



AMERICA'S 21ST CENTURY COAST GUARD: RESOURCING FOR SAFETY, SECURITY AND STEWARDSHIP

2013 WHITE PAPER ON RESOURCING THE U.S. COAST GUARD



Homeland
Security

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FROM THE COMMANDANT

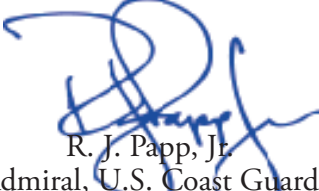
This 2013 White Paper builds on the 2011 DHS White Paper on the Coast Guard that outlined the strategic framework for the service in the 21st Century. This effort takes the next step to explain how and why proficient and dedicated Coast Guardsmen and cutters, boats, aircraft, infrastructure and systems are organized and allocated to protect people on the sea, protect people from threats delivered by sea, and protect the sea itself.

The White Paper provides an overview of Coast Guard roles, missions, tasks, and resources, then describes how the Coast Guard employs authorities, capabilities and partnerships to accomplish its missions in support of the Department of Homeland Security and national objectives.

With lead Federal responsibility for ensuring the safety, security, and stewardship of the Nation's waters, the Coast Guard must have the equipment and capabilities to enable Coast Guard men and women (active, reserve, civilian, auxiliary) to do their jobs in an inherently dangerous environment. Continuing growth in global trade, increased use of the seas – for legitimate and illicit purposes – and the demand for strong maritime governance demand a U.S. Coast Guard that is *Semper Paratus* – Always Ready.



Semper Paratus,



R. J. Papp, Jr.
Admiral, U.S. Coast Guard

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Introduction

The United States Coast Guard is America's maritime first responder. It is the lead federal agency that ensures the safety, security and stewardship of U.S. citizens, resources, interests, allies, and partners in the maritime domain.

Part of the U.S. Department of Homeland Security (DHS), the Coast Guard works closely with other Homeland Security components – as well as other U.S. government, state, local, and tribal agencies – and provides important links between DHS and the Department of Defense (DoD). Most fundamentally, the Coast Guard protects those on the sea, against threats delivered by sea and the sea itself. The Coast Guard maintains the security of the Nation's maritime borders, facilitates the global movement of commerce, safeguards natural marine resources, and responds to threats and hazards to America's maritime and marine interests and security.

A maritime nation, the United States depends on the seas for economic prosperity and security – which are both inextricably intertwined and face evolving threats and challenges, as shown in Table 1.

The Coast Guard protects the Nation's scarce marine resources and fisheries, and enables the safe exploitation of mineral and energy resources in the territorial sea, Exclusive Economic Zone (EEZ), and continental shelf.

The United States relies on its ports and coastal and inland waterways as safe avenues of trade and transportation for 90 percent of U.S. global commerce, fueling America's economy. However, U.S. ports, inland and coastal waterways and offshore zones are vulnerable to illicit activities, natural disasters and other threats.

In addition, with the opening of the Arctic to greater transportation, tourism, and resource extraction, the Coast Guard is central to solutions that address critical commercial, environmental, and security concerns.

Finally, as one of the five U.S. Armed Forces, the Coast Guard carries out vital defense and military roles, missions, and tasks in crisis and war. Since 1790, the Coast Guard has participated in every armed conflict. Today, the Coast Guard serves alongside the Navy – and together they comprise the "National Fleet," to provide unique and complementary capacities and capabilities to secure America's maritime interests at home and abroad.

This 2013 White Paper builds on the 2011 DHS White Paper that outlined the strategic framework for the U.S. Coast Guard in the 21st Century. The present effort – *Resourcing for Safety, Security and Stewardship* – takes the

Threats and Challenges to the Nation's Waters

Diverse, unpredictable, asymmetric and transnational threats and challenges confront the United States and its allies worldwide – from inland waters to the high seas:

- Terrorism in strategic ports and waterways including vessel-borne improvised explosive devices (IEDs)
- Over-exploited fisheries and the destruction of marine habitats
- Marine pollution and invasive species
- Organized crime and smuggling of drugs, arms, and people
- Piracy, trade disruption, and terrorist attacks
- Mass migration flows
- Environmental attacks
- Proliferation of chemical, biological, radiological, nuclear, and enhanced-explosive (CBRNE) weapons
- Global health threats, including the spread of infectious diseases like SARS and avian flu, and more...

Table 1

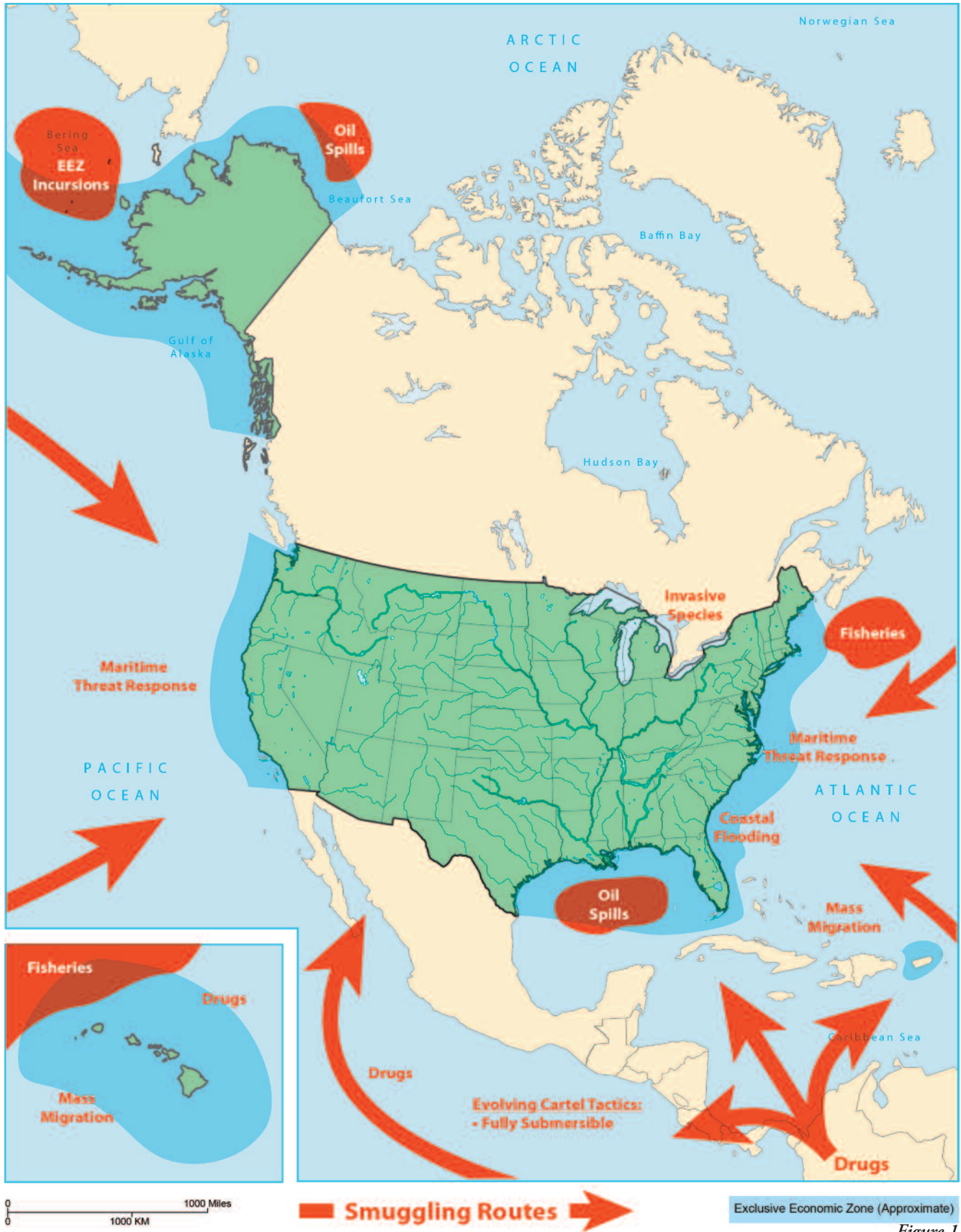


Figure 1

next step, and explains how and why Coast Guard resources – highly skilled and motivated people, cutters and boats, fixed-wing aircraft and helicopters, deployable specialized forces, and command-control-communications-computers-information-technology (C4IT) systems – are allocated to inland waters, ports and coastal waterways, the EEZ and high seas, and overseas to meet America’s safety, security, and stewardship needs. Adopting a “strategy-to-task” perspective, it provides an overview of Coast Guard roles, missions, tasks, and resources, and describes how the Coast Guard implements its authorities and mandates, develops and strengthens partnerships, and provides the persistent presence to carry out operations in support of its strategic mission.

USCG Roles, Missions, and Operations

The strategic mission of the United States Coast Guard is to ensure the safety, security and stewardship of the Nation’s waters. In the execution of its duties, the Coast Guard maintains a persistent presence throughout the maritime domain to carry out numerous roles, operational missions and tasks specified in U.S. law:

Safety – Protect Those on the Sea

- Search and Rescue
- Marine Safety

Security – Protect the Nation from Threats Delivered by Sea

- Ports, Waterways, and Coastal Security
- Drug Interdiction
- Migrant Interdiction
- Defense Readiness

Stewardship – Protect the Sea Itself

- Living Marine Resources Protection
- Marine Environmental Protection
- Aids to Navigation and Waterways Management
- Polar Ice Operations, Domestic Icebreaking and International Ice Patrol
- Other Law Enforcement

In support of its mission, the Coast Guard must establish and maintain maritime domain awareness, ensure the safety of the American public on the water, secure the sovereignty of U.S. maritime borders, and support U.S. maritime interests worldwide. In addition to a very broad range of legal authorities that cross multiple levels of government, the Coast Guard forges vital partnerships with federal, state, local, tribal, international authorities, and private industry. These relationships are key to enhance the Service’s capability and effectiveness given the range of multidimensional threats and challenges depicted in Figure 1.

The Coast Guard’s strategic concept is founded on the ability to prevent dangerous or illicit activities from occurring and to respond quickly and effectively when needed. Coast Guard resources are utilized to carry out a comprehensive mission set of homeland security, law and regulatory enforcement, and national security and defense operations and tasks in support of the Coast Guard’s layered, security-in-depth “prevent and respond” strategic concept. Table 2 provides a breakdown of the Service’s roles, missions, activities and functions.

Coast Guard Roles, Missions, Activities and Functions

Roles	Missions	Activities and Functions
Maritime Safety: Protect those on the sea.	Search and Rescue	Operate a national distress/response communication system; operate surface and air assets; plan, coordinate, and conduct search and rescue operations for persons and property in distress.
	Marine Safety	Establish standards and conduct vessel inspections to ensure the safety of passengers and crew aboard commercial vessels; partner with states and boating safety organizations to reduce recreational boating accidents and deaths. Investigate marine casualties; license U.S. mariners.
Maritime Security: Protect the U.S. from threats delivered by sea.	Ports, Waterways, and Coastal Security	Conduct harbor patrols, complete vulnerability assessments, enforce security zones, approve vessel and facility security plans and ensure compliance, develop Area Maritime Security Plans, conduct risk assessments, assess foreign port antiterrorism measures, and other activities to prevent terrorist attacks and minimize the damage from attacks that occur.
	Drug Interdiction	Deploy cutters, aircraft and specialized forces to conduct patrols, interdict and seize maritime drug trafficking vessels.
	Migrant Interdiction	Deploy cutters and aircraft to prevent, disrupt and interdict maritime smuggling and illegal maritime migration into the U.S.
	Defense Readiness	Provide forces to the DoD to perform joint military operations worldwide. Deploy cutters, boats, aircraft and deployable specialized forces in and around harbors to protect DoD force mobilization operations in the U.S. and expeditionary operations overseas.
Maritime Stewardship: Protect the sea itself.	Ice Operations	Conduct Arctic and Antarctic Operations to facilitate the movement of critical goods and personnel in support of scientific requirements, national security activities and maritime safety. Conduct domestic ice breaking operations to facilitate navigation and commerce. Conduct International Ice Patrol operations.
	Navigation and Waterways Management	Maintain the extensive system of U.S. aids to navigation. Monitor and coordinate marine traffic in key ports and waterways through Vessel Traffic Services. Regulate construction and operation of bridges that span navigable waters.
	Marine Environmental Protection	Prevent and respond to oil and hazardous substance spills. Prevent illegal dumping in U.S. waters. Prevent invasions by aquatic nuisance species.
	Living Marine Resources	Safeguard U.S. living marine resources and their environment, to include protected species, protected areas, and critical habitats, from unlawful acts and environmental degradation.
	Other Law Enforcement	Protect the U.S. maritime borders, EEZ, and relevant areas of the high seas by detecting, deterring, and interdicting foreign and domestic vessels engaged in illegal operations.

Table 2

USCG Operational Zones

The Coast Guard carries out these roles, missions, and tasks in three maritime zones – inland, coastal, and offshore – comprising the general framework within which the Service makes its asset allocations, as well as conducts day-to-day operations. Figure 2 illustrates the Coast Guard’s operating zones, the resources in those zones and their overall condition.

The *inland zone* includes the entire Marine Transportation System - waters inward from the U.S. shoreline and more than 50 major ports, such as New York Harbor and Los Angeles/Long Beach complex, and navigable inland waterways, such as the Mississippi River system and the Great Lakes. Coast Guard personnel assigned to land-based units are equipped with boats and supported by short- and medium-range helicopters to respond to incidents in this zone.

Marine Safety personnel also conduct inspections of oil and chemical tankers, cargo ships, and other commercial vessels to ensure they are in

compliance with U.S. and international environmental and safety standards. Coast Guard personnel inspect ships, port facilities, and terminals that handle oil, hazardous materials, and other dangerous cargoes. Vessel Traffic Services (VTS) and aids-to-navigation (ATON) boats work to ensure navigational safety.

Operating Area	Asset Type	Asset Class (In-Service/ Replacement)	Current Operational Performance ¹	C4ISR Capability ²	Fleet Condition Assessment ³
Inland/ Coastal (Inland waters out to 50 NM)	Response & Pursuit Boats	25' Response Boat-Small	Green	Green	Green
		33' Special Purpose Craft-Law Enforcement	Green	Green	Green
	Medium Range Multi-Mission Boats	41' Utility Boat	Yellow	Yellow	Red
		45' Response Boat-Medium	Green	Green	Green
	Surf Boats	47' Motor Life Boat	Green	Green	Yellow
	Aids to Navigation Boats	26' Aids to Navigation Boat	Green	Green	Green
		49', 55', 64' Aids to Navigation Boats	Green	Green	Yellow
	Inland & Coastal Construction/ Buoy Tenders	65', 75' & 100' Inland/River Buoy Tenders	Green	Yellow	Red
		65', 75', 100' & 160' Construction Tenders	Green	Yellow	Red
		175' Coastal Buoy Tender	Green	Green	Green
	Icebreaking Tugs	65' Small Harbor Tug	Green	Yellow	Red
		140' Icebreaking Tug	Green	Yellow	Green
Coastal Patrol Boats	87' Coastal Patrol Boat	Green	Green	Green	
Offshore (50+ NM)	Patrol Boats	110' Patrol Boat	Yellow	Yellow	Yellow
		154' Fast Response Cutter	Green	Green	Green
	Sea Going Buoy Tenders & Great Lakes Icebreaker	225' Sea Going Buoy Tender	Green	Green	Green
		240' Great Lakes Icebreaker	Green	Green	Green
	High Endurance Fleet	210' Medium Endurance Cutter	Yellow	Red	Red
		270' Medium Endurance Cutter	Yellow	Red	Red
		Medium Endurance Cutters - Mature Class	Red	Red	Red
		Offshore Patrol Cutters	N/A	N/A	N/A
		378' High Endurance Fleet	Green	Red	Red
	Polar Icebreaker Fleet	418' National Security Cutter	Green	Green	Green
420' Medium Icebreaker		Green	Green	Green	
399' Heavy Icebreaker		Yellow	Yellow	Red	
Aviation Capability	Short Range Recovery (375 nm, 3 hrs)	MH-65 C/D	Green	Green	Green
	Medium Range Recovery (700 nm, 6 hrs)	MH-60 J/T	Green	Green	Green
	Medium Range Surveillance (2,200 nm, 9 hrs)	HU-25 Guardian	Yellow	Yellow	Red
		HC-144A Ocean Sentry	Green	Green	Green
	Long Range Surveillance (5,500 nm, 20 hrs)	HC-130H	Green	Yellow	Yellow
HC-130J		Green	Green	Green	
Indicates Actual/Planned Decommissioning of a Legacy or In-Service Asset Class.					
<p>Notes:</p> <ol style="list-style-type: none"> Green indicates that the asset meets key performance parameters (speed, range, seakeeping, edurance, crew accommodations) associated with current mission/operational performance requirements. Yellow indicates that the asset does not meet some parameters. Red indicates that it meets none of the requirements. Ability of assets to serve as a suitable platform for conducting assigned missions, including ability to conduct joint mission or interoperate with other agencies or DoD Services based on C4ISR capability (communications, detection, sensors, etc). Overall availability, material condition and reliability of asset class/fleet. 					

Figure 2

The *coastal zone* begins at the shoreline and extends outward to 50 nautical miles. Land-based units, boats, smaller cutters, ATON tenders, and fixed-wing aircraft and helicopters monitor and patrol this zone. For operations close to shore, boat types are designed for agility, durability, fast response, or operation in extreme surf conditions. For operations at the outer edges of the coastal zone, the Coast Guard maintains a persistent presence of patrol boats that remain on station for several days and are supported by short- and medium-range aircraft and helicopters. These assets conduct security patrols, extended SAR operations, and numerous law-enforcement tasks.

The Coast Guard operates in the *offshore zone* to detect, intercept, and defeat threats well before they reach U.S. coastal waters and to render assistance to those in distress far from shore. The offshore zone begins at 50 nautical miles from shore and extends outward, at times reaching across international waters and high seas to the territorial seas of foreign nations. The offshore zone includes the 4.5 million square mile (3.4 million square nautical miles) U.S. Exclusive Economic Zone, over which the Nation controls critical mineral and living marine resources. Bi-lateral agreements, with other countries in certain areas, give the Coast Guard specific jurisdictions in foreign territorial seas to protect mutual interests. Major Coast Guard cutters patrol primarily the offshore zone to ensure persistent law enforcement presence, to detect and interdict threats to the homeland, and to be ready to respond to military and defense requirements. These cutters also serve as Command and Control (C2) “nodes” to coordinate the actions of multiple response assets – long-range patrol aircraft and fast-response long-range interceptor and over-the-horizon boats. For example, if an in-bound commercial ship were identified as a high-risk vessel, Coast Guard cutters would intercept it in the offshore zone to verify its intentions, crew, and cargo. Depending on what might be found, the ship could be denied entry into U.S. waters. Coast Guard cutters and aircraft operating in the offshore zone are thus at the “forward edge” of the Nation’s “layered” approach to homeland security, protecting offshore natural resources, rescuing mariners in distress, and interdicting threats before they reach the U.S. homeland.

Within these strategic and operational frameworks, Coast Guard resourcing and capitalization efforts span a broad range of programs. The Service has major acquisition programs underway to replace and modernize its ships, boats, aircraft, and command, control, communication, computers, intelligence, surveillance and reconnaissance (C4ISR) systems. This process of replacing or recapitalizing older, maintenance-intensive assets is essential to sustaining the capability and capacity to conduct vital frontline operations to ensure our nation's maritime safety and security. The Coast Guard has taken steps to increase affordability of its recapitalization program at all points of the project life cycle – from the requirements-generation process to the employment of integrated logistics systems to minimize overall life cycle costs. The Service continuously evaluates various contracting strategies to manage acquisition risks, given current fiscal constraints and economic conditions.

Of course, while this recapitalization process is underway, the Coast Guard must continue to effectively and efficiently carry out its numerous missions, operations, and tasks that respond to various “demand signals” at home and abroad and make resource-allocation decisions.

Resource Demand Signals

Several operational drivers shape the Coast Guard's organization, force structure, deployments, and resourcing within its three-zone operational construct: the U.S. population's density and proximity to inland and coastal waterways; major port volume and throughput; the locations of living and non-renewable marine resources; the dynamics of threat vectors – particularly drug and migrant flow in the Caribbean, Gulf of Mexico, and the eastern Pacific; and the broad expanse of the U.S. maritime domain. These demand signals, or operating environment characteristics, drive the mix of personnel, platforms, and systems, organized and deployed to execute the full range of Coast Guard missions.

Some 50 percent of the U.S. population lives and works within 50 miles of navigable waters and the Nation's littorals. In the inland and coastal zones, the population's proximity to the water; port activities; public, private, and commercial waterborne activity; and nearby concentrations of living and non-living marine resources help determine the basing and deployment of Coast Guard assets. Major Coast Guard facilities are generally located in the areas of greatest population density and proximity to water, where human demand for transportation, commerce, recreation, and other uses is high. The Coast Guard organizes its inland operations and resource allocations to account for a range of anticipated marine industry activity and heightened requirement for services. The Service positions its assets to anticipate maritime incidents and distress calls to ensure rapid response to emergencies, including potential criminal or terrorist activity.

The Nation's ports and waterways are vital conduits of the U.S. and worldwide Marine Transportation System that makes up a large part of the global supply chain. More than 90 percent of U.S. trade by volume transits our ports, and goods unloaded at U.S. ports reach 75 percent of the American public within 24 hours. Coast Guard port security and ATON assets (e.g., buoy tenders) are vital to the marine transportation industry that sustains 13 million American jobs in and around America's 361 ports and generates some \$650 billion each year for the U.S. economy. Coast Guard cutters, boats, and aircraft patrol and monitor ports and waterways, enforcing regulations and responding to incidents. As noted earlier, they also maintain aids to navigation that identify

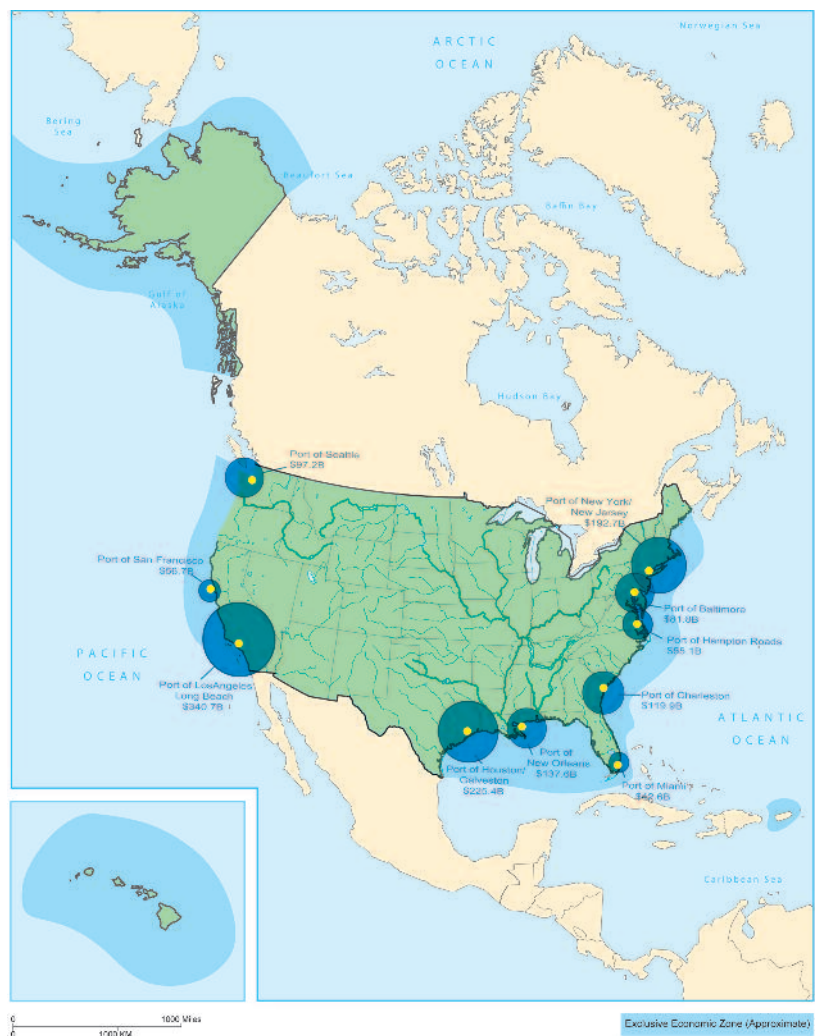


Figure 3

shipping and boating channels and enable public boater's and private operator's smooth and safe transit along the U.S. coastline, around ports, and in internal navigable waterways. Figure 3 graphically depicts the relative size of the major U.S. ports based on the inport/export value of trade in given port.

The remote concentrations of living and non-living marine resources in the U.S. EEZ are also major factors that drive requirements for Coast Guard resources capable of operating in severe, highly demanding environments, often far from homeports. The international requirement to patrol North Pacific High-Seas Fisheries, for example, typically conducted by Coast Guard High Endurance and National Security Cutter deployments for up to 90 days, drives the need for high-endurance operational capabilities. Complemented by long-range aircraft, Coast Guard surface assets conduct long-duration patrols from the Bering Sea and Arctic Ocean along the maritime boundary line between Russia and the United States, to Hawaii and Guam – distances that cover hundreds of thousands of square miles of barren ocean space. Operating year round in severe, highly demanding, distant environments calls for specialized training, equipment, and assets.

In addition, the Coast Guard works continually to assess changes in threat dynamics to anticipate and prevent adverse events. By collecting intelligence, identifying patterns, and detecting anomalies to those patterns, the Service can determine where criminals and potential terrorists are more likely to be in high-threat areas and ultimately interdict them well away from U.S. coasts.

At home, the Service stands watch over more than 100,000 miles of U.S. coastlines and inland waterways – enough to circle the world four times – and the world's largest EEZ, roughly 29% larger than the continental United States. Overseas, the Coast Guard works closely with numerous maritime partners in government, international and private organizations. In sum, the Coast Guard's area of responsibility is immense and far-reaching, extending from the heartland of America and the Nation's inland waterways, to continental U.S. ports and coastal waterways, to Hawaii and Alaska, to U.S. overseas territories, and to foreign ports.

Resourcing the Coast Guard

Determining the allocation and deployment of Coast Guard resources is at the heart of the Service's ability to carry out its diverse mission set. Operational drivers shape the Coast Guard's basing strategy and resourcing within all three zones – inland, coastal, and offshore. These drivers are:

- The U.S. population's proximity to inland and coastal waterways;
- Port volume and throughput;
- The locations of living and non-renewable marine resources;
- The dynamics of dangerous threat vectors;
- The broad expanse of the U.S. maritime domain

The Coast Guard uses a planning system that provides strategic guidance and direction to address mission requirements and execution. After considering operational risk and competing demands for resources, the system

designates mission priorities and performance targets, allocates asset types, resource hours to missions, and focuses exercise and training requirements across the Coast Guard in all mission areas.

Using a feedback assessment and reporting tool to generate a quantitative and qualitative summary from each level in the chain of command, the tool forecasts performance challenges, capability needs, and readiness and preparedness issues, which are used to fine-tune resource allocations by location and asset mix.

The Coast Guard's strategic mission to ensure the safety, security, and stewardship of the Nation's waters requires a coordinated system of assets: highly trained and motivated people, cutters and boats, aircraft, specialized deployable teams, and C4IT systems. These assets must be integrated within a shore-based command and control structure that directs routine operations as well as emergency response. This command and control framework provides the ability to allocate, coordinate, deploy, surge, and direct forces locally, regionally, and globally, and to operate independently as well as in coordination with federal, state, local, tribal, industry, and international partners.

In maritime security, a "Maritime Trident" of shore-based, maritime patrol, and deployable specialized forces combines with a highly integrated system of authorities, capabilities, and partnerships that link to the broader homeland security enterprise.

What follows is an overview of the personnel and material resources that are allocated and deployed in support of the Service's roles, missions, and tasks.

People

The heart and soul of the Coast Guard are its people – the highly skilled proficient, motivated, and dedicated men and women who reflect the Service's vision and mission. In 2012, the Coast Guard numbers 42,380 Active Duty uniformed personnel and 7,861 Reservists, 32,633 volunteer Auxiliarists, and 6,816 civilians – some 89,690 people in all.

Coast Guard personnel are located at bases and facilities close to major population centers adjacent to inland waters and ports. Trained Coast Guard personnel work closely with industry and other federal, state, and local agencies to inspect cargo and ensure the safety of commercial ships. Other units use ATON assets to maintain thousands of navigational aids that mark and identify the inland waterways and maritime approaches to the United States. Still others provide constant vigilance to protect America's maritime borders – anticipating, detecting, and interdicting threats and challenges within the Nation's maritime domain.

During surge or extended response operations, Coast Guard personnel from across the United States augment resources assigned to the affected area, as was the case during the 2010 BP Deepwater Horizon Oil Spill and Haiti Earthquake emergencies. Personnel from Coast Guard active duty, reserve component, volunteer auxiliary, and civilian workforce quickly deployed to the operational areas. This dynamic and flexible posture of respond, assist, and support is a cornerstone of Coast Guard operational doctrine.

Shore-Based Forces

Shore-based Forces include District and Sector commands and subordinate units that operate in U.S. inland waterways, ports, and coastal regions. Shore-based resources are allocated in response to the several drivers identified earlier, particularly the U.S. population's proximity to inland and coastal waterways, port volume and throughput, the locations of living and non-renewable marine resources, and assessments of threat vectors. Resources are allocated using a defined risk-based approach.

Within the inland and coastal operational areas, the Captain of the Port (COTP) has broad prevention and response authority to enforce port safety, security, and marine environmental protection regulations. This authority includes the ability to establish regulations for the protection and security of vessels, harbors, and waterfront facilities; anchorages; bridges; safety and security zones; and ports and waterways. The COTP also investigates maritime accidents and emergencies, and determines whether applicable laws have been violated or whether changes should be made to improve safety through prevention programs.

Shore-based prevention units conduct marine inspections, waterways management, and marine investigation activities such as: maintenance of aids-to-navigation, issuing safety and security warnings, inspecting regulated vessels and facilities, and investigating marine casualties. Response elements conduct incident management and enforcement activities such as SAR, pollution investigation, security patrols, and vessel boardings.

<i>Station Boats (798 Total)</i>
<ul style="list-style-type: none">• 52' Special Purpose Craft – Heavy Weather• 47' Motor Life Boat• 45' Response Boat – Medium• 42' Special Purpose Craft – Near Shore Lifeboat• 41' Utility Boat• 33' Special Purpose Craft – Law Enforcement• 29' and 25' Response Boat – Small• 27' Utility Boat Medium• 24' Special Purpose Craft – Shallow Water

Table 3

Shore-based units include:

- Boat Stations: fixed-response units that conduct operations in inland and along coastal areas using motor lifeboats, response boats, and special-purpose craft. Station boats are listed in Table 3.
- Aids to Navigation Teams: mobile prevention units that conduct operations in inland and coastal areas using aids to navigation boats.
- Marine Safety Units and Marine Safety Detachments: fixed prevention units, located geographically distant from the Sector headquarters and staff, that conduct prevention activities including inspections, investigations, and waterways management.
- Vessel Traffic Services (VTS): fixed prevention units that conduct operations facilitating the safe and efficient transit of commercial vessel traffic along high-density routes in inland and coastal areas. VTS units coordinate commercial vessel movement through specified areas using command and control, communications, and surveillance that provide domain awareness.

- River, Construction, and Inland Buoy Tenders: maintain aids to navigation in inland areas and also conduct other prevention and response activities (e.g., assisting with flood recovery operations).
- Harbor and Icebreaking Tugs: break ice in inland areas, including the Great Lakes, to keep the marine transportation system open for commerce. They also conduct other prevention and response activities (e.g., SAR and maritime security patrols).

The Coast Guard makes extensive use of small and medium-response boats, special patrol craft, and motor lifeboats allocated to its boat stations. These boats and craft operate primarily in the inland and coastal zones, and provide protection against threats that materialize closer into shore. Capable of deploying with minimal notice, these assets routinely conduct port, waterway and coastal security, search and rescue, and other important missions and tasks. These assets are worked hard, remaining on scene for hours and, because of the harsh conditions in which these boats often operate, must be in a constant state of readiness. For this reason, the Coast Guard continuously recapitalizes its fleet of smaller boats on a 7-10 year replacement cycle.

Coastal Cutters. The Coast Guard operates cutters in the coastal zone primarily as a mid-layer of defense against threats and to provide critical SAR capabilities. These cutters are capable of deploying on short notice and operating in relatively high sea states. They must also be capable of sustaining operations and remaining on scene for days at a time. These cutters are listed in tables 4 and 5.

Offshore and Coastal ATON Cutters. The Coast Guard operates ATON cutters to maintain aids to navigation and ensure the safety of shipping lanes, facilitating the Nation’s commerce and transportation. ATON cutters operating in the inland waterways and ports are highly maneuverable, while those operating offshore are also capable of negotiating high seas and remaining underway for weeks at a time. ATON cutters also operate with law enforcement teams and respond to SAR cases.

<i>Patrol boats, Icebreakers and Buoy Tenders</i>
Coastal Patrol Boats
<ul style="list-style-type: none"> • WPB 110’ Island Class Patrol Boats – 41 operational (all exceed service life) • Sentinel Class Fast Response Cutters – 3 operational • WPB 87’ Marine Protector Class Coastal Patrol Boats – 73 operational
Coastal & Offshore Aids to Navigation Cutters
<ul style="list-style-type: none"> • WLB 225’ Juniper Class – 16 operational • WLM 175’ Keeper Class – 14 operational
Specialized Inland/Coastal Icebreakers*
<ul style="list-style-type: none"> • WLBB 240’ Mackinaw – 1 operational • WTGB 140’ Bay Class – 9 operational • WYTL 65’ Harbor Tug – 11 operational
*Some of these vessels are also buoy tenders

Table 4

<i>Inland Aids to Navigation (ATON Cutters)</i>
<ul style="list-style-type: none"> • WLIC 160’ Inland Construction Tenders – 4 operational • WLIC 100’ Inland Construction Tender Smilax – 1 operational • WLI 100’ and 65’ Inland Buoy Tenders – 4 operational • WLIC 75’ Inland Construction Tenders – 8 operational • WLR 75’ River Buoy Tenders – 12 operational • WLR 65’ River Buoy Tenders – 6 operational

Table 5

Maritime Patrol Forces

Maritime Patrol Forces are comprised of Coast Guard cutters and aircraft and their crews. These assets deploy primarily in coastal and offshore areas to conduct prevention and response operations through patrol, presence, and at-sea operations that include interdiction, boarding, enforcement, and search and rescue. Cutters provide armed, persistent presence, and command-and-control capabilities throughout the maritime domain. In addition, when activated in defense missions, Coast Guard cutters project U.S. presence and protect U.S. sovereignty. Cutters include polar icebreakers, the nation's only capability for providing access to Polar Regions when ice constrains surface movement. Maritime Patrol Forces also conduct intelligence, surveillance, and reconnaissance (ISR) activities in support of Coast Guard and national requirements.

Although Coast Guard Air Stations are shore-based commands, all fixed-wing aircraft and helicopters that deploy from Air Stations are categorized as Maritime Patrol Forces because of their capabilities and employment.

Major Offshore Cutters. Based on current missions demand, presence requirements, and other operational drivers, the Coast Guard maintains a versatile fleet of major cutters operating primarily – but not exclusively – in the offshore zone. These offshore cutters

provide surveillance and intelligence capabilities in all weather and environmental conditions, and generate essential surface end-game detect-to-engage prosecution capacities. High Endurance Cutters were designed to be able to launch boats and aircraft in sea state four, where NSCs are designed to be able to do the same in sea state five – “24/7/365” – in response to threats and other needs. With their sophisticated C4IT suites, extended command and control capabilities, and interoperability with other federal as well as state and local agencies, the major cutters also provide intelligence-gathering capabilities that contribute to maritime domain awareness in all three operational zones.

The Coast Guard fleet must include a sufficient number of cutters to ensure an adequate balance between deployed assets and those undergoing maintenance and upgrades to generate the required level of readiness. Major Cutters are listed in Table 6.

<i>Major Offshore Cutters</i>	
Offshore Cutters	
<ul style="list-style-type: none">• WMSL-750 Legend Class – 2 National Security Cutters (NSCs) operational, 1 in trials 3 under construction.• WHEC-378 Secretary Class – 9 operational• WMEC-282 Alex Haley – 1 operational• WMEC-270 “Bear” Class – 13 operational• WMEC-210 Reliance Class – 14 operational• WIX-295 Eagle Training Cutter – 1 operational	
Specialized Polar/Offshore Icebreakers	
<ul style="list-style-type: none">• WAGB 399’ Polar Class – 2 vessels, 1 operational• WAGB 420’ Healy – 1 operational	

Table 6

Helicopters and Fixed-Wing Aircraft. The Coast Guard maintains a fleet of short- and medium-range quick-response helicopters and medium- and long-range fixed-wing aircraft to respond to emergencies and to deter, detect, and interdict threats throughout the inland, coastal, and offshore zones. Although Coast Guard Air Stations are shore-based commands, all fixed-wing and rotary-wing aircraft that deploy from Air Stations are categorized as Maritime Patrol Forces because of their capabilities and employment. Aircraft are listed in Table 7.

<i>Aviation Resources</i>
Helicopters
<ul style="list-style-type: none"> • MH-65(C/D) Dolphin – 90 operational • MH-60(J/T) Jayhawk – 35 operational
Fixed-wing Aircraft
<ul style="list-style-type: none"> • C-130H Hercules – 17 operational • C-130J Hercules – 5 operational • C-144A Ocean Sentry – 11 operational • HU-25 Falcon – 8 operational • C-37 Gulfstream VIP Transport – 2 operational

Table 7

Helicopters are the backbone of the Coast Guard’s all-weather, 24-hour per day aviation support. The Service’s land-based helicopters operate primarily in the inland and coastal zones and, like station boats, must be capable of launching with minimal notice and responding rapidly to SAR, law-enforcement, port security, and other time-critical missions. Helicopters also operate in the offshore zone, flying from cutters equipped to support aviation assets. Selected Coast Guard helicopter crews are equipped and trained to conduct specialized aviation air-intercept and counter-drug missions. The helicopter fleet is currently undergoing a comprehensive sustainment program, replacing outdated components and updating obsolete technology to improve reliability, enhance capabilities, and stabilize operating costs.

Medium- and long-range fixed-wing aircraft conduct surveillance, reconnaissance, and detection operations farther offshore and provide real-time domain awareness to cutters on patrol. These aircraft render assistance to ships in distress and often work with helicopters in conducting offshore SAR operations. Coast Guard fixed-wing assets can independently detect and track vessels conducting illegal activities far offshore and provide critical logistics and personnel transport in emergencies. This capability has proven particularly important during emergency response to the 2010 Haiti earthquake and the BP Deepwater Horizon Oil Spill. Prior to this, when Hurricane Katrina moved inland in 2005, Coast Guard C-130 Hercules aircraft were among the first to deliver supplies to the disaster area and transport displaced citizens to safety.

Like the Service’s helicopters, the fixed-wing force is undergoing upgrades and modernizations. Particularly important are the new HC-144 Ocean Sentry medium-range aircraft.

Deployable Specialized Forces

Deployable Specialized Forces are teams of on-call and globally deployable personnel and assets with specialized skills in maritime law enforcement, joint operations, boat operations, port security, marine environmental protection, and chemical, biological, radiological, nuclear, and high-yield/enhanced-explosive (CBRNE) detection and response. They provide on-scene command and control for humanitarian assistance, disaster-response operations, and port security, including overseas combat theaters.

These deployable forces can be task organized to meet specific operational needs. For example, Coast Guard Maritime Safety and Security Teams (MSSTs) provided protection to forward operating bases in Haiti during the 2010 earthquake response. The teams also routinely deploy to support National Special Security Events such as the Super Bowl or Olympics. Law Enforcement Detachments (LEDETs) deploy on board U.S. Navy and other international maritime partners' ships to lend the Coast Guard's unique maritime law enforcement authorities to naval operations. Finally, Strike Teams provide rapid response to oil and other hazardous materials spills to minimize damage and environmental consequences. A summary of the Coast Guard's Deployable Specialized Forces appear in illustration in Appendix B.

Command, Control, Communications, Computers, Information, Technology (C4IT) Systems

The Coast Guard depends on its C4IT networks to execute broad missions in extreme and challenging operating environments. Assets receive, evaluate, and act on information, data, and other communications through the C4IT network. The program provides standardized equipment to large cutters and aircraft, facilitating interoperability and effective communications. It provides the ability to identify and classify vessels operating within the coastal and inland areas of operations to support maritime domain awareness activities. The Coast Guard's improved "Rescue 21" response system effectively receives and tracks radio communications from vessels in distress in ports to more than 20 miles offshore.

Intelligence

The Coast Guard places a heavy emphasis on the use and integration of all-source intelligence. As a member of the Intelligence Community, the Coast Guard uses national, theater, and tactical intelligence capabilities to identify threats and anomalies in the maritime domain. Intelligence improves operations and enables effective employment of limited resources. Tactically actionable intelligence creates a decision advantage and enables commanders to target specific activity while intelligence assessments (particularly those that analyze adversaries' activities and tendencies, including routes, timing, conveyances, and other modus operandi) allow Commanders to concentrate forces on specific patrol areas and the most likely threats. Commanders integrate all-source ISR technological capabilities into operational and tactical planning to identify current and potential threats – including cyber attacks – to aid in resource allocation decisions.

Resourcing the Offshore Fleet – National Security Cutters

The Coast Guard's core strategic concept of Prevent-Respond is explained in the first Coast Guard White Paper (Fall 2011). This strategy is delivered to the Nation by four interrelated and coordinated activities: Regulation, Monitoring, Enforcement and Operations. Because the Coast Guard cannot be everywhere at once, these activities are purposefully achieved by the use of wide-ranging legal authorities that impact nearly every facet of the maritime environment, an extensive network of partnerships with industry, state, local and other federal partners, and actual presence by Coast Guard ships, aircraft and personnel.

Offshore Presence

The Coast Guard's area of responsibility is immense and far-reaching, extending to Hawaii and Alaska, U.S. overseas territories, foreign ports, and the world's largest EEZ encompassing 4.5 million square miles of ocean space, larger than the continental United States. Coast Guard offshore presence requires robust resources because they are typically the only instrument of U.S. power that is on scene, with the appropriate authority and skill sets to accomplish a wide array of important national objectives. Although the U.S. Navy operates on the high Seas, it does not have the authority or the expertise to carry out most Coast Guard missions. The Navy's mission, to maintain, train and equip combat-ready naval forces capable of winning wars, deterring aggression and maintaining freedom of the seas, is complementary but different from the mission set of the U.S. Coast Guard. While the Coast Guard operates in drug transit zones, the high latitudes, along domestic approaches to U.S. ports, among fishing fleets, or in migrant transit corridors, the U.S. Navy does not typically operate in these areas.

The Coast Guard operates in these remote areas to detect, intercept, and defeat threats well before they reach U.S. coastal waters and to render assistance to those in distress far from shore. The offshore zone begins at 50 nautical miles from shore and extends outward. Bi-lateral agreements with other countries can, in many cases, extend the reaches of the offshore zone into the territorial seas of other nations. Major Coast Guard cutter presence in the offshore zone is critical to detect and interdict threats to the homeland, and to be ready to meet homeland security and defense requirements. Coast Guard cutters and aircraft operating in the offshore zone are at the "forward edge" of the Nation's "layered" approach to homeland security, protecting offshore natural resources, rescuing mariners in distress, and interdicting threats before they reach the U.S. homeland. Figure 4 is a notional snapshot of offshore operating areas where the Coast Guard provides presence, enforces U.S. law, interdicts illegal drugs and migrants, conducts rescues, and stands guard over the Nation's expansive maritime resources.

The legacy Coast Guard fleet provided this coverage using 44 major cutters (WHECs & WMECs). That level of presence is increasingly difficult to achieve with an aging and obsolete Coast Guard fleet. The Service has a Program of Record (POR) constructed to deliver two classes of new major cutters:

- Eight new National Security Cutters (NSCs) to replace 12 legacy High Endurance cutters acquired in the 1960s; and
- 25 new Offshore Patrol Cutters (OPCs) to replace 32 legacy Medium Endurance cutters acquired in the 1960s and 1980s.

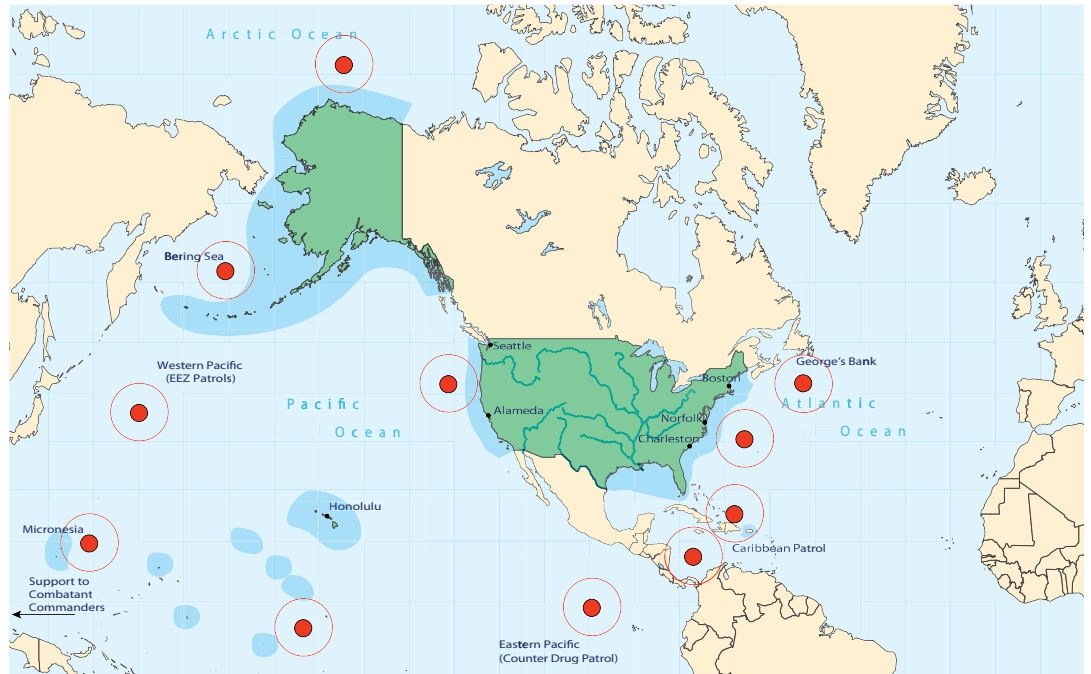


Figure 4

Presence and coverage are two concepts that are closely interrelated. Presence is the ability to actually remain on scene, whereas coverage is the ability to be close enough in a given area of operations to arrive on scene in a reasonable period of time. To be in the places the Coast Guard must be – places where it typically is the only one there – the Coast Guard must recapitalize its fleet with a mix of assets that provides a sufficient number of cutters with the right capability.

In particular the POR factors in both coverage and maintenance/training time to allow for an effective force laydown in the Western and Eastern Pacific, Caribbean, Bering Sea/Gulf of Alaska, along the North Slope of Alaska, West and East coast of North America. Coverage in these areas is based on a host of factors including historical data, intelligence and emerging demand signals, as discussed earlier.

Offshore Cutter Capabilities

The Coast Guard’s recapitalization plan calls for 8 NSC’s and 25 OPC’s – a total of 33 major cutters, which represents a 25 percent reduction in the total number of major cutter hulls. This is made possible in part by significant increases in capability, and this is especially true of the NSCs that will replace legacy WHECs.

NSCs are the most capable ships ever fielded by the Coast Guard with an impressive array of capability. Compared to legacy High Endurance Cutters, they are demonstrably better in nearly every category. Table 8 contains specific comparisons. NSCs can cover vast distances faster in heavier seas, operate continuously for up to 90 days (versus 45 days for legacy cutters), and launch their boats and aircraft in rougher weather. They can double the aviation capability of a WHEC by carrying two helicopters, in addition to a UAS. They can deliver boarding and rescue teams in circumstances and conditions where WHECs could not. They can collect, process, and disseminate intelligence around the globe using secure command and control communications. And they can operate in a joint environment supporting the full range of DHS, DOD and NATO missions, both military and civilian interagency.

<i>Capability Comparisons – NSC and WHEC</i>		
Capability	NSC	WHEC
Seakeeping (ability to launch aircraft and small boats)	Sea State 5 – Up to 13 ft	Sea State 5 – Up to 13 ft
Range and Endurance	12,000 nautical miles 60 days	9,600 nautical miles (under normal circumstances) 45 days (range & endurance significantly reduced in Sea State 5)
Fuel Efficiency	15% better than WHEC	Baseline
Dedicated Ballasting	Yes	No
Boats & Aviation (Hangar)	3 boats 1 H-60 (large helo) or 2 H-65 helo	2 boats 1 H-65 (small helo)
Maritime Surveillance Unmanned Aerial System (UAS) Capability	Yes	No
Max Speed	28 knots (15% better fuel efficiency allows NSC to operate at greater speed for longer periods of time)	29 knots (age, condition, and modifications greatly affect an WHEC's ability to achieve max speed)
Patrol Speed	15 knots	12 knots
Crew to operate	109	166
Command and Control (C2)	Integrated C2 System Combines data in independent systems to provide one unified view (DOD, DHS, & NATO interoperable)	Federated C2 System Independent systems which are interoperable (DOD, DHS, & NATO interoperable)
Intelligence Collection	SCIF	No SCIF
Force Protection	Forward & Aft weapons. Countermeasure Washdown	Forward & Aft weapons. Countermeasure Washdown
Main Weapons Battery	57mm	76mm
Ability to operate in CBRNE environment	Yes	No
Deployer (with Full battle group)	Yes	Yes
Underway resupply	Fueling at Sea Provide to patrol boats	Fueling at Sea Provide to patrol boats

Table 8

NSCs are fast, stable, and well armed. They have a state of the art array of sensors, helicopters, and high-speed cutter boats that is optimally designed for detection and interdiction in the maritime environment. They can operate in a “dirty” environment that has been contaminated by chemical, biological, or radiological substances. With advanced, interoperable command and control capabilities, NSCs significantly improve national capacity to respond to and recover from major incidents such as a CBRNE attack in a major port; or other threats in the maritime domain. NSCs are equipped with state-of-the-art combat weapons suites and command-and-control capability. Onboard weapons, provided at no-cost by the U.S. Navy, include anti-ship missile defense protection provided by integrated electronic warfare and electronic support measures (upgraded SLQ-32), SRBOC/NULKA missile countermeasures with an upgraded close-in weapons system and a programmable 57 millimeter deck gun. The NSC is equipped with an integrated chemical, biological and radiological detection and defense capability that protects the crew while allowing the cutter to remain on scene and operate in contaminated environments.

In addition to the surface fleet mix, the Coast Guard’s POR includes enabling capabilities (helicopters, MPA, C4ISR, cutter boats). Enablers have a tremendous impact on mission success and can significantly extend the “reach” of a single cutter. Shipboard helicopters are used in all-weather and night-time operations. Forward Looking Infrared (FLIR), a heads-up display and other avionics upgrades have been installed aboard the H-65 and crews are night-vision goggle qualified, enhancing night-time safety of flight and search capabilities. Maritime Patrol Aircraft (MPA) are particularly effective at locating and tracking targets in a large search area, and vectoring prosecution assets to the targets. The Coast Guard’s C4ISR program integrates electronic sensors, networking, data processing and information-sharing equipment, which help Coast Guard operators develop effective situational awareness and interoperate with partner agencies. Cutter boats extend a vessel’s mission reach, providing high-speed pursuit, interdiction and rescue capabilities.

Unmanned Aerial Systems (UAS) are another capability that is envisioned to make the system more effective. UAS integrated with surface assets will expand maritime surveillance capability in the areas of presence and coverage already provided by a surface unit. As the NSC fleet includes fewer hulls than the aging legacy fleet, continued use of manned aircraft, combined with MPA and improved intelligence capability partially compensate for the current lack of UAS capability. The Coast Guard is moving forward with plans to validate the mission needs and develop the concept of operations for cutter based, low-altitude UAS to provide additional surveillance capability.

To achieve adequate presence and coverage with 25 percent fewer total hulls, the Coast Guard’s POR combines shipboard technological advancements with augmentation from additional enablers such as helicopters, maritime patrol aircraft, C4ISR, and cutter boats. These enablers significantly extend the Coast Guard’s surveillance and interdiction capability – an absolute must given the fewer number of total hulls. In particular, the Coast Guard’s recapitalization plan includes Unmanned Aerial Systems (UAS) which will improve coverage by providing a persistent, cost-effective, and safe method of executing the full

range of Coast Guard missions. Figure 5 illustrates how enabling systems, such as UAS, enhance organic cutter capabilities.

The Coast Guard has explored the U.S. Navy’s MQ-8B Fire Scout program which is a high-tech, but relatively expensive UAS. Given the Fire Scout’s ongoing developmental challenges and mounting costs, the Coast Guard has expanded consideration to other alternative systems including smaller UAS such as the ScanEagle. Initial at-sea testing proved the ScanEagle as an effective tool which significantly extends maritime coverage, surveillance and interdiction capability. The use of existing enablers such as manned aircraft and better intelligence along with the planned implementation of UAS systems will help mitigate the impact of fewer major cutter hulls in the Nation’s waters.

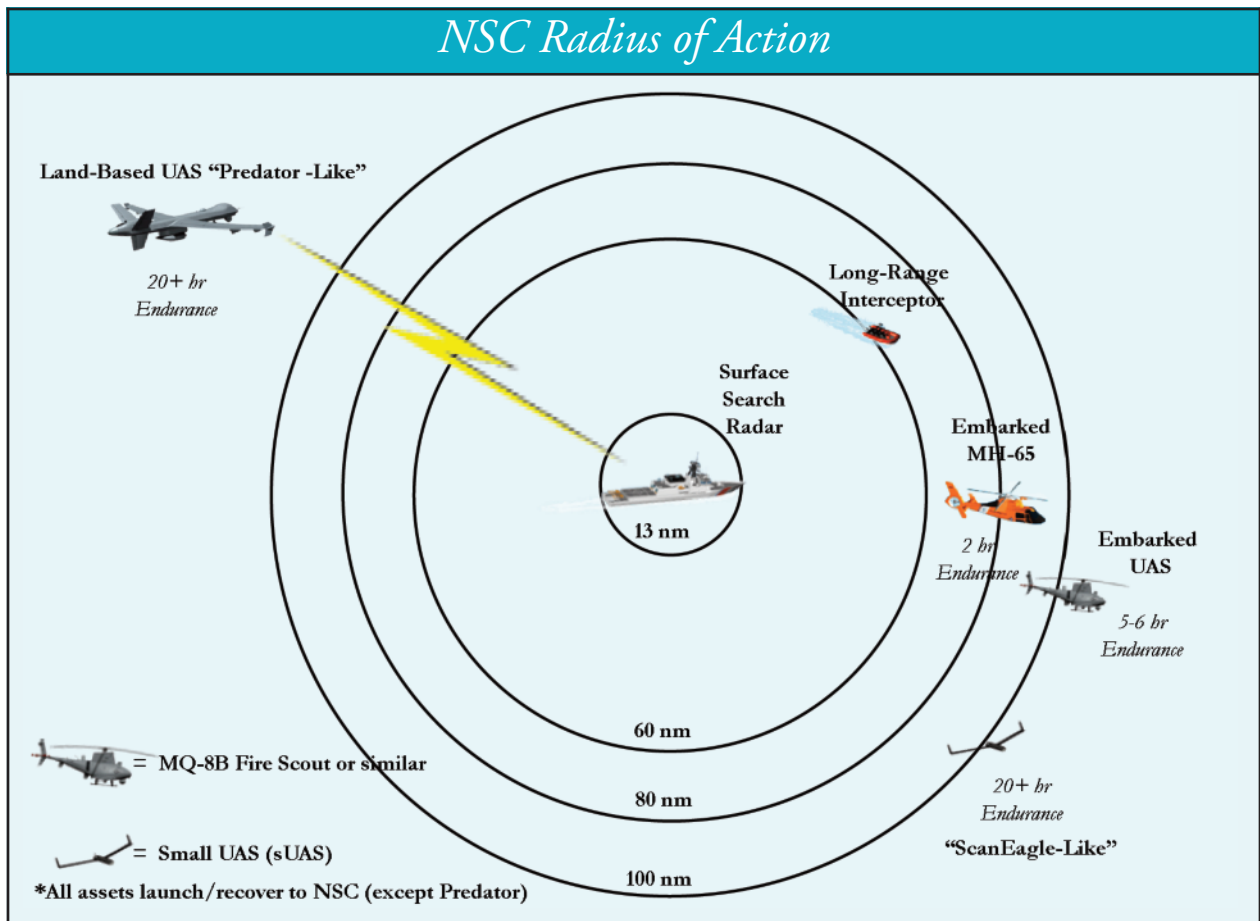


Figure 5

Capacity Requirements

Increases in capability allow for a reduction in the total numbers of ships as more capable replacement ships take advantage of modern technology, automation and better sea keeping characteristics. But better capability alone is not the only factor in determining how to resource the Coast Guard fleet with the right number and combination of hulls. The most capable ships can still only be in one place at one time. There is a threshold of capacity below which, the Coast Guard cannot meet its mission demands.

The Coast Guard employs cutters using a very lean 2:1 ratio. Thus, eight NSCs are required to maintain four deployed cutters in offshore operating areas – fewer than eight reduces presence and increases risk to mariners, natural resources and contingency response. Numerous studies performed between 2004 and 2012 (see Appendix A) have validated that the Coast Guard’s planned major cutter fleet is the minimum mix of assets that provide the necessary capabilities and capacities to meet the Nation’s needs. There are a number of negative impacts associated with acquisition of fewer than eight NSCs.

With fewer than eight NSCs, the Coast Guard will be unable to provide coverage and presence in harsh weather environments that are vital to U.S. interests such as the rich fishery grounds in the Northwest Pacific, the Arctic and in the Bering Sea where China, Russia, and other countries are increasing their presence. The Nation will be challenged to effectively regulate, monitor and protect emerging commerce and offshore energy exploration. At home, a smaller NSC fleet may result in a delayed response to national emergencies and contingencies due to fewer cutters at sea at any one time.

Illegal drug interdiction efforts will suffer as NSCs help reduce the amount of illegal narcotics flowing across our borders and onto our streets. Since 2008, U.S.-led maritime forces in the Western Hemisphere Drug Transit Zone have interdicted approximately five times the amount of cocaine interdicted by federal, state and local land border forces during the same time period. Fewer NSCs in the transit zone will be compounded by DOD’s plan to remove 20 Fast Frigates (FFGs) from its fleet in the next two years. FFG’s are a mainstay of DOD involvement in the Drug War. A reduction in transit zone interdictions could lead to increased instability in Central America.

Fewer than eight NSCs will decrease international engagement and reduce U.S. “soft power” initiatives in critical regions of the world where Coast Guard Cutters may be welcome while Department of Defense assets are not. The NSCs are important elements of the Coast Guard’s “soft-power” contribution to U.S. security strategies and objectives.

The Impact of Acquisition Delay

In Fiscal Year 2011, the WHEC fleet lost 9,683 operational hours in planned underway time due to unscheduled repairs and maintenance. These lost operational hours equate to 2.9 WHECs lost operational capacity. With an average age of nearly 45 years, the WHEC fleet has exceeded its service life and has become increasingly expensive to operate and maintain. The cost curve for maintaining legacy major cutters is increasing, while the reliability continues to drop.

The NSC is a stable, fixed-price acquisition, and remains the most immediate and best option to mitigate an offshore capacity gap. Three NSCs are already in the fleet, and they are a critical component of maintaining operational presence. Chart 1 shows the planned transition schedule for major cutters.

To maintain operational capacity in the near term, WHECs are kept in the inventory past their service life at considerable cost. Establishing resource funding levels for NSC 7 and 8 will be critical to continuing the steady production of NSCs in order to maintain operational capacity.

With a stable design and shipyard efficiencies gained through building the first six NSCs, including transition to fixed-price contracts, the NSC program provides vital economic benefits and low acquisition risk. A delay in NSC production would result in cost increases caused by the impacts of inflation and the loss of efficiencies as well as disruption to the production process at the shipyard and suppliers.

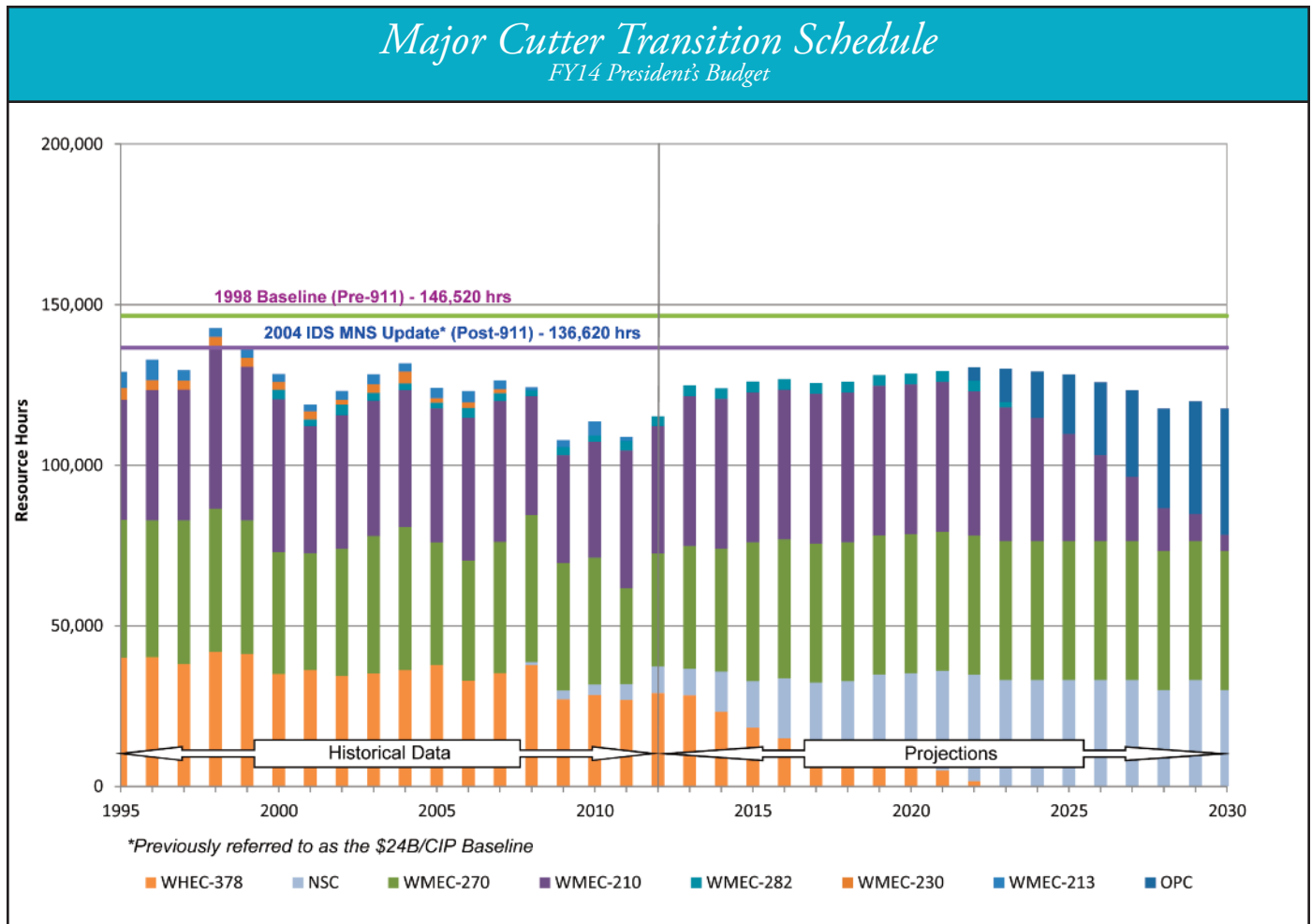


Chart 1

Homeland Security and Defense

The United States needs both a Coast Guard and a Navy. In 1790, the U.S. Coast Guard was established as the Revenue Cutter Service to protect the Nation's maritime borders and enforce laws critical to the new United States. In 1775, the U.S. Navy was established to destroy the British Fleet and bring the Revolution to a successful end. Today, the Coast Guard shares with the Navy important national maritime, naval, and marine responsibilities and capabilities, but there are also important differences.

Authorities and Mandates

While the Coast Guard is a law-enforcement, maritime security, safety, and environmental protection organization within the Department of Homeland Security, it is also a military service, with responsibilities to organize, train, equip and sustain forces to carry out military and national defense missions and operations under DoD. This “dual-hat” authority does not exist anywhere else in the U.S. Government.

Several statutes – including U.S. Code Titles 6 (Domestic Security), 14 (Coast Guard), 16 (Conservation), 19 (Customs Duties), 33 (Navigation and Navigable Waters) and 46 (Shipping), as well as Title 10 (Defense) – provide broad authorities for Coast Guard missions and operations. Title 14 empowers the Service with maritime law enforcement authority and Title 10 provides authority for joint Coast Guard-Navy operations. For example, Navy warships embark detachments of trained law enforcement Coast Guard personnel who retain authority under Title 14, including the power to make arrests and to carry out at sea searches and seizures. In times of national emergency and war, the Coast Guard can be transferred to the Department of the Navy and carry out operations in support of regional combatant commanders.

In contrast, the Navy operates solely under Title 10 and does not have the broad authorities and mandates given to the Coast Guard, for example, to enforce laws and treaties. Rather, the mission of the Navy is to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression and safeguarding the Nation from threats from the sea.

Coast Guard / Navy Collaboration

The Coast Guard is vital for ensuring global supply chain security – including inspecting ship cargoes, monitoring port operations security, and overseeing the Nation’s marine transportation system. Thus, during conflicts such as Operation Iraqi Freedom, the Coast Guard has deployed forces to keep distant ports open and ensure maritime access for military transport and resupply.

In contrast, the Navy is optimized for sustained combat operations at sea, with aircraft carrier and expeditionary strike groups launching manned aircraft strikes against targets at sea and ashore, long-range land-attack cruise missiles from surface warships and submarines, landing Marines ashore for tasks spanning non-combatant evacuation operations and opposed amphibious assault, and defending U.S. forces, allies, and the homeland from ballistic missile attacks. In summary, Coast Guard and Navy plans, programs and areas of operation are complementary and not redundant.

Several memoranda of agreement (MOA) govern Coast Guard/Homeland Security and Department of Defense collaboration – addressing, for instance, the use of Coast Guard capabilities to support the National Military Strategy and outlining DoD support to the Coast Guard in maritime homeland security.

The 1995 MOA on the use of U.S. Coast Guard capabilities and resources in support of the National Military Strategy assigned four major national defense missions to the Coast Guard in support of U.S. Combatant Commanders: Maritime Intercept Operations; Deployed Port Operations/Security and Defense; Peacetime Engagement; and Environmental Defense Operations. In 2004 and 2006, DHS and DoD concluded MOAs providing for the use of Coast Guard resources by the DoD's regional combatant commanders – specifically the U.S. Northern Command, Pacific Command, Southern Command, and Transportation Command – in homeland defense operations.

The 2008 memorandum of agreement replaced the 1995 MOA and expanded the joint mission set from four to eight. It also brought Coast Guard forces into the deliberate DoD planning process under Title 10 to provide non-redundant and optimal use of capabilities and capacities in the national defense inventory. The 2008 MOA provides for allocations – shaped by national security requirements, force readiness, and risk-based decision-making assessments – of Coast Guard resources in several national security and defense missions:

- Maritime Interception/Interdiction Operations
- Military Environmental Response Operations
- Port Operations, Security, and Defense
- Theater Security Cooperation
- Coastal Sea Control Operations
- Rotary Wing Air Intercept Operations
- Combating Terrorism Operations
- Maritime Operational Threat Response Support
- Security of Sea Lines of Communication

The Coast Guard also routinely provides a specific number of dedicated cutter-days per year to support Navy and regional combatant commanders. In recent years, cutters have worked with Navy warships to conduct maritime intercept operations and other peacetime engagement tasks overseas. They have operated with all Navy Fleets from the Western Pacific and Persian Gulf to the Mediterranean and Baltic Seas.

The National Fleet

Since the mid-1990s, the concept of the National Fleet has helped shape Coast Guard and Navy plans, programs, and operations. Initially signed by the Coast Guard Commandant and the Chief of Naval Operations in 1998 and expanded and confirmed in 2006, the Navy/Coast Guard National Fleet policy and strategy call for Navy and Coast Guard forces to be designed, wherever possible, around common command, control, and communications equipment and operational, weapon, and engineering systems – with coordinated operational planning, procurement, training, and logistics.

Looking at the national security cutter as an example, interoperability with U.S. Navy platforms and systems has been emphasized in the NSC design, and there are direct commonalities with the Navy's *Freedom* and *Independence* littoral combat ships (LCS) and the *Arleigh Burke* (DDG-51) guided-missile destroyers.

In October 2007, the Navy, Marine Corps, and Coast Guard issued the first-ever tri-service maritime strategy, *A Cooperative Strategy for 21st-Century Seapower*. In several key areas, the strategy underscored the importance of the “National Fleet” concept:

- The United States Navy, Marine Corps, and Coast Guard will act across the full range of military operations to secure the United States from direct attack; secure strategic access and retain global freedom of action; strengthen existing and emerging alliances and partnerships; and establish favorable security conditions.
- The Sea Services will establish a persistent global presence using distributed forces that are organized by mission and comprised of integrated Navy, Marine Corps, and Coast Guard capabilities. This global distribution must extend beyond traditional deployment areas and reflect missions ranging from humanitarian operations to an increased emphasis on counter-terrorism and irregular warfare.
- The Sea Services must work as one wherever they operate in order to defend the United States. Consistent with the National Fleet Policy, Coast Guard forces must be able to operate as part of a joint task force thousands of miles from our shores, and naval forces must be able to respond to operational tasking close to home when necessary to secure our Nation. Integration and interoperability are key to success in these activities, particularly where diverse forces of varying capability and mission must work together seamlessly in support of defense, security, and humanitarian operations.

<i>National Fleet Snapshot</i>		
USCG	FLEET ASSET	USN
0	Nuclear-Powered Aircraft Carriers	11
0	Nuclear-Powered Ballistic Missile Submarines	14
0	Nuclear-Powered Attack Submarines	57
0	Guided Missile Cruisers	22
0	Guided Missile Destroyers	62
0	Guided Missile Frigates	30
0	Amphibious Assault Ships	30
0	Littoral Combat Ships	3
12	Maritime Security/ High Endurance Cutters	0
28	Medium Endurance Cutters	0
0	Mine Countermeasures Vessels	14
113	Coastal Cutters and Patrol Boats	14
3	Offshore Icebreakers	0
21	Coastal/Inland Icebreakers	0
30	Offshore/Coastal Aids to Navigation Vessels	0
35	Inland Aids to Navigation Vessels	0

Table 9

Table 9 provides a snapshot of the two fleets in September 2012.

The Nation needs Coast Guard and Navy capabilities along America’s coasts, on the high seas, and deployed abroad in support of U.S. national security interests. Coast Guard assets must be ready to serve in support of the National Military Strategy, as was the case during Operation Iraqi Freedom when a Coast Guard medium-endurance cutter, several Island-class patrol boats, and Port Security Units were deployed to protect coalition forces from attack.

Coast Guard personnel and assets are also essential to building regional capabilities for other nations’ maritime forces and support national strategies and objectives. For example, U.S. Africa Command has relied on Coast Guard International Port Security Liaison Officers to help develop host-nation representatives in port operations

and maritime security. Additionally, many maritime agencies engaged by Defense Department regional combatant commanders in theater security cooperation efforts align themselves closely with homeland security operations. Moreover, because many countries' navies function in essence as coast guards, Coast Guard personnel are important elements in the Nation's collaboration with other countries to enhance regional stability and security.

The Coast Guard straddles the federal government's homeland security and homeland defense missions, while also linking to the commercial maritime transportation system and private organizations.

Figure 6 graphically portrays the National Fleet concept. The Coast Guard maintains the safety, security, and stewardship of the Nation's waters and provides national defense and



Figure 6

military support to the DoD regional combatant commanders. The Navy is devoted to the Nation's warfighting strategies and operations, as well as to carry out the full range of military tasks. In several important mission areas, there are complementary mission sets that are met jointly by the Coast Guard/Navy Team. The Coast Guard and Navy thus complement each other in several important ways, yet each provides capabilities that are unique and necessary for homeland security, homeland defense, crisis response, and warfighting. Indeed, this understanding is the foundation of the National Fleet Policy that both Services have embraced for more than a decade.

Conclusion

The Coast Guard is responsible for the safety, security, and stewardship of the Nation's waters and must have the necessary equipment and capabilities to enable the men and women of the Active, Reserve, and Auxiliary Coast Guard to do their jobs – at a moment's notice and under any and all conditions. Given the complexities of the modern maritime domain, continuing growth in global trade, increased legitimate – as well as illegitimate – use of the seas, and increasing threats to U.S. citizens and interests in and from the maritime domain, the nation relies on the Coast Guard to be “Always Ready.”

Appendix A

History of the Program of Record Analysis

- Prior to 11 September 2001, the Coast Guard used a Mission Needs Statement (MNS) from 1996 to determine the 1998 fleet mix requirements.
- After 9/11, the operational and threat environment changed dramatically. Since then, six analyses have been completed. All have determined that a surface fleet comprising a minimum of eight NSCs, 25 OPCs and 58 FRCs would be needed for the Coast Guard to carry out its statutory missions.
- Three post-9/11 analyses were conducted; two external to the Coast Guard and one internal. The Center for Naval Analyses and RAND Corporation conducted independent analyses of required fleet composition from 2002-2004. The Coast Guard conducted its own Performance Gap Analysis (PGA) in 2004, analyzing the post-9/11 mission set. Considering all three studies and budgetary constraints, the 1998 fleet mix consisting of eight NSCs, 25 OPCs and 58 FRCs was determined to be the minimum fleet mix necessary to meet the post 9/11 mission demand levels.
- As a result, in 2004 the Coast Guard updated the 1996 MNS to align with DHS missions, visions and strategic goals. This updated version remains the current Program of Record and requires a minimum of eight NSCs, 25 OPCs and 58 FRCs.
- In addition to the three post-9/11 analyses, in 2009 the Coast Guard independently contracted for a Fleet Mix Analysis (FMA), which included Coast Guard risk assessment tools and other industry best practices. The FMA model allows for variation in mission demand levels, capability parameters, Concept of Operations, and several other assumptions and constraints. The first iteration of this analysis recommended nine NSCs, 32 OPCs and 63 FRCs to satisfy all CG statutory missions.
- In 2011, the Coast Guard updated the analysis with a second iteration of the FMA, which explored capability and capacity requirements based on constrained resource requirements. This analysis reinforced prior studies that found the POR fleet of eight NSCs, 25 OPCs and 58 FRCs to be the “floor” – not the “ceiling” – for meeting Coast Guard mission demands. To that end, the study found that a steady funding stream would result in the most efficient way to achieve POR operational effectiveness improvements.
- In 2011, DHS conducted a Major Cutter Study to validate the fleet mix recommendations provided in the 2004 MNS and FMA studies. The DHS cutter study analyzed alternative major cutter fleets within the same existing funding level, including reducing NSC capacity to support more OPCs and reducing OPC capability to support additional capacity. The study shows that mission performance improves in some areas while reducing in others, showing that the Program of Record is a well-balanced fleet mix. Though the DHS cutter study is not intended to recommend an optimal fleet mix, it shows that significant near-term performance gaps will occur if NSC production is halted at six or seven NSCs.
- In 2012, DHS conducted an update to the 2011 Major Cutter Study. This follow-up to the original study took into account updated costs and capability information for the NSC and OPC. This study justified the acquisition of NSC 7, validated the value of a two-tier fleet mix, and found that the three fleet mix scenarios in the study (including the Program of Record) “performed very similarly across a basket of five key mission measures.”

Appendix B

U.S. Coast Guard Deployable Specialized Forces



Maritime Safety and Security Team (MSST). These 11 units combine law-enforcement teams with boat forces and deployable boats to conduct waterborne operations and limited shore-side security operations across Coast Guard mission areas. With specialized capabilities to conduct maritime security and response operations, MSSTs operate primarily in the inland operational area.



Maritime Security Response Team (MSRT). The MSRT includes tactical personnel with specialized capabilities for conducting law enforcement and counterterrorism operations through interdiction, boarding, and enforcement activities as well as maritime security and response operations, including CBRNE detection and response.



Tactical Law Enforcement Teams (TACLETs). These two units consist of deployable Law Enforcement Detachments. LEDETs primarily deploy aboard and operate from U.S. Navy or allied ships to conduct law-enforcement operations through interdiction, boarding and enforcement activities. The Coast Guard is the only U.S. Armed Force, by law and policy, authorized to conduct law enforcement operations. LEDETs operate primarily in the offshore zone.



Port Security Units (PSUs). These eight Reserve units include command elements, security forces, and boat forces with deployable boats and organic mission support capabilities. PSUs conduct expeditionary operations through coastal and port security activities in support of DoD regional combatant commander requirements.



The National Strike Force (NSF). This unit comprises the National Strike Force Coordination Center and three National Strike Teams that provide high-end pollution and hazardous materials response. The NSF has specialized capabilities to detect and respond to CBRNE incidents in all three operational areas.



Regional Dive Lockers (RDLs) conduct military diving operations in support of port and waterway security, ATON, and polar operations missions. Coast Guard divers also conduct underwater ship husbandry and underwater search and recovery in support of other operations and mission support requirements.

Appendix C

U.S. Coast Guard / U.S. Navy Fleet Overview

The U.S. Coast Guard Fleet



National Security Cutter (approx. 4,200 tons displacement) is the flagship of the fleet, capable of meeting all maritime security mission needs. It is the largest and most technically advanced class of cutter in the Coast Guard, with significant capabilities for maritime homeland security, law enforcement, and national defense missions.



High Endurance Cutters (approx. 3,100 tons) were originally built specifically for patrolling ocean stations and long deployments. They were designed and constructed to possess the best possible sea keeping characteristics. This class of cutter now meets a variety of missions, including long-range search and rescue, oceanographic research, law enforcement, and defense operations.



Medium Endurance Cutters (Famous class approx. 1,900 tons / Reliance class approx. 1,100 tons) operate as surveillance and interdiction platforms conducting general law enforcement.



Fast Response Cutters (approx. 360 tons) are capable of deploying independently to conduct missions that include port, waterways, and coastal security; fishery patrols; search and rescue; and national defense. These cutters are able to conduct missions on moderate seas up to transit speed for eight hours and survive on very rough seas for eight hours.



Patrol and Coastal Patrol Boats (approx. 160 tons) routinely deploy in support of law enforcement, SAR, and fisheries, however they have also been critical assets in support of Operations Iraqi Freedom and New Dawn.



Healy-class Icebreaker (approx. 16,400 tons) performs extensive heavy icebreaking, logistical support, and high-latitude science research support primarily in the Arctic region. It is also capable of operations in Antarctica, including as ice escort and polar surveillance.



Polar Class Icebreaker (approx. 13,600 tons) performs extensive heavy icebreaking and logistics/scientific support in the Arctic and Antarctica, as well as ice escort and polar surveillance. These vessels also provide SAR and MEP capability in the Polar Regions.

The U.S. Coast Guard Fleet



CGC MACKINAW (WLBB 30) was commissioned June 10, 2006, assuming the primary duties of icebreaking and Aids to Navigation from CGC MACKINAW (WAGB 83), decommissioned the same day. MACKINAW is homeported in Cheboygan, Michigan.



The primary purpose of the 160-foot WLIC is to build, or rebuild if destroyed, those fixed aids to navigation used by mariners to safely navigate the inland waters of the United States.



The 140-foot Bay-class Cutters are state of the art icebreakers used primarily for domestic ice breaking duties. They are named after American Bays and are stationed mainly in Northeast U.S. and Great Lakes. WTGBs use a low-pressure-air hull lubrication or bubbler system that forces air and water between the hull and ice. This system improves icebreaking capabilities by reducing resistance against the hull, reducing horsepower requirements.



The 175-foot Keeper Class Coastal Class Buoy Tenders, along with the Juniper-class 225-foot seagoing buoy tenders, represent the new wave in buoy tending. With state-of-the-art electronics and navigation systems including Dynamic Positioning System (DPS) which uses a Differential Global Positioning System, and electronic chart displays - these buoy tenders maneuver and position aids more accurately and efficiently with fewer crew.



The 75' WLICs push 68' and 84' construction barges. SMILAX pushes a 70'-foot construction barge. The barges are equipped with cranes and other ATON equipment to drive piles and work the smaller sized buoys.



WLRs push barges equipped with cranes which work Aids To Navigation (ATON). Some are equipped with "jetting" devices which are used to set and anchor buoys in rivers with sandy/muddy bottoms. The barges are an integral part of ATON. Barge Lengths vary: 90 feet, 99 feet, and 130 feet.



Eagle serves as a seagoing classroom for approximately 175 cadets and instructors from the U.S. Coast Guard Academy. It is on the decks and rigging of the Eagle that the young men and women of the Academy get their first taste of salt air and life at sea. From this experience they develop a respect for the elements that will be with them throughout their lifetime.

The U.S. Navy Fleet



Aircraft Carriers are high-end (approx. 100,000 tons) warships that project Naval Air Power around the world. The air wing comprises about 80 fixed-wing aircraft and helicopters capable of supporting the broadest spectrum of military operations. The carrier strike group, operating in international waters, does not need the permission of host countries for landing or overflight rights.



The Navy's fleet ballistic missile submarines serve as an undetectable launch platform for intercontinental missiles. They are designed specifically for stealth and the precision delivery of nuclear warheads. SSBNs are specifically designed for extended deterrent patrols. To increase the amount of time required for replenishment and maintenance, *Ohio* class submarines have three large-diameter logistics hatches that allow sailors to rapidly transfer supply pallets, equipment replacement modules and machinery components thereby increasing their operational availability.



Attack submarines are designed to seek and destroy enemy submarines and surface ships; project power ashore with Tomahawk cruise missiles and Special Operation Forces; carry out Intelligence, Surveillance, and Reconnaissance (ISR) missions; support battle group operations, and engage in mine warfare.



Amphibious Assault Ships (approx. 55,000 tons) deploy and support U.S. Marine forces in austere operational and serve as the cornerstone of the Amphibious Readiness Group / Expeditionary Strike Group. These ships transport and land elements of the Marine Expeditionary Unit or Marine Expeditionary Brigade with a combination of aircraft and landing craft.



Guided missile cruisers are high-end (approx. 10,000 tons) capable of engaging multiple simultaneous targets and employed in strike force support or independent action. These ships are multi-mission surface combatants capable of supporting carrier battle groups, amphibious forces, or of operating independently and as flagships of surface action groups.



Guided-missile destroyers are high-end (approx. 8,500 tons) warships providing multi-mission offensive and defensive capability. Destroyers can operate independently or as part of carrier and expeditionary strike groups.



Frigates are low-end (approx. 4,200 tons) warships designed to protect other ships. Frigates fulfill a protection of shipping mission and as anti-submarine warfare combatants for amphibious expeditionary forces, underway replenishment groups and merchant convoys.

The U.S. Navy Fleet



Littoral Combat Ships are low-end (approx. 4,000 tons) “tailored-mission” warships designed for operation in near-shore environments. They are designed to defeat asymmetric threats such as mines, quiet diesel submarines, and fast surface craft. These ships are outfitted with reconfigurable payloads, called mission packages that can be changed out quickly.



Avenger class ships are designed as mine sweepers/hunter-killers capable of finding, classifying and destroying moored and bottom mines. The last three MCM ships were purchased in 1990, bringing the total to 14 fully deployable, oceangoing *Avenger* class ships. These ships use sonar and video systems, cable cutters and a mine detonating device that can be released and detonated by remote control. They are also capable of conventional sweeping measures. The ships are of fiberglass sheathed, wooden hull construction.

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PHOTO CREDITS

Front Cover: U.S. Coast Guard photo by Petty Officer 2nd Class Levi Read. The U.S. Coast Guard Cutter Bertholf, homeported at Coast Guard Island, Alameda, Calif., transits out of the San Francisco Bay, Friday, March 9, 2012. The Bertholf is the first National Security Cutter and the flagship of the modern day Coast Guard. Photo, page 35: U.S. Coast Guard photo by Petty Officer 2nd Class Jetta H. Disco. Ground crew from Coast Guard Sector San Diego directs an HC-144A Ocean Sentry aircraft crew across to the base ramp Feb. 10, 2011.



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