, analyzing, and using data to focus resources on priority risk areas in an effort to enhance the quality of flag state compliance activities. The four focus areas are workforce and resources, policy and guidance, data and technology, and enterprise partnerships.



Graphic courtesy of LCDR Corydon F. Heard IV

An early action item was to establish the Flag State Control Division within the Coast Guard's Office of Commercial Vessel Compliance (CG-CVC-4) dedicated to third-party oversight. Commissioned in July 2018, the Flag State Control Division absorbed and expanded upon the role of the legacy Liaison Officer of Recognized and Authorized Classification Societies. Responsible for monitoring and assessing the entirety of U.S.-flag performance, CG-CVC-4 maintains the policy, procedures, and guidance to ensure third-parties comply with IMO and Coast Guard requirements through oversight, auditing, and monitoring, as defined in the IMO Code

for Recognized Organizations. Additionally, CG-CVC-4 provides liaison direction to all third-parties acting on behalf of the Coast Guard in support of any vessel compliance program.

As the nature of maritime governance has evolved in response to incidents such as the *Argo Merchant* and *Amoco Cadiz*, so too have the duties of the Coast Guard. However, the obligations of the flag state remain quintessential. Advancing these initiatives aligns with the objectives of the Maritime Commerce Strategic Outlook to judiciously leverage the use of third-party organizations, while ensuring that continually high performance measures are met by the U.S.-flag fleet and the third-parties performing delegated functions on behalf of the Coast Guard. This approach balances the Coast Guard's responsibility to effectively exercise jurisdiction and control over the U.S.-flag fleet with the facilitation of lawful trade, strategic sealift, and national security. But this cannot be achieved without engaging all stakeholders, public and private. Continually enhancing unity of effort through the genuine link is the preventive maintenance needed to preserve integrity across the chain of responsibility, both in terms of strength and flexibility.

Coast Guard CAPT Jason Neubauer chairs a marine board of investigation into the sinking of the U.S. flag cargo ship *El Faro*. Coast Guard photo by Petty Officer 2nd Class Anthony Soto

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LCDR Chris Nichols currently serves as the supervisor of Marine Inspections Detachment Singapore. Prior assignments include marine inspection duty in the Office of Commercial Vessel Compliance, Activities Europe, Sector Delaware Bay, and Sector Anchorage. He is a U.S. Coast Guard Academy graduate and holds an MBA from Touro University, International.

Endnotes:

1. The *flag state* or *Administration* is the Government of the State whose flag the ship is entitled to fly (SOLAS Reg. 2(b)). For the purposes of this article, *flag state* includes nation states, dependent territory registries, and so-called open registers.
2. *Port State Control* is the inspection of foreign ships in national ports to verify that the condition of the ship and its equipment comply with the requirements of international regulations and that the ship is manned and operated in compliance with the relevant rules.
3. Third-party organizations include recognized organizations and authorized classification societies.
4. Convention on the High Seas, Article 2; United Nations Convention on the Law of the Sea, Part VII.
5. IMO Resolution A.1037(27), 22 November 2011, Strategic Plan for the Organization (for the Six-Year Period 2012 to 2017).
6. The U.N. Law of the Sea Convention entered into force on November 16, 1994, without accession by the United States.
7. M/V *Saiga* (NO.2), *Saint Vincent and the Grenadines v. Guinea*, Merits, Judgment, ITOLS Case No 2, July 1, 1999.
8. See also *Lauritzen v. Larsen*, 345 U.S. 571 (73 S.Ct. 921, 97 L.Ed. 1254) 1953.
9. The Coast Guard's 11 statutory missions outlined in the Homeland Security Act of 2002 include: marine safety; search and rescue; marine environmental protection; ports, waterways, and coastal security; drug interdiction; alien migration interdiction; living marine resources; other law enforcement; aids to navigation; ice operations; and defense readiness (Reference 6 U.S.C. 468(a).
10. International Instruments include IMO Conventions such as SOLAS, MARPOL, STCW, COLREG, Load Line, Tonnage, and AFS.
11. The U.S. Coast Guard Strategy for Maritime Safety, Security, and Stewardship. 2007.
12. Coastal State means the Government of the State exercising jurisdiction over its sovereign maritime zones.
13. An Act to Provide for the Better Security of the Lives of Passengers Aboard Vessels Propelled in Whole or in Part by Steam (the "1838 Act").
14. The Coast Guard's heritage is shaped by five predecessor agencies; the Revenue Cutter Service, the Life-Saving Service, the Lighthouse Service, the Bureau of Navigation, and the Steamboat Inspection Service.
15. The Reorganization Plan NO. 3 of 1946 permanently transferred all maritime safety functions to the Coast Guard.
16. The Coast Guard prevention program aligns efforts to achieve marine safety, security, and environmental stewardship.
17. The process of transporting government equipment and supplies by sea for military purposes is often referred to as "sealift." – GAO-18-478 Maritime Security.
18. See www.marad.dot.gov/ships-and-shipping/strategic-sealift/
19. See www.transportation.gov/content/state-us-flag-maritime-industry
20. See transportation.house.gov/uploadedfiles/2018-01-18_-_coast_guard_ssm_final.pdf
21. See www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/CG-CVC/CVC1/AnnualRpt/2017DomesticAnnualReport.pdf and www.govinfo.gov/content/pkg/FR-2016-06-20/pdf/2016-12857.pdf
22. III Code, Resolution A.1070(28)
23. *33 U.S.C. 1904; 33 U.S.C. 3821; 46 U.S.C. 3103; 46 U.S.C. 3316; 46 U.S.C. 5107; 46 U.S.C. 14103; 47 U.S.C. 360(b)*

A Process-Based Management System for Maritime Governance

by CAPT Lee Boone
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U.S. Coast Guard

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"The sea, the great unifier, is man's only hope. Now, as never before, the old phrase has a literal meaning: we are all in the same boat."

—Jacques Yves Cousteau, Oceanographer

Maritime governance encompasses the institutional framework of rules, processes, and systems involving jurisdictions at the local, regional, national, and international levels and their relationships with maritime industry and stakeholders. Nearly 80 percent of world trade is done through maritime channels, and as trade and the number of ships grow, the need for maritime governance also increases.

At the local and regional level, maritime governance is administered by relevant authorities. At the national level, it's up to maritime authorities and flag administrations, but on the global stage, the International Maritime Organization (IMO) administers maritime governance through their member states. To illustrate how maritime governance is executed, it is helpful to examine the Implementation of IMO Instruments Code, referred to as the "Triple I" or III Code, and its associated IMO Member State Audit Scheme (IMSAS). The III Code provides for the assessment of member states' implementation of international requirements, but each member state bears the responsibility of ensuring its compliance. The Coast Guard, as the maritime authority and flag administration for the United States, implements a process-based management system to accomplish this.

Because maritime trade is inherently international, the manner, ability, and capacity of collective governments to make IMO conventions a part of their national laws, and ensure compliance with these laws, including associated regulations and policies, is fundamental to maritime governance. While it is important to understand that effective maritime governance goes beyond just implementing III Code, one measure of a nation's maritime governance is its ability to implement IMO instruments.

Implementation of IMO Instruments

On January 1, 2016, IMO implemented a mandatory system of audits, IMSAS, through the III Code to verify the

CAPT Lee Boone reviews records as a part of the IMO Member State Audit Scheme (IMSAS) for Myanmar in March 2018. Photo courtesy of Myanmar Ministry of Transport and Communications

What is ISO 9001?

ISO 9001 specifies requirements for a quality management system when an organization:

a) needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and

b) aims to enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.

All the requirements of ISO 9001 are generic and are intended to be applicable to any organization, regardless of its type or size, or the products and services it provides.

Source: www.iso.org/standard/62085.html

degree to which each member state is effectively implementing the mandatory IMO instruments to which it is signatory. IMSAS helps member states identify those who perform exceptionally in certain areas and may be a source from which other member states can learn best practices, as well as identify areas where improvement is needed. IMSAS audits focus on maritime safety and environmental protection programs and essential maritime governance functions, including enactment of national laws and regulations, as well as execution of flag, port state, and coastal state responsibilities. In accordance with the III Code, governments should establish a methodology to monitor and assess the effective implementation and enforcement of these mandatory instruments. Like the United States, many flag administrations have implemented an International Organization for Standardization (ISO) 9001-based quality management system to meet this requirement, which should in turn create readily available records and evidence of conformity with the III Code.

Every IMO member state must give force, via its national laws, regulations, policies, and procedures, to the mandatory IMO instruments to which it is a signatory. Depending on the legislative and administrative structure of each IMO member state, this translation of IMO regulations into law and regulation can be a protracted process. Maritime authorities within each nation must devote time and resources to accomplishing this task. In many instances, they may be in competition with other pressing issues before their national governments and legislative bodies. Although it is arguable that most maritime administrations can control the priorities of their national legislative bodies, implementation of the IMO instruments is a national responsibility and not just the function of an isolated entity within a government.

A flag state's responsibilities for ensuring that ships flying its flag are safe and environmentally compliant, is the cornerstone of IMO regulations. This is the basic principle from which all other IMO regulations have been developed. Having an effective inspection and survey program, subject to IMO regulations, is essential and remains the fundamental duty of each IMO member state. Even when inspection functions are delegated to competent third-party organizations, also called Recognized Organizations, ultimate responsibility for ensuring IMO compliance is properly verified remains with the member state. Member state engagement with, and understanding of, the activities of their third-party organizations is central to effective implementation of the IMO instruments, and therefore a focus of IMSAS audits.

Port state responsibilities include control of vessels not of the port state's flag, but which are in the ports or waters of a member state. IMO instruments allow them to verify that ships arriving in their ports and waters are in compliance. The IMO has established guidelines for port state control and IMO auditors verify that member states are operating their program in accordance with these guidelines. Port state responsibilities also include activities to prevent pollution by providing facilities for accepting and properly disposing of oil, sewage, garbage, and other waste from the ships that call on their ports.

The Coast Guard conducts port state control examinations of foreign vessels visiting the United States using a well-defined system that prioritizes examinations based on a variety of factors.

Coastal state responsibilities include that member states provide for the safety of ships and persons on or adjacent to their coastline. This includes search and rescue capability, aids to navigation and charting/hydrography for the coastal waters of the member state, among other things. Depending on the geography of the member state, the need for capability in this area varies greatly. For the safety of all shipping, it is incumbent of IMO members to be good stewards of implementing the flag, port state, and coastal state standards contained in the IMO mandatory instruments to which they are signatory.

Process-Based Management Systems

Process-based quality management systems have enabled organizations around the globe to implement complex requirements that facilitate commitment from the top most to the bottom most rung of the organizational ladder. They address the common disconnects that plague organizations, like working in silos, the lack of a feedback loop to management, and the lack of risk management. Process-based management systems work on the principle of the Plan-Do-Check-Act cycle. Each organization using this principle has to put a plan in place to achieve the mission they have set. At this stage, risks to the plan are identified and addressed. Once the plan is agreed upon, the required resources need to be obtained before the plan can be put into action. As the plan is implemented, checks are instituted through various means, like audits and inspections, to ensure the plan is progressing. Throughout the process, risks are monitored and actions taken where the risk levels are unacceptable. Finally, at the "act" stage, the system is reviewed and then action taken to re-plan, as necessary, to enable continual improvement of the system.

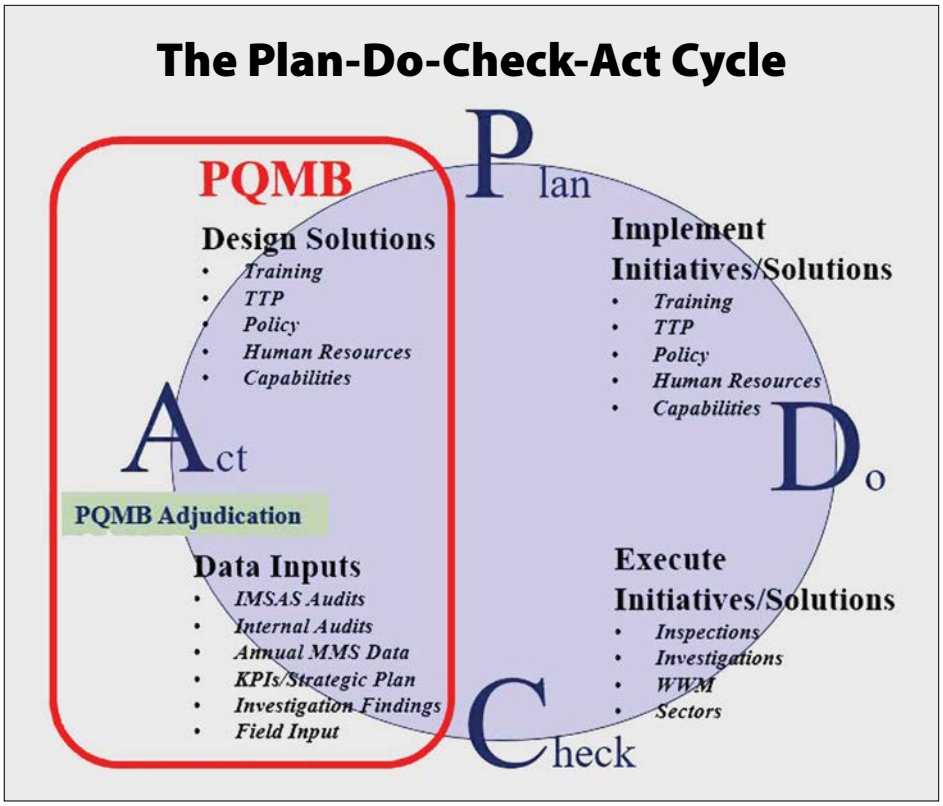
The ISO 9001 standard provides organizations with a framework for implementing a process-based quality management system. The intent of this standard is to enable organizations to consistently meet both customer and applicable statutory and/or regulatory requirements. In its 2015 revision, the most current, the organization encourages organizations to periodically assess the environment within which they operate and identify the relevant needs of stakeholders so that risks to the system may be identified and addressed in a timely fashion. These inputs also allow for better planning. Where organizations are looking for consistency in what they do through the use of process-based management systems, they may consider ISO 9001 rather than reinventing the wheel.

Often, organizations fail to deliver because the risks have not been assessed, the resources are inadequate, the leadership commitment is lacking, or there is a failure to adequately control processes. Revealed through member state audits, this holds true in the implementation of international instruments.

While many measures are being implemented nationally and globally to ensure maritime stewardship, numerous challenges abound. These include the increased use of exclusive economic zones, an increase in environmental standards (i.e. the global sulphur cap and ballast water management), budgetary constraints, and global trade growth. Member states cannot be solely relied upon to police their own waters without a view to their common maritime connection—global trade. Hence, another valuable aspect of using the ISO 9001 standard is that it enables the sharing of best practices across nations and within the various organizations responsible for enforcement of national policies. This truly enables IMSAS to fulfill the promise of identifying areas for improvement, sharing best practices, and taking corrective action to improve international performance.

The U.S. Coast Guard's Mission Management System

In 2005, IMO adopted resolutions that provide the framework to establish the Voluntary Member State Audit Scheme. This served as the catalyst for the Coast Guard's establishment of the Mission Management System (MMS), an ISO 9001:2015 process-based management system to ensure effective implementation of



The U.S. Coast Guard Prevention Quality Management Board reviews and adjudicates relevant data inputs and then designs and implements corrective actions as appropriate to ensure continual improvement. Coast Guard graphic

Monitoring quality system audits of Recognized Organizations is one aspect of the U.S. flag administrations governance responsibilities. Here John Hannon, one of the authors, observes the annual head office audit of the American Bureau of Shipping conducted by the British Standards Institute. Coast Guard photo

the III Code. In its infancy, MMS documented the core processes necessary for the implementation of mandatory IMO instruments, while initiating an audit regime to assess field unit operations. In an effort to identify areas for improvement, the Coast Guard volunteered to be audited by IMO in 2008.

While the Coast Guard's implementation of the MMS has made significant advancements since inception, there are also significant challenges, most of which stem from the sheer size and diversity of our nation and its maritime component. Coast Guard responsibilities in the vast U.S. marine transportation system cover a network of 25,000 miles of coastal and inland waters and rivers connected to the Atlantic, Pacific, and Gulf Coast. These waters include 361 ports, millions of vessels and users, the largest exclusive economic zone in the world, more than 50,000 aids to navigation buoys, and 20,000 bridges over navigable waterways, which the Coast Guard manages through 37 regional field offices and 12 Vessel Traffic Service centers. Because the Coast Guard serves as the flag state, port state, and coastal state administrator, the volume of policies, procedures, and guidance to govern this maritime realm is enormous. This creates challenges in communicating and implementing requirements throughout field offices, as well as receiving and resolving system nonconformities reported from field offices spread over a geographically immense area.

MMS balances this challenge by enabling consistency, efficiency, and continual improvement in the execution of laws and regulations, including those from international instruments to which we are signatory. Internal oversight of the MMS program is done through periodic checks and audits of units to assess their conformity to program requirements in accordance with published regulations and established policies and directives. The data from the system is periodically briefed to program leadership for visibility, awareness, and potential corrective action.

As a recent example of MMS continual improvement, when SS *El Faro* sank in October 2015, the Coast Guard recognized that it needed to improve oversight of its outsourced processes, including how it provided oversight of third-party organizations performing inspections on its behalf. This provided the impetus for expanding the implementation of MMS throughout the Prevention program at Coast Guard headquarters, and the establishment of the Prevention Quality Management Board that represents "top management," in ISO 9001 parlance.

Coast Guard leadership demonstrated a commitment to MMS by clearly identifying and adapting program priorities and goals, establishing key performance indicators, and using audit and assessment data to identify and correct system nonconformities. Through these investments in MMS, and continual improvement, the Coast Guard has significantly enhanced its ability to effectively manage and oversee the extremely complex and large-scale implementation of IMO instruments in the United States. Going forward, it is hoped that MMS will be completely integrated with all aspects of maritime governance in the United States, beyond the implementation of IMO instruments, and include responsibilities at the national, regional, and local levels with associated stakeholders and maritime industry partners.

About the authors:

CAPT Lee Boone was the Chief of the Investigations and Casualty Analysis Division at U.S. Coast Guard Headquarters at the time of this writing. He is a designated IMO IMSAS auditor, a past member of the U.S. Coast Guard Prevention Quality Management Board, and a certified ISO 9001:2015 auditor.

Mr. John Hannon is a federal civilian employee in the office of Commercial Vessel Compliance. He is a U.S. delegate to the International Maritime Organization Subcommittee for the Implementation of IMO Instruments (III) and is a lead auditor for the IMO audit scheme.

CDR Mike Reed led the Coast Guard Mission Management System Team from 2015-2019 and oversaw the creation and implementation of the Prevention Quality Management Board. He has completed four marine safety field tours and is an International Society for Performance Improvement (ISPI) Certified Performance Technologist. In his next role, he will serve as deputy sector commander in Jacksonville, Florida.

Mr. Julius DeSilva leads operations at Quality Management International, Inc. (QMII). He is a former seagoing officer with extensive experience on supertankers and a senior executive with 20 years of industry experience. He is well versed in the disciplines of maritime safety/security, aerospace, environmental, supply chain security, and quality standards. He teaches, consults and audits in these disciplines, including designated person, problem solving, conflict management and awareness leaders courses.

Combating Networks

The Coast Guard's role in confronting threats in the Western Hemisphere

by LCDR Pat McMahon
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U.S. Coast Guard

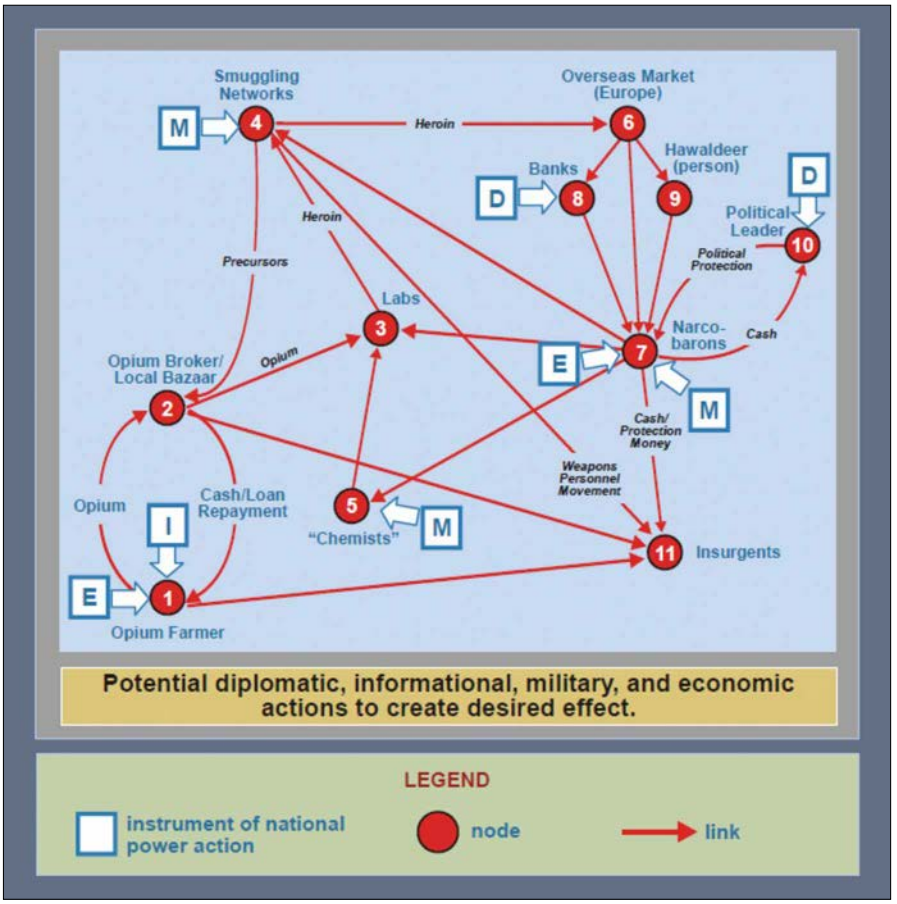
In 2014, the Coast Guard released the Western Hemisphere Strategy as a 10-year framework to confront growing threats in this dynamic region. The strategy provides broad operational guidance through three strategic priorities—combating networks, securing borders, and safeguarding commerce. Four years after implementation, transnational criminal organizations (TCOs) continue to destabilize the region with unprecedented levels of gang violence, political corruption, and drug trafficking.[1]

Given the complexity involved with this problem set, combating networks presents the most difficult challenge of the three Western Hemisphere Strategy priorities. The evolving threat of illicit networks calls for a whole of government approach, in which the Coast Guard plays a vital role. The organization understands that it cannot combat networks alone, so it expanded partnerships over the past four years to increase intelligence-driven operations and unified efforts. The thrust of these initiatives is focused on counterdrug operations in the Western Hemisphere. While drug interdictions produce valuable investigations, prosecutions, and intelligence, future iterations of the Western Hemisphere Strategy will call for the Coast Guard to take on a larger role leading joint, interagency, and international operations. These operations will focus less on cocaine removal and more on addressing the primary threat—the network itself.

What are networks anyway?

Networks entered the Coast Guard lexicon by way of the Western Hemisphere Strategy, yet many struggle with the connection between combating networks and everyday operations. To comprehend how the Coast Guard combats networks, one must first understand what a network is. At its most fundamental level, a network is a complex system of components that form an interconnected whole. Networks primarily consist of only two components—nodes and links. Nodes are typically people, places, or things, while links are the physical, functional, or behavioral relationships that connect the nodes together. Networks can also include cells, subordinate groups of nodes, and links that perform specific activities, processes, or capabilities within the system.

TCOs represent a network because they contain nodes



Network diagram from Joint Publication 2-01.3, Joint Intelligence Preparation of the Operational Environment.

A Coast Guardsman oversees the offload of a pallet containing an estimated 18.5 tons of cocaine from the Coast Guard Cutter *James* in Port Everglades, Florida, in November 2018. Seized in international waters in the Eastern Pacific, the drugs have an estimated value of $495 million wholesale. Coast Guard photo by Petty Officer 3rd Class Brandon Murray

such as illegal drug producers (people), links such as maritime smuggling vectors (functional relationships), and cells such as money launderers (specific capabilities).

A cursory look at maritime history shows that TCOs are not a new phenomenon. Since the age of sail, networks facilitated licit and illicit connections through maritime trade, exploration, and piracy. The major difference between networks of antiquity and TCOs of today is the speed, reach, and anonymity that modern telecommunications and globalization provide for malicious actors. Moreover, the growth of illicit networks increases the number of nodes and links that interact with each other, multiplying the complexity involved with combating them. The one-dimensional, ocean-going networks of the revenue cutter period have evolved into multidimensional, all-domain networks that exceed the modern Coast Guard's ability to combat them alone. TCOs operate in the shadows of lawful commerce mechanisms, employing the same global transportation, communication, and payment methods to supply international demand for illegal goods and services. The current estimated value of illicit activities involving illegal drugs, human trafficking, excised goods, environmental crimes, and counterfeiting is $870 billion a year, a $100 billion increase from four years ago.[2] While drug trafficking is currently the most lucrative activity for TCOs at an estimated value of $320 billion per year, other activities such as counterfeiting account for $250 billion a year, helping TCOs diversify their portfolio to hedge against actions like drug legalization or enforcement crack downs. Based on this business model, focusing enforcement efforts on one illegal commodity will not dismantle an entire network that traffics a wide variety of illicit goods and services.

What threats do illicit networks present?

The main threat posed by illicit networks is the erosion of the rules-based international order that provides the foundation for national sovereignty, rule of law, and international security cooperation. The global order that we know today began with the Treaty of Westphalia in 1648, which established the modern state system, granting territorial sovereignty and the right of self-determination to all nations, regardless of their military or economic strength. The Westphalian system was reinforced by post-World War II reconstruction efforts, which created

the United Nations and its specialized agencies like the World Bank, International Maritime Organization, and Office on Drugs and Crime. These institutions built an international framework from which countries could collaborate and mitigate threats that transcended national borders. This rules-based international order is not effective, however, if participating nation states lack the moral authority and institutional capacity to maintain legitimate governance over their citizens. Herein lies the core threat of illicit networks: TCOs leverage their economic might on poorer nations to weaken state legitimacy through political corruption, government infiltration, and intimidation of law enforcement. In extreme cases, TCOs fund public services such as education, health care, and even trash collection to further degrade public trust in their country's ability to fulfill essential needs. These methods create fragile governments that in turn become weak links in the international rule-based system, and diminish the global community's effectiveness at combating transnational threats.

A secondary threat of illicit networks comes from the convergence of criminal, terrorist, and insurgent actors who co-op safe havens, black markets, and lines of communication to meet their respective objectives. The cost of illegal narcotics and human smuggling was historically borne by the individuals involved in the trade themselves, but the emergence of transnational terrorism makes innocent citizens vulnerable to attack through porous borders. Smuggling routes—primarily used by TCOs for trafficking narcotics and humans—can also facilitate transnational delivery of a dirty bomb or a suicide bomber. This threat intensifies when one considers the vast number of commercial vessels that enter American ports every day without an inspection or security boarding. While the Department of Homeland Security (DHS) employs sound protective measures by screening containers in the homeland and abroad, the scale of maritime commerce—both legitimate and illegitimate—requires the agency to assume a calculated risk because it cannot screen, board, or inspect every vessel calling on U.S. ports. This issue is compounded by the ability of illicit networks operating in the Western Hemisphere to access the maritime transportation system through fragile nation states who are unable to employ effective security measures in their own port facilities. The root enabler then, is not the illicit products that TCOs traffic, but the networked capabilities they have in legitimate and illegitimate commerce alike.

Why are networks so hard to combat?

Given the serious threat illicit networks present in the current operational environment, one might ponder how TCOs continue successful operations against a global power like the United States. The answer to this question is best explained through the lens of system theory. System theory suggests that the world is generally comprised of two types of systems—structurally complex systems and interactively complex systems.[3]

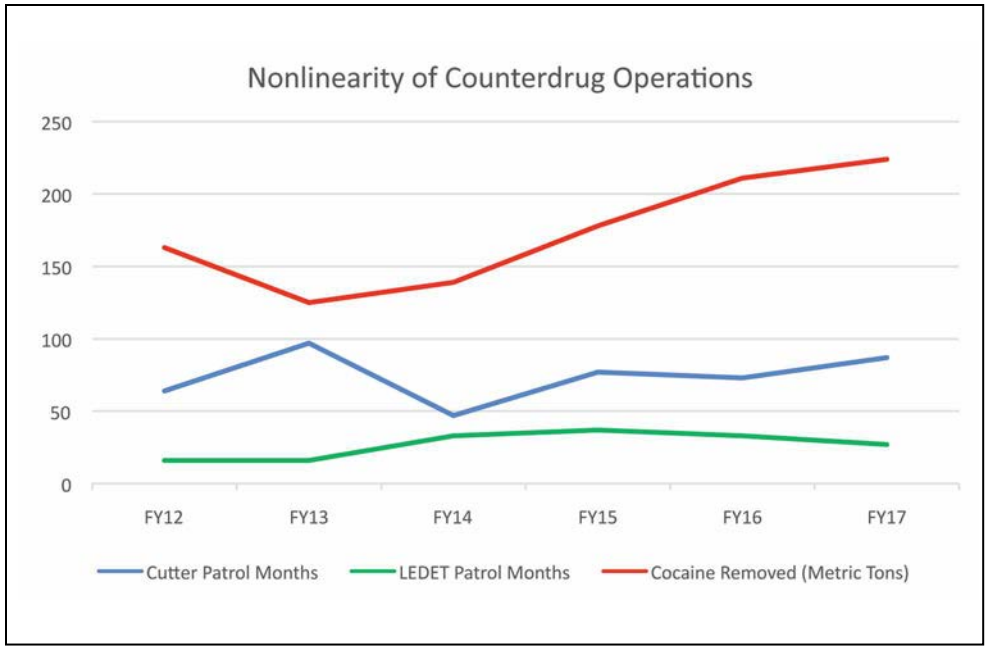
Structurally complex systems consist of many components, but are designed to produce orderly, predictable outcomes. Engineered equipment—boats, aircraft, and firearms—represent structurally complex systems because they contain multiple parts that work in unison to perform a repeatable function. By contrast, interactively complex systems are less predictable because their parts act independently, changing and adapting as they interact with each other over time and space. Weather is one example of an interactively complex system. Meteorologists try to model weather patterns, yet seldom predict it accurately because of the complex interaction between its components—wind, temperature, humidity,

CAPT Owen Gibbons, commanding officer of Coast Guard Training Center Cape May, New Jersey, congratulates LT Yacob Tri Raharjo on achieving the top score for his group on the training center's weapons simulator. As part of an international training opportunity sponsored by the Coast Guard Training Center in Yorktown, Virginia, Raharjo, an officer in the Indonesian navy, and his classmates represent 27 different countries as part of an international training opportunity. Coast Guard photo by Chief Warrant Officer John Edwards

precipitation, etc. Illicit networks also represent interactively complex systems because their components exercise free will and freedom of maneuver, making it extremely difficult to predict future behavior.

One can also think of structurally complex and interactively complex systems as linear and nonlinear systems. A linear system produces output that is proportional to input, which forms a straight line when represented on a graph. Nonlinear systems generate output not proportional to input and do not form a straight line when represented on a graph. In other words, linear systems are relatively predictable while nonlinear systems are not. The Coast Guard cocaine removal rate illustrates nonlinearity because it demonstrates a counterintuitive relationship between the amount of Coast Guard patrol activity and the quantity of cocaine removed.

For example, in 2013, the Coast Guard increased its counterdrug patrol hours by approximately 53 percent, but cocaine removal decreased by about 30 percent from the year before.[4] In 2016, the Coast Guard experienced a record-breaking year for cocaine removal despite a reduction in Cutter and Law Enforcement Detachment deployment days. These statistics represent the behavior of a nonlinear, interactively complex system because input—patrol hours—are not proportional to output—cocaine removal. This means the annual number of drug interdictions, or the tonnage of drugs removed, is not predictable based on the number of assets assigned to the mission. Therefore, the Coast Guard cannot quantify with any certainty what impact counterdrug patrols will have on interdiction rates, or on illicit networks that traffic them.



Graph courtesy of Coast Guard LCDR Pat McMahon

How does the Coast Guard Combat Networks?

The Coast Guard does not combat networks unilaterally because it lacks the authority, jurisdiction, capability, and capacity to do so. Counter network operations transcend the abilities of any agency because no one component operates in the sea, air, land, space, and cyber domains with global jurisdiction. The highly dynamic nature of combating threat networks requires a nation state or an international coalition to simultaneously employ all instruments of power across national borders, multiple functions, and all domains. When the Coast Guard says its combating networks, what it really means is that it is targeting individual nodes and links within an interconnected system, not an entire network itself. This is an important point of clarification, because unsynchronized operations that target nodes or links are less effective than a whole of government approach that applies diplomatic, information, military, economic, finance, intelligence, and law enforcement (DIME-FIL) efforts to attack the network holistically. Uncoordinated actions create seams and gaps that agile, adaptive networks can exploit to avoid dismantlement.

The Coast Guard targets specific nodes and links through direct and indirect methods, with the majority of asset allocation supporting the direct method, primarily executed through legacy Coast Guard missions like drug interdiction. Counterdrug operations are conducted by maritime patrol forces and deployable specialized forces who deploy off the shores of Central and South America to patrol for transnational threats at their source. Joint Interagency Task Force-South leads the majority of these operations, supported by Coast Guard command and staff personnel, operational forces, and tactical control. Coast Guard performance summary reports show the Coast Guard has not met its fiscal year goal of removing 11.5–13.9 percent of cocaine flow since the release of the Western Hemisphere Strategy four years ago.[5] This is not surprising given the nonlinearity of counter drug operations, but it reinforces the need for the Coast Guard to measure its effectiveness against TCOs with a metric that represents its impact on the entire network, not just cocaine removal. A removal rate of less than 12 percent does not look like success when viewed in isolation.

Targeted interdictions that fulfill maritime intelligence and law enforcement efforts in a DIME-FIL strategy, however, provide unique value to a unified effort. Cocaine removal alone will not dismantle a TCO, but when counterdrug missions are synchronized within a whole of government operation, drug interdiction becomes decisive.

Coast Guard Petty Officer 1st Class Troy King demonstrates a jugular notch pressure point on Seaman Garrett Downey as part of law enforcement training onboard the Coast Guard Cutter *Forward* during a 2011 Africa Partnership Station mission. Coast Guard photo by Petty Officer 2nd Class Annie Elis

The Coast Guard's indirect method of combating networks involves regional engagement plans throughout the Western Hemisphere. These operations are less asset-intensive, but can have a large impact when they support the diplomatic, information, and military requirements of a country or theater plan. Engagement events typically involve non-legacy missions like technical assistance visits, professional exchange programs, and international summits or symposiums. The impact of foreign engagement initiatives proves difficult to quantify because they do not always produce tangible metrics. Nevertheless, engagement efforts support maritime governance by reinforcing the rule-based international order that provides security and prosperity in the Western Hemisphere.

For example, when the Coast Guard transfers a decommissioned cutter to a foreign country and deploys a unit to train that nation how to effectively enforce its fisheries laws, the Coast Guard is improving rule of law in that country. This improves that country's legitimate seafood economy and increases government credibility. When the Coast Guard and other government agencies have limited engagement with our partner nations, TCOs fill the void and manipulate national governments to their advantage through corruption and intimidation. The world's premier coast guard has the potential to serve as a significant countermeasure against illicit networks who undermine the authority of governments where they operate. But like every other military branch or federal agency, annual budgets and asset capacity severely limit an organization's foreign engagement efforts unless it becomes a priority. The key to any engagement plan is ensuring that its operations plug into an overarching whole of government approach. The Coast Guard's humanitarian, regulatory, and law enforcement credentials grant the service access to maritime jurisdictions in which the United States Navy and foreign navies are not welcomed, at least not in the same capacity. That makes the Coast Guard a critical asset for engagement plans with maritime nations who are effectively crippled by the strength of networked TCOs.

What is the Way Ahead?

Four years into the 10-year Western Hemisphere Strategy and it is clear the Coast Guard will continue to combat networks for decades to come. With that said, the service has established a solid foundation for confronting the nonlinear, interactively complex threat by modeling its strategy around one concept: It takes a network to defeat a network. Retired Army General Stanley McChrystal in his *Foreign Policy* article "It Takes a Network," and his book *Team of Teams,* describes the concept as a need for friendly forces to match the knowledge, speed, precision, and unity of effort of the threat networks they combat.[6] In other words, TCOs operate at a continuous advantage if friendly forces do not develop nimble networks of their own. The Coast Guard operationalized this concept over the past four years by growing a comprehensive set of networks in the form of joint, interagency, and international partnerships ranging from operational joint task forces to regional and international planning summits. These friendly networks facilitate information sharing and mission coordination at an operational tempo better suited for combating networks. One good example

of a successful friendly network is the DHS Homeland Criminal Organization Target (HOMECORT) process, which identifies top threat networks, leads national coordination, and executes interagency operations that target entire networks for maximum impact. Most importantly, HOMECORT allows participating agencies to record their efforts with a network-centric metric. In 2017, DHS reported that the HOMECORT process dismantled 11 of 14 TCOs targeted that year, with the other three cases still under development.[7] This type of statistic rewards DHS components for contributing to department-level missions that target the entire network, as opposed to individual nodes or links with little or no impact. Absent collective metrics, components resort to historic measures of effectiveness that promote agency relevance, not its contribution to interagency operations.

While department-level statistic sharing is a positive development, the Coast Guard has always acknowledged that maritime operations is a team sport that requires support from multiple federal agencies, coalition naval forces, and bi-lateral agreements. With that sense of partnership, developed over decades of interagency experience, the Coast Guard is postured to serve as a champion of network-centric processes such as HOMECORT. Going forward, the service could expand its involvement or develop its own initiatives for developing metrics that reflect collective impacts on specific networks. The organization's current strategy for combating networks follows a "Team of Teams" approach, but is still executed upon a legacy counterdrug paradigm that places a premium on cocaine seizures. A more evolved approach puts the premium on the number of networks degraded or dismantled, making drug removal a by-product, not the priority. The difference between the two approaches is nuanced, yet important. This type of transition, or even cultural shift, presents a win-win scenario for the Coast Guard.

The first win is the assurance that the Coast Guard is combating networks with the fundamental understanding that nonlinear, interactively complex systems cannot be dismantled by targeting one node or link. This combined with the fact that TCOs are resilient to everything but direct and indirect actions that systemically leverage all instruments of government power to dismantle the entire network. The second win from an evolved approach is that the Coast Guard does not need to expend finite maritime patrol forces and deployable specialized resources on counterdrug operations for the singular purpose of interdicting as much illegal narcotics as possible. Rather, resource allocations would be based on the most effective support options for combined, network-centric operations. In some cases, the best supportability may incorporate the use of more Coast Guard assets for indirect mission sets. Either way, Coast Guard resource assignment should always get after the primary threat—the network itself—not just one of the many commodities TCOs smuggle.

Conclusion

Illicit networks are not new to the maritime domain, but recent technological advances such as the internet, satellite communications, and Global Positioning System have leveled the playing field between global powers and non-state actors. TCOs have flourished by trafficking illegal products like cocaine, but the strength of TCOs is derived from the networks they operate within, not any one good or service they provide. As a result, the Coast Guard, as member of a whole of government combined with a "Team of Teams" effort, must continuously strive to ensure its operations are explicitly focused on supporting efforts that dismantle entire networks, not individual nodes or links. These evolving mission requirements present an opportunity for the Coast Guard to assume a new leadership role that synchronizes joint, interagency, and international efforts to combat networks in the Western Hemisphere. It is the only national asset that encompasses military, federal, and intelligence capabilities. These unique authorities and capabilities enable it to bridge gaps other military and federal services cannot, making the Coast Guard uniquely positioned to serve in a leadership role against TCOs and other networked threats.

About the author:

LCDR Pat McMahon is an operations ashore response officer with 21 years of combined service in the United States Coast Guard and Marine Corps. He is a 2018 graduate of the Marine Corps Command and Staff College and a Marine Corps University Gray Scholar.

Endnotes:

1. Combating Transnational Criminal Threats in the Western Hemisphere –House of Representatives, Subcommittee on the Western Hemisphere, Committee on Foreign Affairs: https://foreignpolicy.com/2011/02/21/it-takes-a-network/
2. United Nations Office on Drugs and Crime: www.unodc.org/unodc/index.html?ref=menutop
3. John F. Schmitt, "Command and (Out of) Control: The Military Implications of Complexity Theory," in *Complexity, Global Politics, and National Security*, ed. David S. Alberts and Thomas J. Czerwinski (Washington: National Defense University, June, 1997), 234
4. OIG-17-33 – Review of U.S. Coast Guard's Fiscal Year 2016 Drug Control Performance Summary Report: www.oig.dhs.gov/sites/default/files/assets/2017/OIG-17-33-Feb17.pdf
5. OIG-18-43–Review of U.S. Coast Guard's Fiscal Year 2017 Drug Control Performance Summary Report: www.oig.dhs.gov/sites/default/files/assets/2018-02/OIG-18-43-Jan18.pdf
6. Stanley A. McChrystal, "It Takes a Network." https://foreignpolicy.com/2011/02/21/it-takes-a-network/
7. Written testimony of ICE Janice Ayala, Director of DHS Joint Task Force for Investigations for a House Committee on Homeland Security, Subcommittee on Border and Maritime Security hearing titled "Defeating a Sophisticated and Dangerous Adversary: Are the New Border Security Task Forces the Right Approach?": www.dhs.gov/news/2017/04/04/written-testimony-dhs-jtf-investigations-director-house-homeland-security

The Role of the Regulator

Supporting ballast water discharge standard compliance

by LT Jacob Baldassini
Staff Engineer
U.S. Coast Guard Marine Safety Center

LT James Carter
Staff Engineer
U.S. Coast Guard Marine Safety Center

LCDR Maria Wiener
Staff Engineer
U.S. Coast Guard Marine Safety Center

In the recently issued Maritime Commerce Strategic Outlook,[1] the commandant emphasized that facilitating lawful trade while protecting the environment is a priority that allows the Coast Guard to advance American prosperity.

The fast changing world of ballast water management provides excellent opportunities to study, in real time, how regulators shape their efforts to support enforcement authorities in the efficient flow of commerce.

Background

Ballast water is necessary for a ship's stability and needs to be taken on and/or discharged during cargo operations. However, it can also carry invasive species and disease-causing bacteria, like zebra mussels and cholera, respectively. The U.S. Fish and Wildlife Service estimates that invasive species cause more than $120 billion in damages in the United States each year. Ballast water can be treated to kill those organisms, but a ballast water management system (BWMS) is challenging to integrate into shipboard operations. When integrating that system affects cargo transfer rates, the resulting delays are extremely costly and disruptive. That potential impact makes ballast water management a highly complex issue, as every aspect has economic, political, and technical considerations.

The International Maritime Organization (IMO) adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments, also known as the Ballast Water Management Convention, in 2004. The United States is not signatory to the Ballast Water Management Convention. Instead, it regulates ballast water in accordance with regulations published in 2012. The U.S. discharge standard uses the same organism concentration limits as the IMO convention, but the U.S. type approval program[2] differs from the IMO approval process, so additional testing must be conducted for a system that has been type approved under the IMO convention to receive U.S. type approval. All ships discharging ballast water into U.S. waters must use a U.S. type approved system no later than their particular mandatory compliance date.

Currently, it is estimated that more than 15,000 vessels are affected by the United States' final rule. Installing a type approved BWMS generally costs between $1 million and $2 million. Fortunately, water treatment is a mature science and many companies already operate in that space. However, deploying these systems in the marine environment is not an insignificant problem. These systems need to be purpose-built for shipboard operations, so ballast water management requirements have essentially created a new market.

Coast Guard Roles and Responsibilities

With regard to ballast water management, Coast Guard

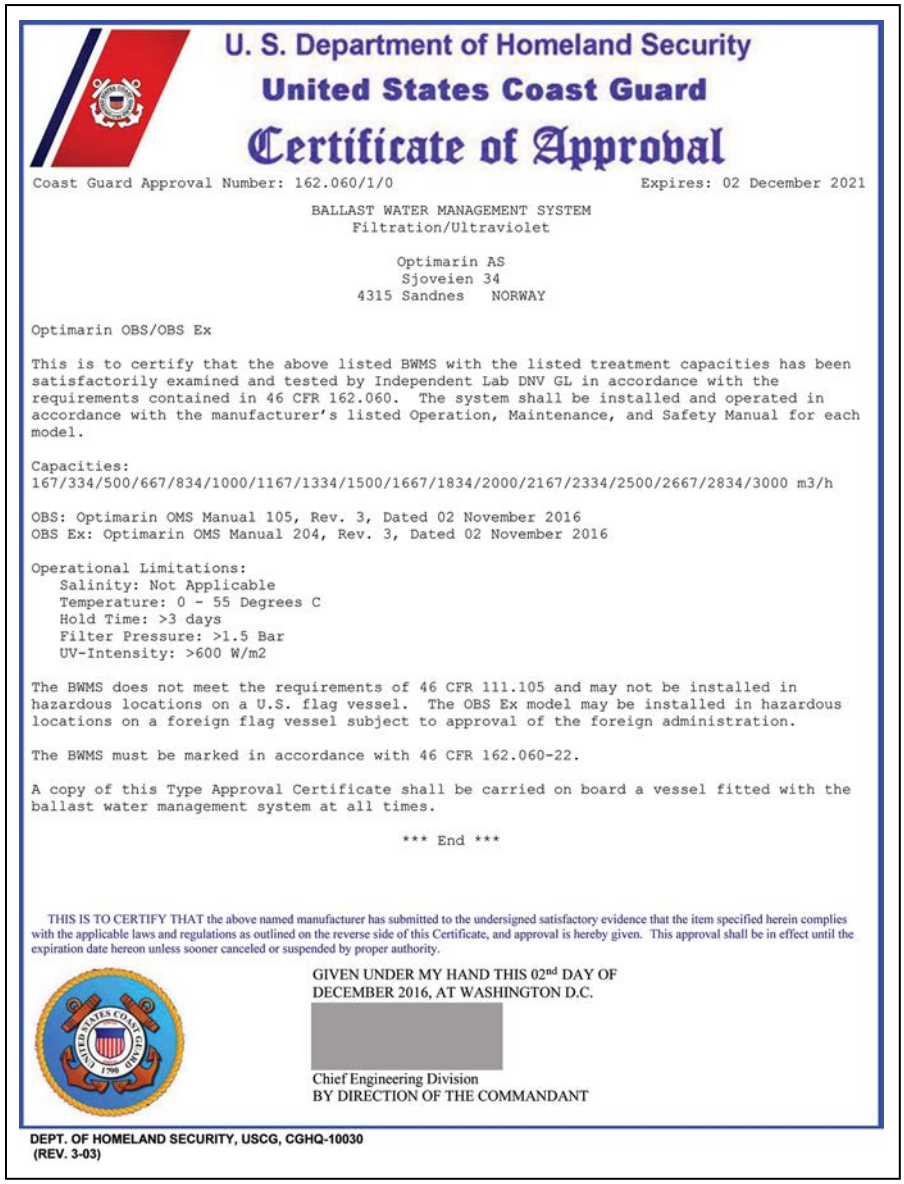
An example of a BWMS. Photo courtesy of Cathelco Limited

responsibilities are spread across several offices, all sharing the common goal of supporting the larger water regulation program. The headquarters office of Operating and Environmental Standards (OES), which develops standards regulating the maritime industry, is the program manager for the ballast water regulations, as well as overseeing the Independent Laboratory (IL) acceptance program. The Marine Safety Center's (MSC) responsibility is the type approval of these systems. The Office of Commercial Vessel Compliance (CVC), which develops and maintains policy and standards for the prevention activities of the Coast Guard, provides guidance to field units responsible for enforcing the water discharge standard.

To get a system type approved, a manufacturer must contract an IL to perform testing and complete a type approval application. Currently, the Coast Guard has six active organizations for this purpose. After testing is completed, the IL submits a report with an application for type approval to the MSC. If the application meets the regulatory requirements, MSC will issue a type approval certificate to the manufacturer. The regulations allow the MSC to approve alternatives to impractical or inapplicable requirements when the alternative can be shown to be equivalent. Such requests are extremely common, as the testing specification was originally developed as a scientific protocol, which was later incorporated by reference when the regulations were written.

To ensure transparency across a large number of stakeholders, MSC makes BWMS type approval certificates publically available. Although details of all current type approval certificates are available on the Coast Guard Maritime Information Exchange (CGMIX), copies of every certificate ever issued are posted on MSC's website,[3] to assist compliance officers preparing to board a vessel with a system approved under an older certificate that is no longer listed on CGMIX. Every application received, and every certificate issued, is announced with a post on the *Maritime Commons*[4] blog. *Maritime Commons* is also used to disseminate any ballast water guidance intended for all stakeholders.

Each system's documentation contains the manufacturer's stated system requirements and operational limitations, which are evaluated as part of the IL test reports included in the type approval application. MSC states major operational limitations on the type approval certificates to make it clear to industry, the general public, and enforcement authorities how compliant operations are defined for each individual system. However, MSC does not publicize the test reports with the type approval certificates, despite many requests for this information. Direct communication between shipowner and manufacturer is the best way to learn how to integrate a BWMS into a vessel's operations, and reading reports written by a third party for the Coast Guard is not an adequate substitute. Therefore, the content of type approval certificates supports the



U. S. Department of Homeland Security
United States Coast Guard

Certificate of Approval

Coast Guard Approval Number: 162.060/1/0 Expires: 02 December 2021

BALLAST WATER MANAGEMENT SYSTEM
Filtration/Ultraviolet

Optimarin AS
Sjoveien 34
4315 Sandnes NORWAY

Optimarin OBS/OBS Ex

This is to certify that the above listed BWMS with the listed treatment capacities has been satisfactorily examined and tested by Independent Lab DNV GL in accordance with the requirements contained in 46 CFR 162.060. The system shall be installed and operated in accordance with the manufacturer's listed Operation, Maintenance, and Safety Manual for each model.

Capacities:
167/334/500/667/834/1000/1167/1334/1500/1667/1834/2000/2167/2334/2500/2667/2834/3000 m3/h

OBS: Optimarin OMS Manual 105, Rev. 3, Dated 02 November 2016
OBS Ex: Optimarin OMS Manual 204, Rev. 3, Dated 02 November 2016

Operational Limitations:
Salinity: Not Applicable
Temperature: 0 - 55 Degrees C
Hold Time: >3 days
Filter Pressure: >1.5 Bar
UV-Intensity: >600 W/m2

The BWMS does not meet the requirements of 46 CFR 111.105 and may not be installed in hazardous locations on a U.S. flag vessel. The OBS Ex model may be installed in hazardous locations on a foreign flag vessel subject to approval of the foreign administration.

The BWMS must be marked in accordance with 46 CFR 162.060-22.

A copy of this Type Approval Certificate shall be carried on board a vessel fitted with the ballast water management system at all times.

*** End ***

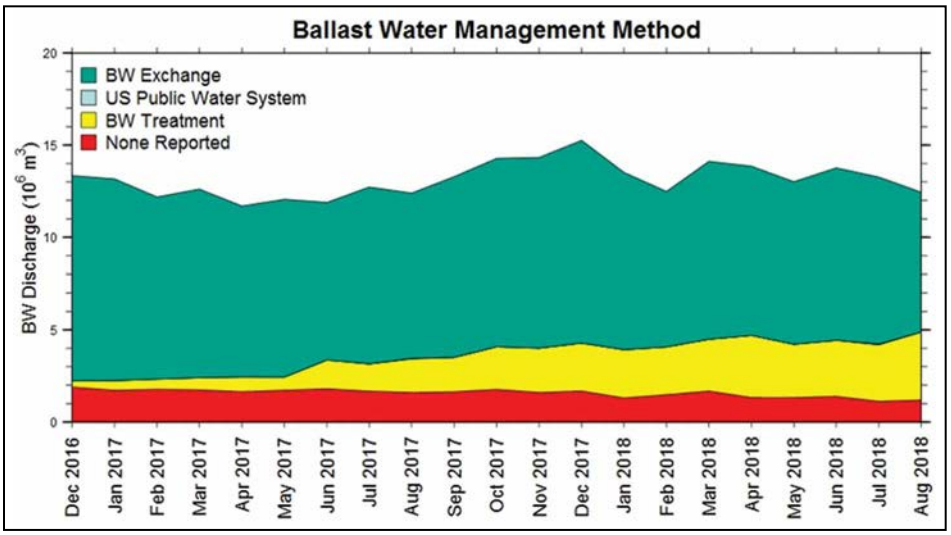
THIS IS TO CERTIFY THAT the above named manufacturer has submitted to the undersigned satisfactory evidence that the item specified herein complies with the applicable laws and regulations as outlined on the reverse side of this Certificate, and approval is hereby given. This approval shall be in effect until the expiration date hereon unless sooner canceled or suspended by proper authority.

GIVEN UNDER MY HAND THIS 02nd DAY OF DECEMBER 2016, AT WASHINGTON D.C.

Chief Engineering Division
BY DIRECTION OF THE COMMANDANT

DEPT. OF HOMELAND SECURITY, USCG, CGHQ-10030
(REV. 3-03)

An example of a Coast Guard type approval certificate. Courtesy of the Marine Safety Center



Ballast water discharges categorized by treatment method. Courtesy of the Office of Operating and Environmental Standards

overall health of the program through the information included and the information omitted.

Operators of ships entering U.S. waters are required to submit extensive ballast water information. The National Ballast Information Clearinghouse (NBIC) collects that data as part of a joint program with OES, so it is available to the Coast Guard. In 2017, more than 122 million cubic meters—almost half of the total ballast water discharged into U.S. waters—was from overseas sources. Ballast water management compliance is now being enforced by Coast Guard field units during domestic vessel inspections and Port State Control examinations. Between 2012 and 2017, the Coast Guard issued nearly 700 vessel deficiencies for ballast-related incidents of noncompliance. The remedial actions for these deficiencies varied based on the circumstances, ranging from letters of warning to civil penalties. Between 2016 and 2018, the Coast Guard issued 16 letters of warning, 26 notices of violation, and 17 civil penalties for ballast water noncompliance.

As the United States is in the compliance phase of implementing the regulations, CVC is assisting field units with questions about how to interpret the regulations. They also answer questions from vessel owners, operators, charters, and other industry personnel. They are actively educating field units on how to read ballast water reports and the differences between type-approved BWMSs and older systems whose use is permitted under the Alternate Management System (AMS) bridging program. They also provide policy guidance, such as Policy Letter 18-02,[5] which addresses topics such as contingency measures for vessels with inoperative systems.

Outcomes

Through the Coast Guard's unified efforts, the ballast water program is pushing forward. Coast Guard personnel from MSC, OES, and CVC respond to requests from industry, and attend conferences to publicize new guidance and solicit feedback from key stakeholders. As more vessels install type-approved BWMSs, progressively less untreated water is being discharged as vessels reach their mandatory compliance dates and field units identify noncompliant, untreated discharges. All of this means the ballast water program is succeeding in protecting the United States from the economic, environmental, and public health risks posed by the threat of invasive species and disease-causing bacteria. The Coast Guard will continue to seek an end state where all stakeholders confidently operate in compliance with well-known, uniform, and consistently enforced Coast Guard standards.

About the authors:

LT Jacob Baldassini has served in the U.S. Coast Guard for 13 years. Currently, he is serving in the Marine Safety Center in Washington, D.C., where he reviews type approval applications submitted by independent laboratories on behalf of BWMS manufacturers. He graduated from the U.S. Coast Guard Academy with a bachelor of science in electrical engineering and operations research. Before joining the Marine Safety Center, he earned a master of science in electrical engineering from the University of Washington.

LCDR Maria Wiener has served in the U.S. Coast Guard for 11 years, and is currently serving in the Marine Safety Center in Washington, D.C., where she reviews type approval applications submitted by independent laboratories on behalf of BWMS manufacturers. She graduated from the U.S. Merchant Marine Academy with a bachelor of science in logistics and intermodal transportation. Before joining the Marine Safety Center, she earned a master of science in industrial engineering from the University of Wisconsin-Milwaukee.

LT James Carter has served in the U.S. Coast guard for 11 years, and is currently a mechanical engineer in the machinery branch at the Marine Safety Center in Washington, D.C., performing plan reviews. He graduated from the U.S. Coast Guard Academy, with a bachelor of science in mechanical engineering. Before joining the Marine Safety Center, he earned a master of science in mechanical engineering from the University of Washington.

Endnotes:

1. media.defense.gov/2018/Oct/05/2002049100/-1/-1/1/USCG%20MARITIME%20COMMERCE%20STRATEGIC%20OUTLOOK-RELEASABLE.PDF
2. Type approval is a specialized certification for critical shipboard equipment.
3. www.dco.uscg.mil/msc/Ballast-Water/TACs/
4. mariners.coastguard.dodlive.mil/
5. www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/CG-CVC/Policy%20Letters/2018/CG-CVC_pol18-02.pdf

Compliance and Enforcement

National Fisheries Observer Program

Bridging the gaps between the fishing industry, fisheries management, and conservation

by LT Henry B. Ward
Office of Maritime Law Enforcement
Living Marine Resources Enforcement Division
U.S. Coast Guard

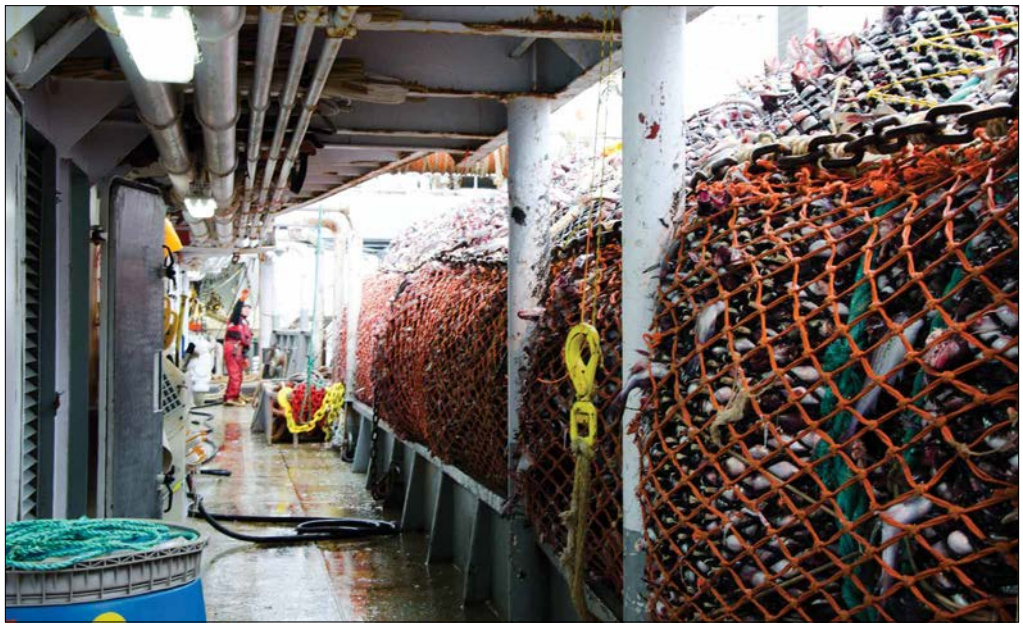
Less than half a century ago, an unprecedented act was passed with the goal of providing a principal governance structure for marine fisheries in the United States. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976 (16 USC 1862) spurred modern fisheries management and the National Observer Program.

Despite having undergone several revisions since then, fisheries observers have always been an important aspect of managing U.S. fisheries. Specifically, Section 303 of the MSA gives fishery management councils authority to require fisheries observers to be aboard certain fishing vessels to collect data necessary for the conservation and management of the fisheries. Additionally, Section 403 lays out guidelines for carrying observers and how they shall be trained. Notably, the MSA states these employees shall be considered federal employees when on a vessel under contract and, therefore, carry responsibilities under the MSA, Marine Mammal Protection Act (MMPA), and Endangered Species Act (ESA).

The National Observer Program mission statement is:

… to provide a formalized mechanism for NOAA fisheries to address observer issues of national importance and to develop policies and procedures to ensure that NOAA fisheries observers and observer programs are fully supported. The policies must reflect the diverse needs of regional observer programs while enhancing data quality and achieving consistency in key areas of national importance.

Currently, there are 891 privately contracted fisheries observers nationwide. These individuals are highly trained professional biologists with at least a bachelor's degree in a natural science. Prior to employment, and annually thereafter, these employees attended rigorous regional training including regional fish identification and regulation tests, gear checks/replacement, and lectures pertaining to applicable fisheries management plans. As of 2018, current observers totaled an average of 73,743 annual days at sea aboard commercial fishing vessels. Not only are fishery observers employed aboard vessels for species identification, geospatial catch data, and bycatch data, but shoreside monitors are employed to ensure accurate landing



A large pelagic trawl catcher vessel in the North Pacific showing cod-end on deck. Photo courtesy of Henry B. Ward

An observer for the West Coast Groundfish Catch Shares program, Sean Sullivan, records catch data and takes weights and measures of bycatch after a haul. Photo courtesy of Henry B. Ward

data and accountability. The primary function of the fishery observer is to support research, analysis, and management activities of fish stock sustainability and the effectiveness of the regional fisheries management plans.

Observers are employed by non-government affiliated companies to reduce conflict of interest and increase observer safety. Essentially, this allows the observer to remain focused on data collection alone while allowing NOAA Fisheries and the regional fishery management councils to collect and analyze the data for management decisions and enforcement actions. While on board a fishing vessel, the observer is required to collect data regarding retained catch, discarded bycatch, location, date, and other species interaction data per haul back or fishing activity. They may also be required to verify at-sea flow scales and video monitoring systems aboard the larger catcher/processor vessels. Shoreside observers verify landing weights by species, verify scales, and submit the data to the authoritative management entity. Both at-sea and shoreside observers are required to upload their findings to databases maintained by regional NOAA offices for quality checks and assurance within three days of fishing trip completion. Additionally, prior to getting underway, the observer is required to conduct checks of the vessel's commercial fishing vessel safety (CFVS) status. An observer is not allowed to depart for a trip unless this inspection has been completed, found to be in compliance, and forwarded to the regional NOAA office.

In addition to their duties as data collectors, observers are also required to document and report marine pollution, ESA, and MMPA violations as well as sightings of and encounters with marine species of interest or importance. While the observer takes no enforcement action on the fishing vessel's legal and illegal activities, the

Courtesy of National Oceanic and Atmospheric Administration

data collected and submitted has the potential to cause NOAA to take enforcement action to include fines, closures, and/or quota overage induced trip cancellations.

As of late, fisheries observer safety has been at the forefront of discussions for both the National Observer Program Advisory Team and Safety and Advisory Committee. These groups work with program staff to identify issues of national concern to observers and observer programs, recommend and establish priorities for research, and support information collection and program implementation. Above all, their aim is to ensure safe and professional working conditions for observers. As a federal law enforcement agency, the Coast Guard's primary interaction with observers occurs underway while conducting domestic fisheries enforcement boarding of vessels. With that, it is the Coast Guard's obligation to assess observer safety while it is in the observer's best interest to express any concerns. However, if the violation is not expressed, or is not deemed severe enough to remove the observer from the vessel and terminate the fishing vessel's voyage, the observer must continue to live and work with the crew, far out to sea, for the duration of the trip. It may behoove the observer to keep the less egregious violations to themselves until they make it back to port.

With all that the fisheries observers do, there exists great potential for them to serve as force multipliers for Coast Guard fisheries law enforcement. For example, observer's pre-trip inspections mirror the USCG 4100F Report of Boarding form for fishing vessels including, but not limited to, verification of CFVS decals, EPIRB[1] checks, SOLAS[2] pack life raft inspection, and hydrostatic release inspections. This also assists the marine safety mission of commercial fishing vessel safety examinations which include similar inspections of these vessels while they are moored in homeport. Additionally, reports and documented violations of MSA, ESA, and MMPA could be disseminated to the Coast Guard via field intelligence reports to increase maritime domain awareness and officer safety and awareness. As we increase information sharing between the observer program and law enforcement agencies, the potential exists to uncover and prosecute bad actors aiming to gain a competitive and monetary advantage over their competition.

Finally, observers, fisherman, and Coast Guardsman live in the same coastal communities, but little is understood about one another. Observers are in the unique position to float between the two communities, acting as a bridge between the fishing industry, its management and enforcement, and the conservation of fish stocks which are intrinsically tied to regional economies.

Information derived from: MSA, NOAA Fisheries website, NOAA Office of Science and Technology website, National Observer Program website, Fisheries Observer field manual.

About the author:
LT Henry "Bo" Ward has served in the U.S. Coast Guard for 4 years and previously served as a communications officer aboard a national security cutter, and as the executive officer of a 110' patrol boat in Alaska. He has two Achievement Medals, one Meritorious Unit Commendation, and three Meritorious Team Commendations. Prior to joining the Coast Guard, LT Ward worked as a fisheries observer based out of Astoria, Oregon, monitoring the West Coast Groundfish Catch Shares Program both at-sea and shoreside.

Endnotes:
1. Emergency Position-Indicating Radio Beacon
2. Safety of Life at Sea

Promoting Safety and Competence through Remediation

Settlement agreements in Coast Guard suspension and revocation actions

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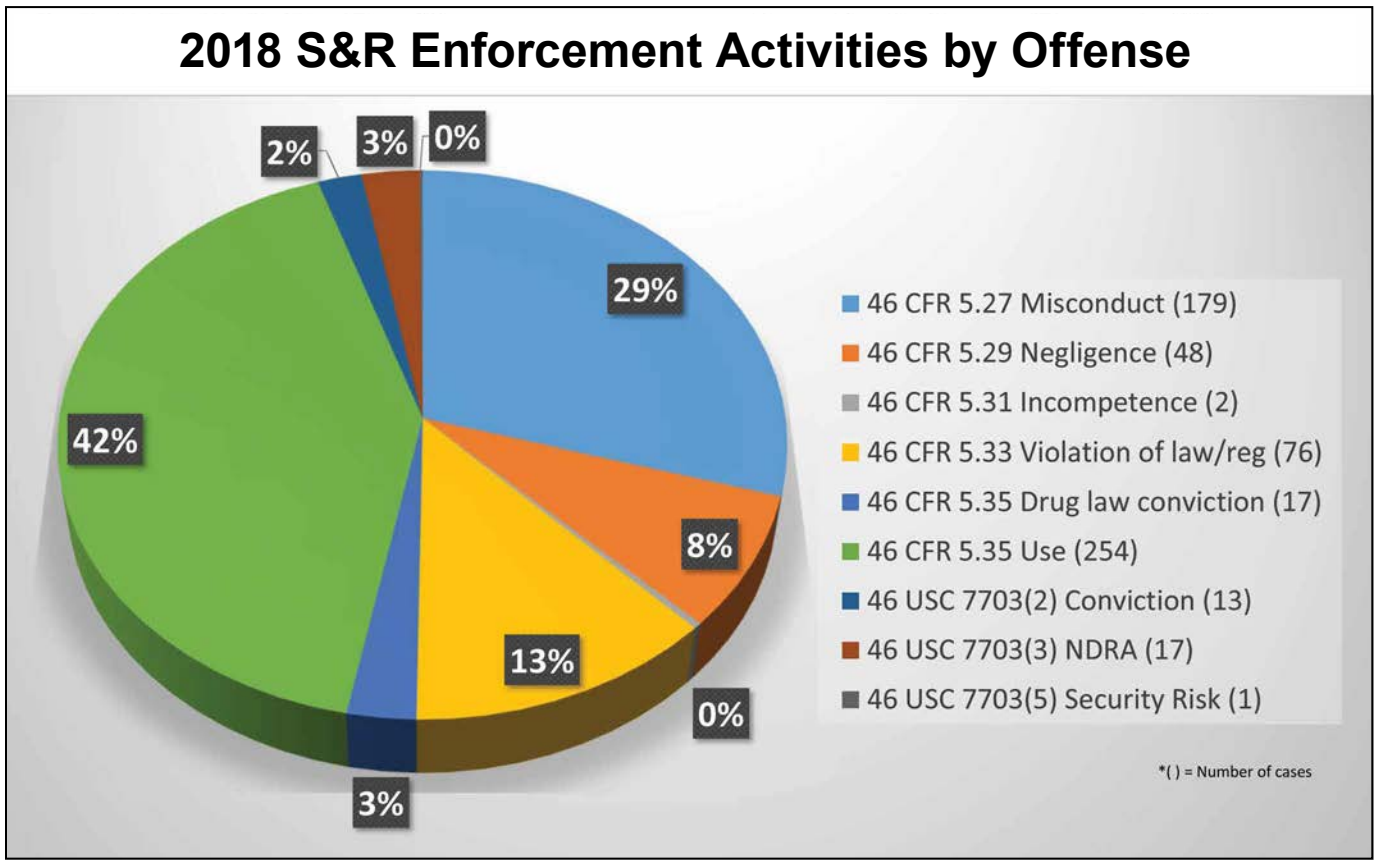
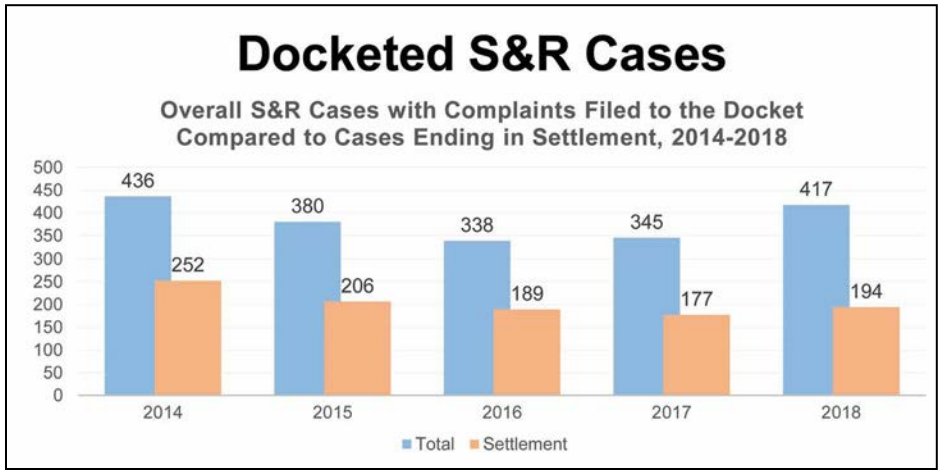
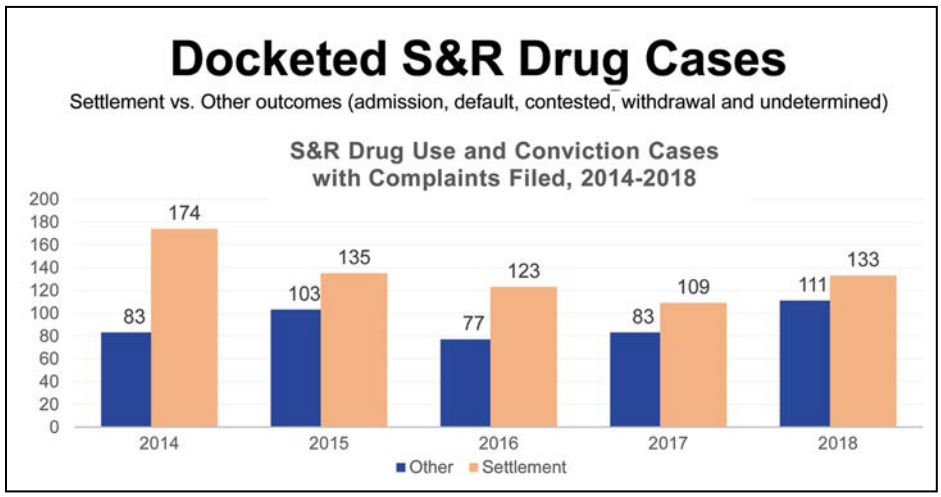
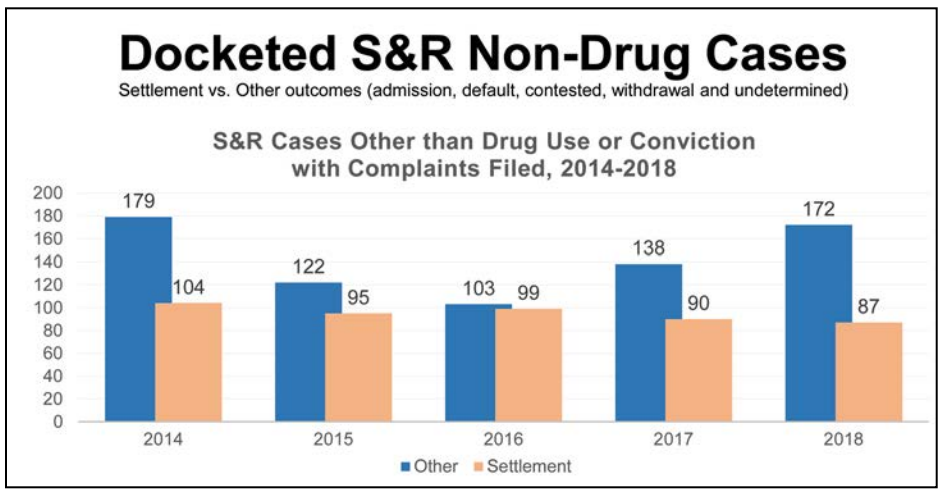
The Coast Guard acts on behalf of the secretary of the Department of Homeland Security to promote and maintain standards for mariner competence and conduct essential to safety at sea. This is accomplished, in part, through administering credentials to a group of more than 200,000 U.S. Merchant Mariners. The Coast Guard exercises this regulatory authority over the population of credentialed mariners during the Merchant Mariner Credential (MMC) application processes. This process ensures that at least once every five years each mariner seeking the issuance, renewal, or upgrade of an MMC is evaluated to ensure professional competence—training, safety, and suitability for service—and medical fitness to perform



Coast Guard image by LT Mathew Schirle







Coast Guard graphs by LT Mathew Schirle

required duties. The National Maritime Center (NMC) in Martinsburg, West Virginia, is the Coast Guard's centralized unit responsible for evaluating the professional record, suitability, and fitness of mariners and issuing MMCs to those found qualified.

The Coast Guard supplements these comprehensive evaluations, conducted years apart during MMC applications, with suspension and revocation (S&R) authority allowing for immediate response to an incident or offense. S&R authority is not punitive and may be used to restore compliance after the holder of an MMC commits an act that threatens vessel or facility safety. If designated Coast Guard personnel identify an offense has been committed, a complaint may be issued against a mariner seeking to suspend or revoke his or her current, valid MMC.

Unlike the credentialing functions centralized at the NMC, the S&R process is dispersed throughout the Coast Guard's global area of responsibility (AOR), with over 90 different marine safety field units authorized to issue complaints against mariners. It is the responsibility of an authorized Coast Guard investigating officer (IO) to initiate an S&R action against a mariner that either resides in or has committed an offense within the IO's local AOR. However, in order to promote national standards and ensure actions taken against mariners are appropriate, the S&R National Center of Expertise (NCOE), a Coast Guard Headquarters Detachment co-located with the NMC, reviews each complaint prior to issuance.

S&R Background and Unique Attributes

S&R proceedings may originate from a variety of Coast Guard detection activities. Some cases are referred for S&R action as the result of Coast Guard Marine Casualty Investigations. For example, an IO may have obtained evidence during the casualty investigation that a credentialed mariner violated a law or regulation, or was negligent in the performance of his or her duties. Other times S&R actions stem from direct reports to Coast Guard units regarding mariner drug use, convictions, or incompetence. Regardless of the source, a Coast

Guard IO conducts a personnel action investigation with the intention of maintaining standards for competence and conduct essential to the promotion of safety at sea. If, during the course of the investigation, the report or referral is corroborated by substantial evidence, then the IO issues a complaint to the mariner providing notice through detailed written jurisdictional and factual allegations comprising each identified offense. The complaint also proposes the sanction to be imposed if the specified offenses are proved. The sanction is expressed as either revocation, which results in the complete termination of the MMC, or suspension for a specified period of time. Once a complaint is issued, a docket for the S&R proceeding is started at the administrative law judge (ALJ) docketing center, and the matter becomes subject to oversight by Coast Guard's chief ALJ. All subsequent filings by the parties and orders by an assigned ALJ are added to the docket as a permanent record of the proceeding.

A mariner receiving an S&R complaint must then file a response, or "answer," that either admits or denies the allegations in the complaint. This response further allows the mariner to inform the Coast Guard and ALJ of whether there is a legal excuse or defense against the allegations, request a hearing, and indicate whether he or she wishes to discuss settlement. The settlement of S&R proceedings is specifically authorized within the Code of Federal Regulations. It is unique among all Coast Guard administrative authorities, except Class II administrative civil penalties, as it allows the parties to negotiate a compromise that tailors a remedial outcome to the specific safety risk presented. In contrast, the Coast Guard's Class I administrative civil penalty authority does not allow for settlement agreements, and the enforcement outcome is defined by whether a financial penalty is imposed and, if so, the dollar amount. While S&R sanctions may indirectly impact the economic standing of a mariner by disrupting employment, the direct focus of a sanction or settlement result is to restore compliance with professional safety and security standards.

S&R Settlement Process

If both the mariner and the Coast Guard are able to agree upon a mutually beneficial compromise to settle the S&R case, absent further litigation, an ALJ must still review and approve the written agreement of the parties. In order to ensure clarity within the settlement document and facilitate ALJ approval, the S&R NCOE reviews each proposed settlement, the exception being the standard settlement for drug use offenses mandated by case law precedent. Among other requirements, the settlement must be signed by the parties and contain an admission of all jurisdictional facts. However, there is no mandate in law or regulation that the mariner admit to any of the factual allegations on the complaint. The ability to move forward into settlement without admitting to specific facts often helps circumvent minor disagreements

Left: View from Counsel's Table for the Coast Guard at a search and rescue (S&R) hearing in San Juan, Puerto Rico, on March 21, 2019. Right: Ms. Lineka Quijano, trial attorney for the S&R National Center of Expertise, and CWO Lanette Jeanes, investigating officer for Sector Corpus Christi, represent the Coast Guard at an S&R hearing in Galveston, Texas, on April 10, 2019. Coast Guard photos

LT Jacob Aulner of Sector North Carolina, student, and Mr. Lonnie Eskeli of Training Center Yorktown, instructor, training on the use of settlement agreements during search and resuce course in December 2018. Coast Guard photo

between the parties that would otherwise derail remedial outcomes. For example, a mariner may dispute allegations characterizing the level of his or her distraction in a negligence case, but would agree to obtain remedial training in light of operating a vessel that ran aground without justification.

Ultimately, the ALJ must determine whether the agreement is lawful, fair, and clearly stated. Giving the mariner sufficient due process, the ALJ considers the proposed settlement in light of the S&R complaint, applicable U.S. Code, Code of Federal Regulations provisions, case law precedent, and Coast Guard policy. Based on his or her review, the ALJ will either approve or reject the settlement agreement, and may wish to conduct a conference with the parties before making a decision. If the settlement is approved, then it constitutes the final resolution of the matter. If the settlement is rejected, then the ALJ generally states the basis for not approving, which allows the parties to consider whether the agreement can be modified to secure ALJ approval if resubmitted.

Remedial S&R Settlement Agreements

S&R settlement agreements allow the Coast Guard to target and remediate specific mariner deficiencies in competence and conduct essential to the promotion of safety at sea. Every case encompasses a unique mariner, and distinct set of facts and circumstances. When determining appropriate terms for a settlement, IOs consider not only the offense, but also the circumstances surrounding the offense, as well as the mariner's prior disciplinary history—a record of any criminal convictions and Coast Guard enforcement actions that have reached final agency action within the past 10 years. If, for example, the complaint alleges a minor act of misconduct, but the mariner has a history of repeating the same or similar offenses, then the remedial terms of settlement may appropriately incorporate the requirements necessary to restore the mariner's compliance in light of his or her record.

A majority of S&R in the Coast Guard is initiated in response to drug-related offenses. Historically, mariners with positive drug tests, drug test refusals, or convictions for violating dangerous drug laws were offered the same settlement agreement. This standard drug settlement, however, is only mandated by case law when the mariner is alleged to have used a dangerous drug. While policy extends its use to offenses involving chemical test refusals and drug law convictions, the binding legal precedent does not.

Recently, the S&R NCOE, working in conjunction with several marine safety field units and the Office of Investigations and Analysis at Coast Guard Headquarters, successfully implemented alternative terms incorporating hair chemical drug testing in settlement of chemical test refusal and drug law conviction cases. This method earned the approval of several ALJs after review. The benefit to the Coast Guard has been an increased period of detection, up to 90 days prior to collection with a hair specimen. By comparison, a standard Department of Transportation urine test is only able to detect certain drug metabolites within one to three days. Additionally, urine drug testing is highly susceptible to cheating while hair testing is not, as collectors remove a hair sample directly from the donor as opposed to sending them into private bathrooms. Mariners also benefit from hair testing because it removes the necessity for tests to be random and short-notice, a requirement for urinalysis drug testing. Mariners schedule hair tests at their own convenience within the pre-established, prescribed period set forth in the settlement agreement. Yet, despite the predictability, the sequence of hair testing at two- to three-month intervals over the course of a year provides the Coast Guard with a virtually unbroken chain of verification as to whether the mariner has used dangerous drugs during the settlement period.

S&R settlement agreements allow the Coast Guard to impose terms that truly address the issue at hand and provide remediation, not just a period of suspension.

The settlement is reached. Coast Guard photo

Unique and remedial settlement agreement terms are not only for drug cases. Settlement agreements have required mariners who have been intentionally deceptive to take college-level ethics courses, and uninspected passenger vessel operators with more than six passengers have had to conduct outreach to fellow operators on the subjects of regulations and consequences for violations. An increasingly common settlement outcome for mariners who were negligent in the operation of their vessels is the requirement to take Coast Guard approved bridge resource management and navigation courses to improve their proficiency with vessel operations. In return for performing these remedial actions and supplying proof of completion to the Coast Guard, settlement agreements function to avoid the possible revocation of an MMC or reduce the period of suspension that might result as the sanction imposed at an ALJ hearing.

Regardless of the Coast Guard's motivation to promote marine safety through negotiating compromise agreements in S&R cases, entering into a settlement is voluntary on the part of the mariner. There is always a right to be heard by an ALJ in response to the issuance of an S&R complaint. However, the S&R outcome resulting from the ALJ's order will almost certainly be limited to a determination of whether the Coast Guard proved its case. If the case was proved, the question becomes whether a sanction of revocation, suspension with or without probation, or admonishment is appropriate. At that point, the ability for the mariner to trade positive actions in return for a reduced sanction will have passed.

Conclusion

The use of S&R action is extraordinary in its potential to offer targeted, remedial results when compared to other Coast Guard administrative authorities, such as the credential issuance and renewal process or the imposition of most administrative civil penalties. It allows the Coast Guard to swiftly address potential threats to marine safety, not by punishing but by correcting individual deficiencies. The result promotes a safer, more competent maritime workforce. It also holds individuals accountable for their own actions and ensures continued compliance with the standards required to hold the credentials with which they have been entrusted.

About the authors:

CDR Christopher Jones has served in the U.S. Coast Guard for more than 13 years. Before joining S&R National Center of Expertise, he served in marine safety positions at Sector Houston-Galveston, Investigations Industry Training, and in attorney positions at the First District. He has also been detailed to the Department of Justice Office of Aviation and Admiralty Litigation and at the Office of Claims and Litigation at Coast Guard Headquarters.

LT Mathew Schirle has served in the U.S. Coast Guard for 20 years in multiple marine safety positions including marine inspector and investigator at Sector Hampton Roads, chief of domestic inspections Marine Safety Unit Port Arthur, and senior investigating officer at the Suspense and Revocation National Center of Expertise.

Enhancing Maritime Governance

The role of private sector compliance providers

by Ryan Allain
Associate
Gallagher Marine Systems

Thomas Wiker
Vice President of Operations
Gallagher Marine Systems

United States Coast Guard Publication 1 (Pub 1), the doctrine for the U.S. Coast Guard, explains that the United States is a maritime nation. With 95,000 miles of coastline and dozens of commercial ports hosting more than 83,000 annual ship visits, it is, and will always remain, tied to the sea as "the seas link the nation with world trade and commerce." As a maritime nation, the United States must incorporate and leverage the capabilities of the private sector to ensure an effective regime of maritime governance. Pub 1 also explains that "building effective maritime governance requires engagement beyond navies and coast guards … that commitment from [the] private sector is required as well."

In the realm of maritime environmental emergency response and response to vessel casualties, many people may not be familiar with one type of private sector backing the Coast Guard relies upon day-in and day-out—that of qualified individual (QI) service providers. QI service providers act as a single point of contact on behalf of a vessel's owner/operator if that vessel experiences an oil spill, collision, grounding, fire, or other casualty while operating in the United States. The QI, with full decision-making and spending authority on behalf of the ship owner, ensures a smooth flow of communication with federal agencies—especially the Coast Guard.

The role can be traced back to one of the most significant environmental disasters in the United States, the *Exxon Valdez* oil spill. In 1990, Congress passed the Oil Pollution Act (OPA 90) as a result of the *Exxon Valdez* oil spill in Alaska. This single piece of legislation significantly expanded the Coast Guard's maritime governance over the protection of the marine environment. At its legislative core, OPA 90 requires that the owner or operator of a vessel must appoint a qualified individual who is familiar with the vessel's response plan and can activate the plan in case of a vessel emergency. However, over the past two decades, the role of the QI and the capabilities provided by the QI have greatly expanded. In this time, the QI service providers have developed extensive expertise which the Coast Guard has relied upon during some significant pollution responses. In other areas, QI service providers have acted as behind-the-scene force

The *Exxon Valdez* remains in place after running aground on Bligh Reef in Prince William Sound, Alaska, in March 1989. The grounded tanker spilled 11 million gallons of crude oil—the largest oil spill in U.S. history, at that time. Coast Guard photo

multipliers for the Coast Guard. In both instances, the QI service providers have supported the Coast Guard with additional capability, enhancing and augmenting resources, and furthering the maritime governance goals of ensuring the safe and efficient mitigation of a casualty.

What is a QI?

Qualified individuals are U.S.-based individuals required by OPA 90 to be available 24 hours a day, seven days a week to coordinate a response to an oil spill from a vessel, facility, or pipeline, or summon resources to address environmental threats. The QI's job is to make rapid notifications to federal, state, and local authorities and, when necessary, obligate funding to respond, engage, and coordinate with the appropriate response resources—oil spill response organizations or salvage and marine fire-fighting resource providers. An effective response to an emergency in a sector is contingent on the QI efficiently mobilizing, managing, and directing response resources, as well as coordinating and cooperating with the local Coast Guard sector and other stakeholders. The QI must bridge communications between the Coast Guard and the vessel owner/operator to ensure an adequate and effective response.

It is paramount to understand the QI's role and note they are the only entity with the authority to fulfill these responsibilities on behalf of the responsible party. In this way, they are essential to the effectiveness of the response and to the Coast Guard's capability to keep ports operating and maintain a smooth flow of commerce—the important underlying tenant of effective maritime governance. During an actual spill, the QI service provider will represent the responsible party in the spill response organization created by the local Coast Guard sector.

In addition to the designation of the QI in a response plan, OPA 90 requires that a vessel's response plan designates an incident or spill management team (IMT). QI service providers typically staff the IMT with personnel who have previous government experience—former United States Coast Guard (USCG) members, National Oceanic and Atmospheric Administration staff, or those who have formerly worked with state response agencies. Previous government experience is an important element for IMT members, considering they often work side by side with their government colleagues in a unified command or incident command system setting. Familiarity with policies and procedures of the government response agencies provides critical knowledge from the private sector to enhance the response efforts. This concept of involving the private sector in the response organization to ensure an integrated response coordination structure was one of the key tasks in developing the National Response Plan (NRP) in 2008. The depth and experience of QI/IMT human resources can help Coast Guard first responders improve response efficiencies. The NRP recognizes that the majority of resources, including people and critical infrastructure, lies within the private sector and an effective response is dependent upon all available resources being brought to bear on a disaster, while minimizing the impact to critical infrastructure. Only through the cooperation and support from the private sector—through effective maritime governance—can this key task be realized.

At the individual port or Coast Guard sector level, close partnerships with stakeholders, established through harbor safety and security committees, provide invaluable assistance to the local captain of the port. In addition, area committees aid in developing contingency plans for port-wide emergencies that fulfill the more tactical goals of the NRP. The interactions that occur between the Coast Guard and the private industry stakeholders that make up these committees help ensure the development of policies that create an effective response to port contingencies, lead to the best use of port resources, and provide an opportunity for input from all stakeholders. The QI compliance service providers often attend these meetings to provide input on behalf of their clients, sharing valuable information that augments safety and security committee understanding of port challenges. Often, the QI's expertise developed through previous oil spill responses—locally and nationally—further inform an

Coast Guard CAPT J.J. Plunkett, commanding officer of U.S. Coast Guard Marine Safety Unit Port Arthur, and Jason Maddox, the environmental unit leader with Gallagher Marine Systems Inc., discuss information at the Port Arthur oil spill unified command, in January 2010. The unified command consisted of different agencies working together during the Port Arthur oil spill response. Coast Guard photo by Petty Officer 3rd Class Casey J. Ranel

Response personnel sample transformer oil aboard the *BBC Arizona* in Valdez, Alaska, in June 2013. Preliminary tests indicated no presence of polychlorinated biphenlys, also referred to as PCBs, a hazardous substance sometimes associated with transformer oil. Coast Guard photo

area committee's contingency plan, enhancing prevention and mitigation activities when responding to vessel emergencies. Captains of the port value this private sector participation because it lays the ground work for the critical requirements necessary to mount an effective response and ensure maritime governance—familiarity, trust, and knowledge—during often stressful situations.

Expanding Services

In several instances, QI firms have expanded their capabilities and, in several areas, act as behind the scene force multipliers to the Coast Guard. At Gallagher Marine Systems, LLC (GMS), for instance, the firm's clients are provided with an arrivals checklist to assist their vessels in preparing for U.S. arrivals. This checklist provides comprehensive information regarding Coast Guard, EPA, and U.S. state requirements with which the vessel operator must comply. In many cases, a vessel master is able to avoid potential violations or infractions by reviewing the checklist prior to their vessel's U.S. arrival, therefore, ensuring compliance with a host of sometimes complex and confusing requirements. In some cases, vessel operators opt for a pre-inspection where an experienced surveyor, former ship master, or Coast Guard port state control officer, carries out a detailed review of the ships preparedness for U.S. arrival. These pre-inspections include a comprehensive review of a client's vessels for compliance with Coast Guard port state control (PSC) requirements, and occasionally include an in-depth inspection to ensure vessel compliance with strict international and U.S. environmental regulations. Over the years, compliance service providers have developed specialized training programs to ensure vessel crews meet Coast Guard and EPA requirements for managing ballast water discharges and oil spill response. Since the establishment of the Coast Guard's PSC program, the trend of vessels detained for safety reasons has declined. In the 2017 USCG PSC annual report, Rear Admiral John P. Nadeau, former assistant commandant for Prevention Policy, points out that compliance with international conventions and the safety of shipping has increased dramatically in the last two decades. The Coast Guard's stringent enforcement of PSC requirements—along with shipping company implementation of safety management systems—deserves credit for the improved vessel compliance. Some credit is also due to the compliance service providers who offer their clients expert advice and training to ensure they are operating at the Coast Guard's high standards. Through this system of maritime governance, the Coast Guard has fostered a regime of private sector support for vessel operators that has contributed to the safety of vessel and port operations across the United States.

Training and Partnerships

In addition to the core mission of the private-sector QI firms providing emergency response capabilities and additional expertise in PSC compliance, QI compliance service providers regularly train in incident command post settings during large-scale exercises with Coast Guard, state, and local entities, along with oil spill response organizations and salvage and marine fire-fighting providers. This joint training greatly enhances mutual understanding of each entity's capabilities and builds familiarity with regional response protocols.

Gallagher Marine Systems, LLC, Coast Guard, and Emerald Services Inc., monitor offloading operations at the Valdez container terminal in Valdez, Alaska, in June 2013. North Star Terminal and Stevedore Company had to remove I-beam cargo from the BBC *Arizona* before responders could clean up and decontaminate the ship's leaking oil containers. Coast Guard photo

Furthermore, when delivered to area committee meetings, regional response teams, the USCG On-Scene Coordinator Crisis Management Course, and similar settings, Gallagher Marine Systems' presentations about the QI's incident management team's function and purpose serve to foster a better understanding of these critical roles. Recently, GMS provided an overview of those roles and a "Response from a Responsible Party's Perspective" lecture at the 2018 District 17 Federal On Scene Coordinator Representative College in Anchorage, Alaska. USCG District 17 units and Alaska Department of Environmental Conservation personnel developed a better understanding regarding the role of the responsible party, specifically, the QI and IMT. GMS regularly hosts QI courses in their Moorestown, New Jersey, headquarters, which are attended by U.S.- and foreign-flagged ship owners, facility representatives, and often Coast Guard personnel from local units, including the Atlantic Strike Team. This combination of students provides a blend of response perspectives and expectations, which provides learning opportunities for all parties, and Coast Guard members gain an enhanced understanding of private sector capabilities; a critical element necessary for cultivating maritime governance.

Conclusion

Maritime governance is a critical tenant of the Coast Guard's doctrine allowing for an efficient and effective regime to ensure the safety, security, and environmental stewardship of our nation's ports and waterways. Through the engagement of, and interaction, with private sector QI compliance service providers, the Coast Guard has access to a critical knowledge base and established infrastructure. Ample response experience and expertise with resources to leverage provide a swift, effective response to an oil spill, or threat of one. Over the past 25 years, this experience and capability has expanded to foster a higher level of PSC compliance for vessels trading in U.S. ports, and also has provided training opportunities for Coast Guard personnel. As the third decade of mandated QI begins, the opportunity for the Coast Guard and private sector to further enhance and strengthen maritime governance continues to grow.

About the authors:

Ryan Allain, a senior associate with Gallagher Marine Systems, retired from the United States Coast Guard in 2015 at the rank of commander. During his Coast Guard career, he served as the port state control program manager and vessel response program (VRP) manager. In 2010, under his leadership, the VRP program received the Commander Joel Magnussen Innovation Award for management.

Thomas Wiker has been with Gallagher Marine Systems for 20 years and is a former member of the Coast Guard and a graduate of Rutgers University. In his role as GMS' vice president of operations, he oversees GMS, QI, and IMT capabilities, contingency planning, and drill and training. He serves as an incident commander during emergency responses.

U.S. Coast Guard

Capabilities to be relied upon

by LCDR Matthew Brinkley
Office of Counterterrorism and Defense Operations Policy
U.S. Coast Guard

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Office of Counterterrorism and Defense Operations Policy
U.S. Coast Guard

The Great Power Competition

Following the September 11 terror attacks, the U.S. Coast Guard's roles and responsibilities expanded to meet the new security challenges threatening the homeland. This growth included new authorities under the Maritime Transportation Security Act of 2002 and a new home under the Department of Homeland Security the following year

Members of the U.S. Coast Guard Maritime Security Response Team fast rope from an MH-60T Jay Hawk helicopter onto the deck of Landing Craft Utility 1664 during a joint training event. U.S. Navy photo by Lt. Patrick Nolan

While the events of 9/11 ushered in a paradigm shift for the organization, the Coast Guard still remained one of the five armed services under Title 10 of the United States Code. As such, the organization gained new operational requirements not only domestically, but overseas as well. A Persian Gulf deployment to support Department of Defense (DOD) stability operations during Operation Iraqi Freedom evolved into the Patrol Forces Southwest Asia (PATFORSWA), a standing unit under U.S. Naval Forces Central Command tactical control. PATFORSWA is the most visible overseas Coast Guard presence, but it does not represent all lines of support provided to DOD.

For the first time since 9/11, the 2018 National Defense Strategy identified two revisionist powers—China and Russia—as the top national defense challenges for the United States. Some might think the return to a great power competition would reduce the DOD demand for Coast Guard resources, but nothing could be further from the truth. A changed focus after 17 years of counterterrorism and counterinsurgency operations in the Middle East sparked a renewed interest in the Coast Guard's overseas capabilities. While China and Russia certainly maintain a credible military force, engaging in hostilities with the United States which, historically speaking, has been characterized as the most powerful military on the planet, is not in their best interests. Instead, these emerging powers plan to conduct asymmetric warfare or "grey zone" activities; unconventional challenges in different domains to test and circumvent American military strength. The U.S. Coast Guard provides DOD combatant commanders tools to counter such a strategy.

Given the Coast Guard's unique authorities, capabilities, and international relationships, the service is effective in both conventional and unconventional military operations. Conventionally, the U.S. Coast Guard can support Title 10, or conventional, military operations, like maritime interception, freedom of navigation, and enforcement of sanctions and exclusion zones. Unconventionally, the U.S. Coast Guard can support Title 22 foreign relations operations like security assistance, which includes international military education

and training (IMET), foreign military sales (FMS), and excess defense articles[1] (EDS) programs.

Conventional Operations

Coast Guard interests far exceed the boundaries of the United States and the Caribbean. For years, the Coast Guard, under Central Command, has been present in the Middle East operating PATFORSWA, which plays a more significant role in the region than just serving as a military force. It is a diplomatic bridge between nations, providing maritime humanitarian presence and engagement training, as well as robust relationship-building throughout the Gulf region.[2]

Operating within the State Department footprint, the Coast Guard promotes regional stability and cooperation among nations through its military presence. It is the best asset for this type of mission because nations in this region—including Bahrain—see the Coast Guard as the model for their own navies as they work to protect their maritime interests and address common threats. Other nations' navies in the region serve in a law enforcement capacity comparable to the Coast Guard. If other nations see the Coast Guard as the gold standard in this law enforcement domain, then internationally we are just as relevant in strengthening and promoting security capabilities and regional cooperation as DOD and State Department.

Although PATFORSWA is just one example of how the Coast Guard has enhanced what has become the steady state in the region, the service does much more globally. Almost all service members can describe, in detail, efforts in the Caribbean to counter illicit activity, including counter drug operations or illegal migration to improve maritime border security. However, a large portion of Coast Guard operations throughout the world exist without the use of cutters accomplishing a mission similar to PATFORSWA. In fact, a large portion of Coast Guard operations in many regions promote theater security cooperation with other maritime forces to improve implementation of bilateral agreements and build partnership capacity. This mission has been widely successful in providing comprehensive training reforms to nations' militaries and coast guards that are not as capable as the Coast Guard.

The Coast Guard uses existing relationships to conduct maritime assessments and leverage opportunities to hold key leader engagements, or senior level personnel forums that interact and influence others within a specified community. Sometimes these engagements are more useful in assisting nations to strengthen interoperability among forces and develop their own operational limits and capabilities across mission sets.

Another direct approach the Coast Guard succeeds in is providing multi-mission assets in highly contested regions, like the South China Sea. Recently the U.S. Coast Guard Cutter *Bertholf* set sail to the Indo-Pacific region with Navy ships, integrating into a battle group to "directly support U.S. foreign policy and national security objectives in the Indo-Pacific Strategy and the National Security Strategy."[3] The *Bertholf* deployment does more than that, however. It communicates to the region that the Coast Guard is a combat-credible deterrence below the scope of traditional armed conflict, bridging the maritime gap between lethality and diplomacy.

The South China Sea is one of the busiest and most critical chokepoints in the world, so it is no wonder that countries in this region, like Vietnam and the Philippines, do not have the capability or capacity to govern their territorial waters and fall victim to China. Those in this region have been deterred by aggressive

Members from the Maritime Security Response Team complete a hook and climb insertion onto the dinner cruiser, *Spirit of Norfolk*, during a training exercise in Norfolk, Virginia. Team members are trained to serve as first responders to potential terrorist situations, deny terrorist acts, perform security actions against non-compliant actors, perform tactical facility entry and enforcement, participate in port level counterterrorism exercises, and educate other forces on Coast Guard counterterrorism procedures. Coast Guard photo by Petty Officer 1st Class Melissa Leake

From left, an Iraqi navy swift boat, the Navy's USS *Monsoon*, the Iraqi navy's support vessel *Al Basra*, and the Coast Guard cutters *Wrangell* and *Monomoy* transit the Arabian Gulf. The vessels were part of a bilateral exercise, something in which the United States and partner nations routinely participate to build and strengthen interoperability throughout the region. Navy photo by Petty Officer 3rd Class Bill Dodge

tactics and, even with international rulings on their side, do not have the ability to fend off these challenges.

"According to a 2015 DOD report, $5.3 trillion worth of goods moves through the sea every year, which is about 30 percent of global maritime trade," Max Fisher, a *New York Times* reporter wrote in a 2016 article, *The South China Sea: Explaining the Dispute*. "That includes huge amounts of oil and $1.2 trillion worth of annual trade with the United States."

Coast Guard Maritime Engagement Team and the Lebanese Armed Forces conduct subject matter exchanges in June 2018, while participating in exercise Resolute Response 2018 in Lebanon. Coast Guard photo

International Coast Guard deployments can provide an adaptive force package—unique to the emerging threat—and sustained operating forces to discourage illegal governance or conventional warfare between nations. They also reinforce the United States' interests in a particular region. Gaining notoriety in the South China Sea, these Coast Guard cutter deployments have occurred in regions all over the world, further promoting independent maritime sovereignty and adherence to international norms through the projection of power, freedom of navigation, or maritime partnerships. That the United States adheres to rules-based maritime operations is potentially one of the most important messages conveyed.

Unconventional Operations

Unconventional operations involve indirect efforts by the DOD to achieve strategic military objectives by working with our international partners. The DOD cannot be everywhere to detect, deter, and disrupt our adversaries' actions. Instead, the United States supports our allies with equipment, technology, and training so others can participate in collective security. Collective security uses partnering nations' complementary strengths and weaknesses to mitigate a mutual threat. The Coast Guard is uniquely postured to conduct these types of operations because of its access to foreign countries that are reluctant to welcome warships into their territorial waters.

Additionally, the Coast Guard's professionalism, proficiency, and dedication to international law provides credibility, which makes countries want to learn from, and exchange ideas with, the service. This recognition makes the Coast Guard a valuable DOD asset for unconventional operations involving foreign law enforcement agencies and improving adherence to international norms.

The Coast Guard provides training support to unconventional missions through various units, including the International Training Branch, PATFORSWA international military education and training, cutters, and deployable specialized forces.[4] The International Training Branch primarily focuses on law enforcement and small-boat training with a schedule that includes several recurring events lending to increased proficiency and enduring relationships. PATFORSWA international military education and training provides instruction to foreign forces who ensure security in a region that includes critical maritime chokepoints and significant levels of oil export. Cutters and deployable specialized forces serve as the principle participants in many international exercises that focus on counterdrug, counterterrorism, and counterproliferation operations, building multi-national interoperability and shared values.

Coast Guard support for all of these missions produces greater capability within the international community to engage in world-wide security issues. The more proficient foreign coast guards and navies are at enforcing international norms, like the United Nations Convention on the Law of the Sea, the less need there is for DOD to respond to international maritime security problems.

FMS and EDS programs build upon the training provided through unconventional missions by ensuring partner nations and allies have the best equipment

U.S. Coast Guard Cutter *Bertholf* departs to the South China Sea for joint patrol with the Navy. Coast Guard photo by Petty Officer 2nd Class Michael Trees

A crew from U.S. Coast Guard Cutter *Dependable* intercepts a drug smuggling boat in the eastern Pacific Ocean. *Dependable*'s crew returned to their homeport, Virginia Beach, Virginia, after a two-month patrol of the Eastern Pacific Ocean in May 2017. During this patrol, the crew seized more than 8,000 pounds of cocaine with an estimated value of $122 million. Coast Guard photo

available to them to conduct maritime law enforcement, safety, and security operations. These programs have real world impact in locations like the Indonesian-Pacific Command area of operations, which encompasses the South China Sea. A total of four decommissioned high-endurance cutters were transferred to the Philippines and Vietnam through the EDS program. Additionally, Vietnam has leveraged FMS to purchase the same small boats the Coast Guard operates. Programs like FMS and EDS improve interoperability and make it easier for foreign navies and coast guards to relate to U.S. maritime services' capabilities.

Future Models

The return to a great power competition has generated debates about the Coast Guard's role in DOD operations, but the organization has been supporting combat missions for more than 200 years. The debate should focus on where, not if, the Coast Guard will support DOD. The post-9/11 operational environment matured many Coast Guard defense readiness missions, like PATFORSWA. This model provides not only a tested force structure that functions in most areas of operation, but also acts as a force multiplier in support of, or in addition to, DOD operations. With emphasis on combat power shifting from the Middle East region to the Indo-Pacific region, the Coast Guard could repurpose an adaptive force package like PATFORSWA to support DOD missions in the South China Sea, or any contested maritime domain. Given its rich history of success in conventional and unconventional military operations, the organization is well-postured for the most dynamic overseas challenges.

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Endnotes:

1. Excess defense articles are military owned articles that are declared in surplus by the U.S. Armed Forces and are subject to being sold to foreign nations to support U.S. National Security interest and policy objectives.
2. Patrol Forces Southwest Asia (PATFORSWA): www.atlanticarea.uscg.mil/Our-Organization/Area-Units/PATFORSWA/
3. Coast Guard News, Coast Guard Cutter *Bertholf* and Crew Depart for Western Pacific Patrol, 20 Jan 2019. https://coastguardnews.com/coast-guard-cutter-bertholf-and-crew-depart-for-western-pacific-patrol/2019/01/20/
4. Lundquist, Edward H., *PATFORSWA Serves Forward in the Arabian Gulf*, Defense Media Network, 19 March 2018, www.defensemedianetwork.com/stories/patforswa-serves-forward-in-the-arabian-gulf/

Restoring Maritime Governance Systems

The unique role of the National Strike Force in disaster response and recovery

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The U.S. Coast Guard's National Strike Force (NSF) provides the nation with a highly specialized, well-trained emergency management, and all-hazards response capability. Best known for responding to major oil spills and complex pollution incidents, the NSF also plays a major role in restoring key functions of maritime governance in the aftermath of a hurricane or other disruption affecting a coastal area. It is comprised of three strike teams—Atlantic, Pacific, and Gulf—the Incident Management Assist Team (IMAT) and the NSF Coordination Center, a headquarters element that also includes the embedded Public Information Assistance Team.[1]

During the 2017 and 2018 hurricane seasons, the NSF deployed more than 200 personnel to 11 states and U.S. territories as part of nine hurricane and typhoon response operations.[2] At the direction of incident commanders, the NSF pre-deployed tailored force packages to areas likely to be affected by the storms, and more robust response elements to safe havens just outside of the projected path of each storm.[3] As a result, the NSF was able to rapidly surge command and control, search and rescue, communications, and pollution

Coast Guard LT JoEllen Arons discusses operational assessments with, from left, Bob Brock, Ron Gaspard, and J.T. Eweing of the Texas General Land Office in Port Arthur, Texas, in September 2017. Coast Guard strike teams worked with local officials and the Environmental Protection Agency to conduct surveys and respond to pollution and hazardous substances in the wake of Hurricane Harvey. Coast Guard photo by Chief Petty Officer Susan Blake

Using a crane barge to remove a vessel wrecked in Hurricane Maria, local salvage crews worked in Fajardo, Puerto Rico, to support the Hurricane Maria ESF10 Puerto Rico mission in December 2017. The ESF10 offered no-cost options for removing vessels stranded by the storm. Coast Guard photo by Petty Officer 2nd Class Lara Davis

response forces to areas hardest hit by flooding and wind damage.

Standing response infrastructure at all levels, including local Coast Guard units—especially local crews and their families—were impacted directly by the storms. So, the NSF's unique ability to marshal trained, experienced emergency management professionals from across the nation to fill gaps and lead the response was critical to the swift restoration of effective federal, state, and territorial maritime governance following the storms.[4]

Ready to Respond

Natural disasters challenge the rules of governance as their impacts are not limited to geographic or legal boundaries created to differentiate roles and responsibilities. Trained, equipped, and resourced to work autonomously in undefined environments, the NSF's strength is its ability to build adaptive force packages to meet the task at hand, whether it be to develop and support strategic planning or to execute tactical operations. In preparation for and during the emergency phase of a natural disaster, the NSF is routinely called immediately to support incident management, pre- and post-storm assessments, and catastrophic incident search and rescue (SAR).

Establishing a common language and operational norms, the National Incident Management System-Incident Command System (ICS) improves connectivity within complex networked organizations established to carry out crisis responses under the National Response Framework (NRF).[5] Among the value the NSF, adept at working in complex crisis environments requiring interagency collaboration and response, brings to bear is its dedicated professional force of NIMS-ICS practitioners, the IMAT.

The IMAT provides leadership and management

practitioners that have crisis response experience and technical skills that include but are not to limited SAR, marine safety, law enforcement, Department of Defense, and ICS. The IMAT typically deploys in six-person teams certified to fill command and general staff positions to deliver a flexible force-multiplier to supported commanders and implement ICS during an incident ramp-up. They are trained to fill roles at all levels to promote unity of effort, including providing area command and public information support. They also serve as liaison officers at Federal Emergency Management Agency (FEMA) regional response coordination centers and joint field offices. Moreover, the NSF can deploy field teams of marine safety professionals with knowledge of local area contingency plans. These safety professionals quickly embed with the local Coast Guard units to assist in hardening regulated facilities and supporting the orderly shutdown of the marine transportation system prior to landfall and to conduct rapid port, pollution, and needs assessments following the storm. Lastly, Emergency Support Function 9 Search and Rescue may be implemented during and following a hurricane. When implemented, Coast Guard, Department of Defense, National Park Service, and FEMA conduct multiagency catastrophic incident search and rescue operations using ICS together with the affected state, tribe, territory or insular area authorities in support of a unified command.[6]

Collaboration Yields Results

In preparation for, and following, landfall the NSF had up to 34 percent and 37 percent of its responders immediately deployed to regions impacted by natural disasters in 2017 and 2018, respectively. Providing both incident management and field responders, the NSF supported four Coast Guard districts, 11 sectors, one marine safety unit, a marine safety detachment, and an air station. It also assisted FEMA and the Department of Health and Human Services, along with 10 state and U.S. territorial governments in establishing and running area commands and unified commands, managing social media, and supporting reconstitution of port and Coast Guard operations. Additionally, the NSF integrated small boat and flood-response skiff teams into Coast Guard District Eight flood-response teams and Texas Task Force West Search and Rescue organization during Hurricane Harvey, and worked shoulder-to-shoulder with local fire fighters during Hurricane Florence. During the Harvey response, this accounted for two-thirds of the NSF's CISAR mission-ready packages,[7] an important contribution to the rescue of 20,000 survivors during that storm.[8]

With the Environmental Protection Agency (EPA) and local officials, the NSF provided critical resources, personnel, and expertise to lead long term Emergency Support Function 10 (ESF10) efforts focused on response to oil and hazardous materials pollution in the marine environment. Assigned by the Department of Homeland Security, these responses were conducted using Robert T. Stafford Disaster Relief and Emergency Assistance Act authorities, whereby agencies are tasked with work orders using mission assignments within their particular expertise. At the discretion of the Federal Emergency Management Agency, and/or in response to a request for federal-to-federal support, ESF10 Oil and Hazardous Materials may be activated as described in the NRF for a Stafford Act response.

For the 2017 and 2018 hurricane responses, Stafford Act authority was also used to provide federal support to state, local, and territorial governments. Typically during natural disasters the EPA and USCG/NSF respond under their own organic authorities, as well as the authorities granted to them through ESF10.[9]

An effective, unified command is critical to response operations, as is managing the incident and the event. Response effectiveness depends on relationships,

Hurricane Maria ESF10 PR Unified Command personnel brief Puerto Rico Department of Natural and Environmental Resources Secretary Tania Vasquez-Rivera at the incident command post in San Juan, Puerto Rico, in October 2017. The Maria ESF10 PR Unified Command, consisting of the Department of Natural and Environmental Resources and the U.S. Coast Guard, in conjunction with the Puerto Rico Environmental Quality Control Board, Environmental Protection Agency, and the U.S. Fish & Wildlife Service respond to vessels found damaged, displaced, submerged, or sunken. Coast Guard photo by Petty Officer 1st Class Timothy Tamargo

partnerships, and trust. Local responders, Coast Guard field commanders, and national resources—like the NSF—do not meet before responding to a crisis. The presence of local Coast Guard personnel at the hip of NSF deployed from all over the country is critical for mission success. In most of the recent hurricane and typhoon responses, many of the local responders are survivors significantly impacted, and pollution response is not their immediate priority. Sensitivity to these personal impacts are required to balance operational needs with community recovery and can include:

- volunteering to repair a school, church, or responders' homes
- working to support them in their recovery needs, including adjusting meeting times or locations and allowing them to meet with insurance adjusters and complete needed repairs
- working to accommodate modified childcare and school schedules

Each state and territory is sovereign, and has unique laws and staffing that can facilitate or pose challenges to response and recovery operations. Local concerns regarding autonomy or cost sharing may cause a state or territory to decline federal assistance even when it is available. In addition, there is not a one size fits all approach to these concerns. During the 2017–18 season, it was quickly apparent that response resources and readiness posture varied for each event. Public land, infrastructure, and debris disposal facilities were readily available on the U.S. mainland, but were extremely limited and much costlier on remote island territories. Knowledge of local conditions, laws, governance, and contingency plans is critical in development of the appropriate response, to order the correct resources, and understand the operational, financial, and logistical constraints.

Another response reality, is that state on-scene coordinators and environmental agencies are managing concerns well beyond the scope of pollution removal and ESF10. The Coast Guard and federal partners need to gently push the importance of the mission, but understand that water quality, restoring power to sewage lift stations, mold remediation, and household hazardous waste are humanitarian and environmental missions that may trump sunken vessels and oil spills. Coast Guard incident commanders and response contractors must be prepared to take a larger role in coordinating the ESF10 response while state and territorial governments address the immediate humanitarian and infrastructure needs of their citizens. Coast Guard responders and incident commanders must be flexible and mindful of the holistic response concerns and requirements, and the need to maintain critical partner/stakeholder relationships to execute the mission successfully.

Coordination is Critical

While the NSF provides vital surge capacity and subject matter expertise to an affected local unit, interaction and coordination between the deployed NSF staff and its supported local units is paramount for a successful and efficient response. During 2017 and 2018 hurricane response operations, senior NSF officers were designated as incident-specific incident commanders and federal on-scene coordinator representatives (FOSCR) for ESF10 missions. This provided these individuals with the authority to coordinate response efforts and expend federal funding on behalf of the sector or district commander. This allowed the impacted sector to focus on immediate response needs, including port and waterways assessments, search and rescue operations, as well as facility damage assessments. This incident-specific designation, in addition to being a representative of the captain of the port (COTP)/federal on-scene coordinator, is limited in scope, and requires continuous close coordination between the ESF10 unified command and the local unit to execute other Coast Guard authorities to support the mission. For example, NSF incident-specific incident commanders/FOSCRs will work closely with sector prevention and response department heads to transition pollution assessments into the ESF10 mission, coordinate safety zone requirements, and address other issues.

Safety zones, when used during vessel mitigation and removal operations, are COTP authorities, which the ESF10 unified commander must coordinate with sector staff and the COTP to enact. Broadcast Notice to Mariners can also be coordinated with the local unit to provide for the safety of the response team and local mariners. Likewise, coordination with sector staff is needed to determine whether there are identified port facility infrastructure issues, especially when planning for staging areas for barges, cranes, tug boats and other pollution response resources. Coordinating information sharing regarding hurricane-impacted commercial vessels is also crucial, since both ESF10 pollution responders and domestic inspectors will likely be in contact with the owners. As the ESF10 mission continues, coordination and open communication between the ESF10 unified command and the local unit's incident management division/pollution responders is critical to getting appropriate resources to respond to new reports of pollution.

A discussion between the ESF10 unified command and the local unit at the onset of the response regarding determination of needed actions, communications, and expected actions by each party is extremely important to ensure disaster- and non-disaster-related pollution reports are appropriately addressed. Working with the National Response Center to include the ESF10 unified command on the notification distribution list for

pollution reports has also proven to be an additional layer of effective coordination. Local units have worked diligently to build effective working relationships with their port partners.

Efforts of the ESF10 unified command and the local unit to understand port partners' key players and relationships can streamline response efforts and reduce the potential for damage to relationships with port partners.

It can also enhance the visibility of available Coast Guard and Coast Guard Auxiliary resources including aircraft, vessels, personnel, infrastructure, and electronics. Continued coordination with local units throughout the response, to include embedding local unit members within the unified command, increases awareness of the mission for the affected local unit, while helping the command with key local knowledge, contacts, and resources.

Response Financing and Procurement

As impending storms developed in 2017 and 2018, the NSF coordinated closely with units, district incident management preparedness advisors, and Coast Guard area commands via daily conference calls to assist potentially impacted units with pre- and post-storm resource needs. NSF force packages were then surged, based on the identified requirements, to the requesting unit providing support for incident management, pre- and/or post-storm port and pollution assessments, and pre-staged flood SAR response. Resources surged included personnel, flood response teams and punts, communications equipment, air monitoring equipment, and command and control trailers.

Surging resources pre-storm provides the supported unit with numerous benefits. First and foremost, it allows for the NSF to mobilize safely prior to any storm impact and provides resource augmentation immediately following the event. Pre-deployed NSF members can also assist incident commanders with determining needs and ordering any additional resources or capabilities. Pre-staging finance and logistics personnel who can coordinate lodging and initial resource ordering, initiate response contracts through the Coast Guard's Shore Infrastructure Logistics Center (SILC), and manage mission assignment funding is critical for standing up incident command posts (ICPs).

During the 2017 and 2018 hurricane seasons, NSF closely collaborated with units, FEMA, SILC, the National Pollution Funds Center, Coast Guard districts, and Coast Guard areas to ensure appropriate funding mechanisms were used to rapidly deploy resources, identify and transition to post-disaster funding sources, and to document fiscal accountability throughout the response duration. To facilitate rapid, safe deployment of NSF resources, the strike force maintains operational funding to pre-deploy resources ahead of the storm, however, unit operational funding can also be used for pre-deployment of requested resources.

Successful Responses

Strong contingency plans and relationships established well before disaster struck were critical to the NSF's success during these storms. While recovery is a long process and will not be complete for some time, the Coast Guard's National Strike Force responders played a key role in reestablishing effective maritime governance at the local, territorial, state, and federal levels. They also sped up short term restoration of command while facilitating long-term protection of vital natural and economic resources.

The Coast Guard responds to search and rescue requests in response to Hurricane Harvey in the Corpus Christi, Texas, area in August 2017. The service worked closely with all federal, state, and local emergency operations centers and established incident command posts to manage search and rescue operations. Coast Guard photo by Petty Officer 3rd Class Brandon Giles

A Coast Guard Flood Punt Team transports a family and its dog through a flooded neighborhood in Houston, Texas, in August 2017. These teams assisted more than 2,860 people during rescue operations for Hurricane Harvey. Coast Guard photo by Petty Officer 3rd Class Ryan Dickinson

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LCDR Allison Cox previously served as executive officer of the Pacific Strike Team.

LCDR Tim Brown serves as senior reserve officer of National Strike Force Coordination Center.

Endnotes:

1. See *Proceedings* edition Fall 2015 for a more detailed look at the NSF, units and missions.
2. Within a 15-month period, the NSF deployed forces to support nine weather system responses: Harvey (TX—August 2017), Irma (FL—September 2017), Maria (Puerto Rico/U.S. Virgin Islands—September 2017), Nate (AL—October 2017), Lane (Hawaii—August 2018), Mangkhut (Guam—September 2018), Florence (North Carolina/South Carolina—September 2018), Michael (Florida—October 2018), Yutu (Saipan—October 2018)
3. Closing the time and distance vectors are inextricably linked to the effectiveness of resources—recent history has shown significant logistical challenges in the immediate aftermath of a natural disaster complicate traveling throughout impacted regions as a result of significant debris fields, flooding, and damaged infrastructure. In an effort to positively influence resiliency, the NSF encourages field units to request to strategically preposition and has proactively staged assets ahead of dangerous storm and wind conditions.
4. Regionally-based and world-wide deployable, the NSF remains ready to deploy as quickly as within two hours of notification and can deploy all forces within 24 hours. There are a number of fiscal vehicles to mobilize NSF responders; CERCLA allows Federal On Scene Coordinators (FOSCs) to pre-position response assets, and the Coast Guard has used operating funds in the past to pre-emptively deployed incident management response and support assets. The OSLTF, Superfund, and Stafford Act funding may be used post-impact to support responses.
5. Federal Emergency Management Agency (FEMA). "National Response Framework, Third Edition." www.fema.gov/media-library-data/1466014682982-9bcf8245ba4c60c120aa915abe74e15d/National_Response_Framework3rd.pdf.
6. Federal Emergency Management Agency (FEMA). "Emergency Support Function #9 – Search and Rescue Annex." www.fema.gov/media-library-data/1470149567157-f1dc17ef606b8b82629bacf1c358dd55/ESF_9_Search_and_Rescue_Annex_20160705_508.pdf
7. NSF MRP: A National Strike Force (NSF) Mission Ready Package (MRP) is comprised of one 26-foot trailer (with ATTLA certification for deployment via military aircraft), two 16-foot flat bottom boats, two 15-foot inflatable boats and four Honda 20- horsepower outboard motors. Each CISAR MRP consists of a minimum of 8 personnel; 3 Crew members, 3 Operators, 1 Team Leader and an Agency Representative/Technical Specialist.
8. GAO Report to Congressional Addressees. "2017 Hurricanes and Wildfires: Initial Observations in the Federal Response and Key Recovery Challenges." www.gao.gov/products/GAO-18-472
9. Federal Emergency Management Agency (FEMA). "Emergency Support Function #10—Oil and Hazardous Materials Response Annex." www.fema.gov/media-library-data/1470149472600-da7148fddd4ed137534486036ab-ba0e8/ESF_10_Oil_and_Hazardous_Materials_20160705_508.pdf

D-Day, Operation Neptune, and the Matchbox Fleet

by Petty Officer 3rd Class David Micallef
U.S. Coast Guard

June 6, 1944, will always be remembered as D–Day. Allied forces invaded the beaches of Normandy in an operation codenamed Overlord. It was the largest air, land, and sea operation undertaken in U.S. history. The landing included more than 5,000 ships, 11,000 airplanes, and more than 150,000 servicemen fighting for the Allied forces.

President Franklin D. Roosevelt realized the Navy was stretched thin and in need of support from another resource, leading him to employ the assistance of the Coast Guard. The service was integral to the success of Operation Neptune, the amphibious assault phase of the invasion, supplying a fleet of 83-foot coastal patrol crafts—60 of them—in support of the operation.

From left *USCG-29 (83417), USCG-4 (83321),* and *USCG 2 (83304)* tied up at Poole, England. Coast Guard photo

Although the conditions for storming the beaches of Western Europe were not ideal, the Coast Guard and Allied forces battled through the elements. The mission was ultimately successful, in large part, because of Rescue Flotilla One, better known as ResFlo One.

ResFlo One was nicknamed "Matchbox Fleet" because the coastal patrol boats were built from wood and outfitted with two Sterling-Viking gasoline engines. An incendiary grenade or explosive device could have turned the boat into an inferno at any moment. The Coast Guardsmen who manned the boats were expertly trained months in advance off the east coast of the United States.

Before making the trip to Normandy the boats were sent to New York Harbor and stripped of extra equipment. They were also stripped of their call signs and renamed *CG 1* to *CG 60* to make communication easier during war.

ResFlo One's boats, manned by an average of 13 crew members per vessel, took on the extremely dangerous job of rescuing men from the Bay of Seine while under heavy enemy fire. Fifteen of those Coast Guardsmen lost their lives on D–Day, and the service lost more ships than on any other day in history. Four Coast Guard-manned landing crafts sank during Operation Neptune after being riddled with gunfire or striking underwater mines.

At the conclusion of D-Day, the Coast Guard was tasked with setting up temporary harbors and securing the French port of Cherbourg. Coast Guard CDR Quentin R. Walsh, who retired as a captain, was charged with these responsibilities and was subsequently awarded the Navy Cross for extraordinary heroism in combat during WWII.

Credited with saving 400 men that day, and approximately another 1,500 before the coastal patrol crafts were decommissioned in December 1944, the Coast Guard's Matchbox Fleet played a vital role in sparking the liberation of France, adding to their page in history.

About the author:
Now-Petty Officer 2nd Class David Micallef is currently stationed at Air Station Clearwater, Florida, with the Public Affairs Detachment.

The 83-foot cutters *83401*, renamed *USCG 20*, and the *83402*, renamed *USCG 21*, were two of the 60 Coast Guard cutters sent to England to serve as rescue craft off the beaches during the invasion of Normandy. Coast Guard photo

Jack Hamlin: D-Day in a Matchbox

by Samantha L. Quigley
Executive Editor, Proceedings of the MSSC
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Jack Hamlin was among the more than 500 men who crewed the Matchbox Fleet's vessels. Though they really didn't know what awaited them, he said their instructions were clear.

"Be nothing, but just be a lifeguard," he said. "We were not there to destroy anybody, to kill anybody. We were there just to do rescue operations and that's what we did.

"We went in with the landing barges … just in case," he said while standing in a pasture in Carentan, Normandy, France, in the midst of festivities marking the 70th anniversary of D-Day. "We'd get as many as we could out of the water … and take all we could back to the hospital ships."

Prevailing conditions that morning limited the number of trips Hamlin's boat could make to the hospital ship.

"It took us so long getting them out of the water," he said. "If they were injured, you had to be very careful and you had to have time to take them back to the hospital ships that were 10 miles out from shore. In the rough weather, we couldn't travel much over 10–15 knots with the injured aboard."

World War II Coast Guard veteran Jack Hamlin gets a kiss from an active-duty sailor during the 70th anniversary observance of D-Day in Carentan, Normandy, France. USO photo by Samantha L. Quigley

Just because his cutter never got closer than two miles to Omaha Beach does not mean Hamlin was exempt from the D-Day experience. He saw things "you wouldn't forget."

"In my cutter, I didn't have it that hard. But some of the others did. We had one cutter—I think it was cutter No. 19—saved about 170 that day. That's quite a job, 170 of them," he said, with the chill of remembrance momentarily glazing his eyes.

What he helped do that day—pulling wounded from a roiling English Channel—cemented his place in history. Hamlin may view his D-Day experience as just part of his job, but every time he returns to Normandy to mark that historic milestone, he is reminded that, for some, what he did equated to far more than a day at the office.

For the people of Normandy, especially, but France in general, the Allied troops returned their futures, and the locals freely express their gratitude when they encounter an American veteran.

"The people—the French people—have been wonderful to us. It just thrills me to death!" he said. "I've never seen so many women [ask], 'May I kiss you?'"

Hamlin, a recipient of the French Legion of Honor—the highest honor the French government can bestow upon an Allied troop—has traveled to Normandy regularly for D-Day anniversary events, and was planning to attend this year, but wasn't able to make the trip.

About the author:
Samantha L. Quigley is the executive editor of Proceedings *magazine, but was serving as editor in chief of the USO's* On Patrol *magazine at the time this article was first published.*

Working with International Partners on Marine Casualty Investigations

by LCDR Randy Preston
Detachment Chief
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In January 2015, a Costa Rican passenger vessel capsized and sank with more than 100 passengers on board. Three passengers, including one American, lost their lives. A little more than three years later, a Bahamian excursion boat carrying 10 American citizens experienced a catastrophic engine explosion resulting in the tragic loss of one life and serious injuries to other passengers.

Boating and shipping accidents can happen at any time, anywhere in the world. The commonality of these accidents is that multiple nations were involved in the investigations due to the national registry or "flag" of the vessel, nationality of the passengers or crew, and location of the incident. The Coast Guard, National Transportation Safety Board (NTSB), and our international counterparts often work together to investigate these and other maritime accidents.

In today's multinational global maritime transportation system, accidents or marine casualties continue to occur, and often multiple nations have an interest in the subsequent investigation. A nation's interest can be as a flag state, coastal state, substantially interested state, or interested party. These terms originate from the International Maritime Organization's (IMO) Code for the Investigation of Marine Casualties and Incidents, originally adopted in November 1997. This was later approved by IMO's Maritime Safety Committee, as amended in 2008. It took effect, and was adopted as a mandatory amendment to the Safety of Life at Sea convention on January 1, 2010. This amendment became the Code of the International Standards and Recommended Practices for a Safety Investigation Into A Marine Casualty Or Marine Incident—the IMO Casualty Investigation Code. While the United States is not signatory to the IMO Casualty Investigation Code at this time because of conflicts with our domestic law, the relevant governing statute, 46 USC § 6101 (g), allows for our involvement:

"To the extent consistent with generally recognized practices and procedures of international law, this part applies to a foreign vessel involved in a marine casualty or incident, as defined in the International Maritime Organization Code for the Investigation of Marine Casualties and Incidents, where the United States is a Substantially Interested State and is, or has the consent of, the Lead Investigating State under the Code."

The Coast Guard is the designated lead federal agency acting on behalf of the United States during international marine casualty investigations. The NTSB, as well as other interested or involved intragovernmental agencies, are invited to participate under a joint agency agreement. When a marine casualty involving a United States or foreign vessel occurs in waters subject to the jurisdiction of the United States, or overseas when the Unites States has an interest, the Coast Guard Office of Investigations and Casualty Analysis (CG-INV) manages the investigation. The Investigations National Center of Expertise (INCOE), a detachment of CG-INV, normally deploys to assist and represent the United States as the "Substantially Interested State (SIS)," or U.S. investigation representative, when the marine casualty occurs beyond U.S. jurisdiction.

After the facts and evidence are gathered, the Coast Guard's follow-on activities will vary depending on the circumstances of each investigation, such as who is the lead investigating nation or other desired outcomes of each case. The Coast Guard may review and comment on the lead flag state's report of investigation and provide commentary. The Coast Guard and NTSB may create an independent report of investigation, sharing the information with the other nations or agencies involved. The brief examples below identify

The catamaran, *Ecoquest*. Photo courtesy of Peter Brown

the some instances of unique and complex international investigations.

Examples of International Investigations

Sinking of Excursion Vessel with Loss of Three Lives

Costa Rica is an idyllic tourist destination drawing tourists with its favorable climate and beach destinations. On January 8, 2015, tourists in Playa Herradura, on the west coast, saw the *EcoQuest,* a large Costa Rican excursion catamaran in a palm fringed cove and arranged to take the day cruise across the Gulf of Nicoya to Isle Tortuga. After transferring to the catamaran via small pangas, outboard skiffs, the fun-filled journey began. What the passengers did not notice was the design and construction of the hulls, how water could pass from hull to hull without any subdivision, and that there were large windows missing in the side of the hulls. These windows opened to the sea which, on this wave-tossed voyage, allowed seawater to pour into the vessel's hull. The seawater intrusion of both hulls caused a short period of listing, then a sudden, total loss of stability that led to a dramatic sinking that left more than 100 people in the water, three of whom ultimately perished, including an American citizen. When the Coast Guard received notification, the investigation team quickly went to work.

During the investigation, the team of investigators from the Costa Rican government, the U.S. Coast Guard, and the NTSB would determine many of the facts regarding the hull and window design modifications. At the time of the accident, Costa Rica did not have a national maritime authority with investigators, so its government delegated a national agency, similar to the United States'


Passengers cling to debris after the *Ecoquest* sank offshore of Costa Rica. Photo courtesy of the Bahamas Maritime Authority

FBI, the Organismo de Investigación Judicial, to conduct the investigation. Coast Guard and NTSB investigators proceeded to the west coast of Costa Rica to gather evidence and conduct interviews and, after nine days on the ground, completed the preliminary investigation. Additional evidence was gathered to conduct an analysis and formulate an independent U.S. Coast Guard report looking into the facts of the case and providing recommendations to the Costa Rican government.

Loss of Life and Serious Injuries in Excursion Vessel Explosion and Fire

On June 30, 2018, an unnamed, 37-foot Bahamian commercial charter vessel carrying 10 American citizens experienced an explosion and fire onboard shortly after leaving the dock from Great Exuma, Bahamas. The incident resulted in the loss of one life and serious injury to other passengers. Upon notification of the incident, CG-INV corresponded with the Bahamas to establish participation in the investigation as a SIS. The Bahamas is signatory to the IMO Casualty Investigation Code and its highly capable marine investigators often work with the United States. Shortly after establishing their involvement, the INCOE coordinated with the Bahamas Maritime Authority, NTSB, and other involved agencies to create an action plan within generally recognized practices and procedures of international law and the IMO Casualty Investigation Code. A Coast Guard-dispatched investigator from the INCOE and two NTSB investigators proceeded to the accident to assist the Bahamas with the investigation and represent the interests of the United States in this investigation. The investigators sifted through the charred debris, conducted interviews, and gathered substantial evidence to evaluate and determine the contributing factors that lead to this tragedy.

Sinking of Large Cargo Vessel Costs 33 Their Lives

In one of the worst tragedies in recent U.S. maritime history, on October 1, 2015, the *El Faro,* a large United States flagged roll-on roll-off container ship sank in Hurricane Joaquin with the loss of all 33 crew members. On board were five Polish nationals, part of a labor force working on the ship's engineering systems while in transit. In this case, Poland was a SIS, but made the decision to leave the investigation to the Coast Guard, while the NTSB served as the lead agency. Both agencies worked together to establish and gather the facts.

The Coast Guard conducted three sets of complex hearings into the circumstances of the accident. The Polish Maritime Authority (PMA) assisted to facilitate critical, remote video testimony of a former member of the labor force. On behalf of the NTSB, the PMA found the family of the deceased crew members and had them fill out questionnaires about the Polish crew to gather facts about the safety culture aboard the vessel, any safety drills, and the ship's prior voyage history.

A burned hull of the 37-foot unnamed Bahamian commercial charter vessel is all that remains after the explosion and fire. Photo courtesy of The Bahamas Maritime Authority

For the Common Good

In all of these tragic marine accidents, and many others, investigators from multiple countries approach the accidents with the desire to work together to determine why these vessels and the people on board were suddenly put in danger. It is the common goal of all investigating nations and agencies to improve safety and prevent future occurrences of marine casualties. These goals result in strong international and agency partnerships that facilitate information sharing and collaboration so recommendations can be developed that, ultimately, improve safety throughout the global maritime transportation system.

About the author:

LCDR Randy Preston is a marine safety and environmental protection professional with more than 30 years of active duty service and over 14 years of operations ashore experience. At the time this article was written, he was assigned as the Detachment Chief at the U.S. Coast Guard Investigations National Center of Expertise (INCOE). He and the INCOE staff routinely worked alongside the U.S. National Transportation Safety Board and foreign governments collaborating on marine casualty investigation.

Chemical of the Quarter

Understanding Sodium Hypochlorite

by Hillary Sadoff
Hazardous Materials Division
U.S. Coast Guard Office of Design and Engineering Standards

What is it?

Commonly known as chlorine bleach or simply, bleach, sodium hypochlorite, NaClO, is commonly used for disinfecting and bleaching and is found in items like household laundry detergent. Drinking water facilities and swimming pools use this and calcium hypochlorite to provide water that is safe for human enjoyment.

How is it shipped?

Shipped under UN1791 Hypochlorite Solutions as a Class 8 corrosive material, hypochlorite solutions can be transported a number of ways, including truck, train, plane, or vessel, provided applicable regulations are observed. It has two shipping packaging groups, II and III. The solution is typically diluted in water; 3 to 6 percent for consumer use and 10 percent or higher for commercial uses. However, it also can be shipped in solid form as a powder or tablet.

Hypochlorite solutions can be shipped in small amounts known as limited quantities. When shipped specifically for consumer use in limited quantities the shipment is known as Other Regulated Materials-Definitions materials, or ORM-D materials (49 CFR 173.154). This consumer commodity shipping method imposes less stringent restrictions on shipping the material, including the reduction of hazard communications (labels) on the individual package. The overall shipping package—the shipping container, cargo transport unit, box truck, etcetera—will still need to be placarded according to the Hazardous Material Regulations, 49 CFR Subchapter C. This will be the case until December 31, 2020, at which time it will ship under the appropriate class and must meet all other specific requirements.

Why should I care?

This material is stable at room temperature and atmospheric pressure but can give off hazardous and toxic vapors. Pure sodium hypochlorite is a strong oxidizer. As such, it is corrosive and causes chemical burns to unprotected skin and mucous membranes—eyes, nose, mouth, and throat. The material is non-flammable and poses no fire risk.

What is the Coast Guard doing about it?

The Coast Guard enforces maritime transportation requirements for hazardous materials like Sodium Hypochlorite. Regulations found in 49 CFR Subchapter C are in place to minimize the risk associated with transporting packaged hazardous materials. These regulations set requirements for marking, labeling, and transporting of the material.

Additionally, the Coast Guard operates the National Response Center, the sole federal point of contact for reporting chemical spills. In the event of a spill or emergency with sodium hypochlorite or other hazardous material, call (800) 424-8802.

Sodium hypochlorite, formula NaClO. Photo by Robson90/Bigstock.com

About the author:
Hillary Sadoff is a chemical engineer in the Hazardous Materials Division in the Office of Design and Engineering Standards. Her primary responsibilities revolve around areas of packaged hazardous materials shipments by water. She serves as the USCG subject matter expert for rulemaking projects harmonizing international and domestic packaged hazardous materials regulations. She earned her B.S. and master of engineering degrees in chemical engineering from the University of Maryland, College Park, and has a graduate certificate in project management from Boston University.

Nautical Engineering Queries

Prepared by NMC Engineering Examination Team

1. What would cause a three-phase, squirrel-cage induction motor to run hot?

I. Operating at lower than rated voltage
II. Operating a higher than rated voltage

A. I only.
B. II only
C. Either I or II
D. Neither I nor II

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2. In a typical hydraulic system, a baffle is installed in the reservoir to do which of the following?

I. Ensure proper lubrication of the hydraulic pump
II. Assist in the removal of solid contaminants entrained in the returning oil

A. I only
B. II only
C. Both I and II
D. Neither I nor II

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3. A diesel engine operating at light load, when compared to operating at heavy load, has an air/fuel ratio that is which of the following?

A. Higher
B. Lower
C. Equal
D. Directly proportional

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4. The terms 'swell' and 'shrink' relate to change in boiler water levels which _____ .

A. results when the feed rate becomes erratic during maneuvering
B. is due to steam bubbles below the surface occupying a smaller volume
C. results from a change in steam flow or firing rate
D. indicates a high chloride concentration in the boiler water

Engineering Answers

1. *Note: When a three-phase, squirrel-cage, induction motor is operating at rated load and frequency, the winding temperatures will operate within rated parameters only when the motor is operating at or near rated voltage. When the applied voltage is above or below rated voltage, the motor windings will overheat.*

A. I only	Incorrect answer.
B. II only	Incorrect answer.
C. Either I or II	**Correct answer.** Operating a motor at rated load at a lower than rated voltage will cause an increase in stator line current. Operating a motor at rated load at a higher than rated voltage will cause an increase in stator exciting current. In both situations, the stator winding will overheat.
D. Neither I nor II	Incorrect answer.

Reference: Operating, Testing, and Preventive Maintenance of Electrical Power Apparatus, Hubert

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2. *Note: To aid in the release of entrapped air from the hydraulic oil, a baffle is installed in the reservoir to increase the amount of time it takes for the oil to return to the pump suction, thus, insuring proper lubrication of the pump. The baffle also increases the amount of time it takes for the oil to return to the pump suction. By allowing the oil more time to settle in the reservoir before re-entering the system, the removal of solid contaminants entrained in the oil can be achieved.*

A. I only	Incorrect answer.
B. II only	Incorrect answer.
C. Both I and II	**Correct answer.** A baffle is installed in the reservoir to insure proper lubrication of the pump and aid in the removal of solid contaminants entrained in the returning oil.
D. Neither I nor II	Incorrect answer.

Reference: Applied Marine Hydraulics, Stutman

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3. *Note: Diesel engines, in contrast to gasoline engines, do not run under constant air/fuel ratio conditions. The actual air/fuel ratio of a diesel engine is the actual weight of air supplied to the weight of fuel injected. Although the air/fuel ratio characteristics for a naturally aspirated engine will be different than that for a turbocharged engine, in both cases, far more air will be introduced into the cylinder than is required for complete combustion.*

A. Higher	**Correct answer.** The lower the load on a diesel engine, the less fuel is injected per compression/power event. This, in turn, will cause the air/fuel ratio to be higher.
B. Lower	Incorrect answer.
C. Equal	Incorrect answer.
D. Directly proportional	Incorrect answer.

Reference: Diesel and High Compression Gas Engines, Kates & Luck

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4. *Note: 'Shrink' and 'swell' are natural phenomena associated with the change in boiler water levels associated with changes in the steaming rate without a change in the weight of water in the boiler. These conditions are temporary until the balance between steam demand and steaming rate are restored by making adjustments in the firing rate.*

A. results when the feed rate becomes erratic during maneuvering	Incorrect answer.
B. is due to steam bubbles below the surface occupying a smaller volume	Incorrect answer.
C. results from a change in steam flow or firing rate	**Correct answer.** If there is a sudden increase in steam demand at a constant steaming/firing rate, the drop in boiler pressure will cause the steam bubbles in the generating tubes to expand. The displaced water will enter the steam drum and cause a rise in water level, resulting in 'swell'. Conversely, if there is a sudden decrease in steam demand at constant steaming/firing rate, the rise in boiler pressure will cause the steam bubbles in the generating tubes to contract. The displaced water will leave the steam drum and cause a drop in water level, resulting in 'shrink'. The same phenomena holds true if there is a sudden change in firing rate at constant steam demand. This will cause a rise in boiler pressure resulting in 'shrink,' whereas a sudden decrease in firing rate at constant steam demand will cause a drop in boiler pressure resulting in 'swell.'
D. indicates a high chloride concentration in the boiler water	Incorrect answer.

Reference: Introduction to Marine Engineering, Latham

Nautical Deck Queries

Questions

Prepared by NMC Engineering Examination Team

1. INTERNATIONAL ONLY: On open water, a power-driven vessel coming up dead astern of another vessel and altering her course to starboard so as to pass on the starboard side of the vessel ahead would sound which signal?

A. Two short blasts
B. One short blast
C. Two prolonged blasts followed by one short blast
D. One long and one short blast

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2. What is the maximum oxygen content below which flaming combustion will no longer occur?

A. 1%
B. 10%
C. 15%
D. 21%

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3. Cold water flowing southward through the western part of the Bering Strait between Alaska and Siberia is joined by water circulating counterclockwise in the Bering Sea to form which current?

A. Alaska Current
B. Subarctic Current
C. Kuroshio Current
D. Oyashio Current

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4. Which of the following is a knot used to join two lines of different diameters?

A. Square knot
B. Carrick bend
C. Becket bend
D. Sheepshank

1. A. Two short blasts — Incorrect

B. One short blast — Correct answer. In accordance with International Rule 34(a), When vessels are in sight of one another, a power-driven vessel underway, when maneuvering as authorized or required by these rules, shall indicate that maneuver by the following signals on her whistle:

- one short blast to mean "I am altering my course to starboard"
- two short blasts to mean "I am altering my course to port"
- three short blasts to mean "I am operating astern propulsion"

C. Two prolonged blasts followed by one short blast — Incorrect

D. One long and one short blast — Incorrect

Reference: *Navigation Rules and Regulations Handbook,* August 2014. International Rule 34(a)

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2. A. 1% — Incorrect

B. 10% — Incorrect

C. 15% — **Correct answer.** The intensity of a fire begins to decrease below an 18 percent oxygen content. No flaming combustion will occur below a 15 percent oxygen content.

D. 21% — Incorrect

Reference: *Marine Fire Fighting, IFSTA,* 1st Edition

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3. A. Alaska Current — Incorrect

B. Subarctic Current — Incorrect

C. Kuroshio Current — Incorrect

D. Oyashio Current — **Correct answer.** Cold water flowing southward through the western part of the Bering Strait between Alaska and Siberia is joined by water circulating counterclockwise in the Bering Sea to form the Oyashio Current.

Reference: *American Practical Navigator,* 2002 Edition

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4. A. Square knot — Incorrect

B. Carrick bend — Incorrect

C. Becket bend — **Correct answer.** The becket bend (sheet bend) is used to join two lines of different diameters and remains easy to untie after being under a strain.

D. Sheepshank — Incorrect

Reference: *Chapman's Piloting and Seamanship,* 66th Edition

In the News: Coast Guard Migrant Interdiction

A Coast Guard Station Key West 45-foot Response Boat-Medium boat crew interdicts an 18-foot migrant chug with 27 Cuban migrants, including 22 males, four females and one child, aboard on July 27, 2019. About 438 Cuban migrants have attempted to illegally enter the U.S. via the maritime environment in fiscal year 2019, compared to 384 Cuban migrants the previous fiscal year. Coast Guard photo by Petty Officer 3rd Class Daniel McCravy

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Artist rendering for the newest U.S. Polar Security Cutter, awarded to VT Halter Marine. Illustration by VT Halter Marine/Design by Technology Associates, Inc.