



Contested Seas

**A Strategic Conversation
About the U.S. Navy**

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USS O'Kane with JMSDF destroyer

INTRODUCTION PRESSURES AND PLANS

Is America building the global Navy it needs? International events are providing plenty of reasons to take a much closer look at what's expected of the Navy in a key maritime area: the littorals.

On April 14, 2014, the Aegis-destroyer *USS Donald G. Cook*, DDG-57, was harassed for 90 minutes by a Russian MiG-24 after entering the Black Sea. Low flights by non-communicative aircraft were common in the days of the Soviet Union but haven't been part of the littoral environment for years.

China is the long-term concern as that nation exercises its naval and air forces in a bid to stretch its influence. "I am concerned by the aggressive growth of the Chinese military, their lack of transparency, and a pattern of increasingly assertive behavior in the region," Admiral Harry Harris, Commander, U.S. Pacific Fleet, said during a speech in Australia in April 2014.

"China is building a modern and regionally powerful Navy with a modest but growing capability for conducting operations beyond China's near-seas region," summarized noted analyst Ron O'Rourke in an April 2014 report on China's naval modernization prepared for the Congressional Research Service.

Then there is the Persian Gulf. Quiet at times, Iraq and Iran keep the region in the spotlight for very different reasons. Many of the top potential US policy responses involve US Navy forces for crisis response. In June, ships responding after fighting in Iraq included the aircraft carrier *George H. W. Bush* and the amphibious transport ship *USS Mesa Verde*.

These events should all be incentive to start a serious conversation about the future shape of the Navy.

However, the ongoing struggles with the budget situation in Washington have created an effect like a fog bank. Options are hard to see, everything focuses on what's closest, and the straight new course is difficult to discern.

This paper is an effort to provide guidelines for what will be most important as that fog clears.

Recent activity indicates that the maritime littorals are one place to focus. They are usually defined as the first few hundred miles of sea near the coast. They've been central to US Navy strategy since the

1990s, when power projection "from the sea" achieved primacy among Navy missions. The Persian Gulf area was a particular priority for operations, including presence, power projection ashore, counter-terrorism, catching pirates and building partnerships through operations with other navies. Although the littorals certainly held potential dangers, a prevailing view emerged that faster, smaller ships packed with networked information capabilities were somehow better. This was the origin of the focus on the Littoral Combat Ship.

Two other unspoken assumptions were that few if any challenges would come from truly competitive navies; and that the near-coastal areas usually presented benign operating conditions. Littoral operations in turn became a major influence on the Navy's shipbuilding program as epitomized by design of two classes of littoral combat ships. Relative quiet on the seas accentuated the trend toward lighter, cheaper ships with adaptable modular payloads where firepower was not a top priority.

Nearly a quarter century on, there is ample reason to reconsider the role of the Navy and especially

its surface combatants in the littorals. This is not the future of port calls, soccer games, and construction teams ashore that once characterized the maritime littorals. The outlook has changed. The littorals are what they've always been: a dynamic environment with multiple missions, actors, and threats. The maritime littorals are the scene of territorial disputes from the Senkaku-Diayou Islands in the Western Pacific to the Spratlys in the South China Sea. Major littorals like the Strait of Malacca carry world shipping traffic and can attract terrorists, pirates and competing navies. Conflict trends are placing Navy forces at the leading edge of deterrence, crisis response, and potential combat. The ships called on most often are surface combatants and they will need real capability to prevail.

The littorals are also an arena for sea-based missile defense. Covering treaty partners, allies and friends against ballistic missiles is a major concern around the Pacific and the Persian Gulf and even for Europe and U.S. territory.

CONFLICT TRENDS ARE
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PART I STRATEGY AND THE BUDGET

The need to rethink the littorals is coming right in the middle of a period of unprecedented budget turmoil impacting the Navy’s 30-year shipbuilding plan. It was a bad time for the fog to roll in.

Fiscal Year 2015 marks the fifth year of budgets crafted under the likelihood of quick trimming. The need to react to short-term changes has made it difficult for the Navy, Congress and the Department of Defense to hold a sustained conversation about how to contend with new global threats including in the littorals.

The cycle began in April 2009 when Secretary of Defense Robert Gates announced last-minute cancellations and changes to the defense program to take effect in Fiscal Year 2010. In this opening round, the Department of Defense opted to take higher risk because serious technology threats from peer competitors seemed far off. For the Navy, Gates said “the healthy margin of dominance at sea provided by America’s existing battle fleet makes it possible and prudent to slow production of several major surface combatants and other maritime programs.”¹

Cuts continued as Fiscal Year 2011 introduced the \$100 billion efficiencies initiative designed to find savings from overhead and business processes. While worthy, these cuts were not specifically tied to strategic redirection.

In January 2012, President Obama announced new defense strategic guidance including a rebalance to the Asia-Pacific region. This was the biggest change in American strategy in a decade and it laid a basis for logical re-scoping of force structure. However, the Pacific pivot came just months before sequestration legislation took effect. The law mandating automatic cuts put the Department of Defense into a reactive mode where each year’s budget submission from Fiscal Year 2012 to Fiscal Year 2014 was squeezed between the sequester laws and the administration’s requests.

“For more than a year and a half, the Joint Chiefs of Staff and I have been extremely vocal

about our deep concerns about taking another half-trillion dollars out of the defense budget in an across-the-board fashion that fits every area,” Secretary of Defense Leon Panetta said in February 2013.² Staffs carved multiple budget plans for each fiscal year in response to changing fiscal guidance. Debates required simply to meet short-term fiscal marks absorbed energy usually spent on refining long-term plans. The fog intensified.

Discussion of Fiscal Year 2015 started with an uneasy compromise in the form of the Bipartisan Budget Act. In February 2014, Secretary of Defense Chuck Hagel announced budget plan changes with significant impact on the Navy. This round was made with awareness that the budget submitted by DoD was \$31 billion higher than targeted under the Bipartisan Budget Act.

However, this still left the prospect of \$75 billion in additional cuts to spread across 2015 and 2016 depending on subsequent actions. For the Navy, Secretary Hagel proposed several actions to conform to different budget scenarios.

YEAR	TYPE	CLASS	POTENTIAL ACTIONS
FY 2015	CG	Cruisers	Lay up 11 or half of fleet
FY 2015	LCS	Littoral Combat Ship	Decrease buy from 54 to 32
FY 2016	DDG	Destroyers	Slow rate of new construction
FY 2016	CVN	Aircraft carriers	Retire <i>USS George Washington</i>

Hagel warned that under the worst-case scenario for the Fiscal Year 2015 the total number of ships could drop from 285 to 275 ships in 2023.

With the 2015 budget, the tension between trimming the budget and recapitalizing

the Navy grew very evident. Administration spokesmen like Acting Deputy Secretary of Defense Christine Fox warned that the Navy was facing “more advanced anti-ship munitions being developed by potential adversaries.” “I believe it is an imperative to devote increasing focus and resources to the survivability of our battle fleet,” Fox said.³ Absent the fiscal fog, Fox’s warning might have been a clarion call to reshape the Navy’s 30-year shipbuilding plan.

In fact, the shipbuilding plan has a big problem: a cost surge beginning at the far edge of the current five-year budget.

Each year the Navy lays out its plans for ship construction for 30 years ahead as mandated by Congress. The current plan is counting on a significant increase in spending starting within a few years. Navy estimates show the average budget for new-ship construction rising from \$12.7 billion per year for the 2014–2018 period to \$18.2 billion per year for the 2019–2023 period and then to \$19.8 billion per year through 2033.⁴ Even if this plan is carried out, the Navy could fall short of major surface combatants if fewer are bought or some DDGs do not make it to the 40-year lifespan contained in the current plan.

The average annual cost of this program “would be one-third higher than the funding amounts that the Navy has received in recent decades,” according to the Congressional Budget Office.⁵

The Navy shipbuilding plan is at risk, simply due to the fiscal chaos surrounding the whole defense budget and the ongoing impasse between the Executive and Legislative branches which hatched the 10-year sequester legislation. It’s time for a strategic discussion about what ships matter most to the Navy. However, the unrelenting cycle of building multiple budgets and cutting them at the last minute has made it difficult indeed to carry on that conversation.

A telling sign came when the Department of Defense discussed a plan to distribute high-end combatant ships around the globe and meet “the adjudicated FY 2015 Global Force Manage-

ment Allocation Plan (GFMAP.)” However, the announcement noted that the distribution achieved “only 44% of the global Geographic Combatant Commander (GCC) requests. Sourcing all GCC requests would require about 450 combatant ships with requisite supporting structure and readiness.”

Something has gone amiss. Appetites for forces have increased – and the GFMAP has its own unique counting rules. Blaming the benchmark only goes so far. A global force management plan tallying up nearly 175 ships more than exist and delivering only 44% of geographic combatant commander requests hints at disarray.

No relief is in sight. Senior leaders have consistently warned that the sequester legislation reaches out to 2023. After 2016, would more cuts be necessary? Perhaps the next steps would delay the attack submarine purchases, or even slow DDG procurement and replacement. The Reactor Core Overhaul (RCOH) for the *USS John C. Stennis* is scheduled shortly after that of CVN-73 *USS George Washington*. The decision on funding the \$6 billion refuel for CVN-74 falls within the FY 2018 budget which is within the sequester time period. Note also that the advanced Joint Strike Fighter purchases could halt under sequester, further eroding the sort of capability – in this case, carrier-based strike fighters – the nation is most likely to need.

For all these reasons, a meaningful strategic conversation about the future of the Navy is essential.

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PART II

HOW WE GOT HERE AND HOW THE SHIPBUILDING PLAN EVOLVED

Many issues need to be raised to start a true strategic conversation about the Navy. For example, the *Ohio*-class ballistic missile submarine replacement program known as SSBN(X) will take a major effort – and possibly even a separate funding account. Aircraft carrier construction schedules are another issue. But the central embedded question is about the mix of surface combatants.

Today, the mix includes 22 cruisers, 62 destroyers, 11 frigates and 4 littoral combat ships. The plan has long centered on expanding the fleet through a new class of Littoral Combat Ships. The LCS was supposed to shift the balance toward specific tasks in what was thought to be the relatively calm, permissive near-shore environment.

The assumptions behind this plan dated back to the defense policy guidance of the 1990s and 2000s. At the time, the Navy adopted a tactical approach to the littorals based on smaller ships exploiting networked information. There were fears that the most sophisticated and expensive capital ships were setting themselves up to be vulnerable to asymmetric attacks. Groups of smaller ships were thought somehow to be more responsive and resilient in littoral operations.

The Littoral Combat Ship program began in November 2001 with the goal of producing 40-knot ships with small crews using commercial hulls. “We needed to figure out how to asymmetric the asymmetric guys,” commented Admiral Vern Clark, Chief of Naval Operations from 2000 to 2005.⁶

LCS in the 2000s seemed to match almost exactly with both the assumed operating conditions and the defense strategy requirements of the littorals. Essentially the charter program of the 21st Century, the Navy sought to experiment with a new set of concepts for the maritime littoral. These included a new design and construction model for a small warship (i.e. Littoral Combat Ship – LCS) intended to replace two different classes of lower-end warship (Guided Missile

Frigates and Mine Countermeasure Ships); a bold step toward autonomous systems (air, surface, subsurface); and a crewing model that was both fewer in number and more capable per sailor.

Design work and competition for LCS took place just as the JCS was revising doctrine to define and emphasize pre-hostility or Phase 0 operations. In 2006, the Joint Staff formally articulated six phases beginning with Phase 0 operations and separating decisive combat operations from stability, for example. While always comfortable with presence operations – Phase 0 in Joint Staff parlance – the Navy may have been too willing to focus on this end of the warfighting spectrum.

The Navy’s 2007 strategy document caught this new thinking at its crest. *A Cooperative Strategy for 21st Century Seapower* recognized the economic links of the global system and “how any disruption due to regional crises – manmade or natural – can adversely impact the U.S. economy and quality of life,” said the Navy. The strategy stoked the enthusiasm for Phase 0 and the publicity surrounding its hospital ship and other efforts in Indonesia, for example. In the 2007 strategy the Navy anointed humanitarian assistance and disaster relief as “core elements of maritime power.”

Thus, the focus on presence, partnerships and Phase 0 supported making Littoral Combat Ships a large portion of the surface combatant fleet.

Looking back objectively, the maritime littorals were never benign nor were they necessarily the place for lighter, cheaper ships. To be sure, the Navy always paid appropriate respect to sea control missions. “We will be able to impose local sea control wherever necessary, ideally in concert with friends and allies, but by ourselves if we must,” the 2007 strategy pledged. The recent record attests that tough, multi-mission ships may better fit the wide range of missions in the littorals.



A NEW OPERATING CONCEPT

Just how wide might that range be? With the 2012 Asia-Pacific strategy, the Obama Administration explicitly acknowledged that US military forces must contend with rising threats in order to retain global freedom of operation. Of course, the Persian Gulf region and others remain on the table.

For any region, the new strategic guidance calls for much greater attention to anti-access and area denial threats and to dangers in global operations. The specifics were laid out in the Joint Operational Access Concept as signed out by Chairman of the Joint Chiefs of Staff General Martin Dempsey in early 2012. The JOAC carefully described how advanced capabilities have altered the battlespace. Among them were:

- A variety of surface-, air- and submarine-launched ballistic and cruise missiles able to accurately attack forward bases and deploying U.S. forces and their supporting logistics at ranges exceeding 1,000 nautical miles.
- Long-range reconnaissance and surveillance systems that provide necessary targeting information, including satellites, aircraft, and land- and ship-based radar.
- Kinetic and non-kinetic antisatellite weapons that can disable space systems vital to U.S. force projection.
- Submarine forces able to interdict U.S. and friendly sea lines of communications in both

sovereign and international waters between U.S. bases and the theater of operations.

- Cyber attack capabilities designed to disrupt U.S. command and control systems and critical infrastructure, both civilian and military.
- Air forces and air defense systems, both fixed and mobile, designed to deny local U.S. air superiority.
- Shorter-range anti-ship missiles and submarines employing advanced torpedoes to deny U.S. maritime superiority in the objective area.
- Precision-guided rockets, artillery, missiles, and mortars (G-RAMM) designed to attack surface targets, including landing forces, with much greater accuracy and lethality than their predecessors.
- Chemical and biological weapons to deny the use of select areas.
- Computer and electronic attack capabilities to degrade, neutralize, or destroy U.S. command and control in the operational area.
- Abundant land and naval mines capable of quickly closing straits, land passes, long stretches of coastline, or airfields.
- Armed and explosives-laden small boats and craft in cluttered and restricted coastal waters and straits.
- Special operations forces capable of direct action and unconventional warfare in the objective area.
- Unmanned systems, such as unmanned aircraft and unmanned underwater vehicles, which could loiter to provide intelligence collection or fires in the objective area.

The JOAC described a potential battlespace very different indeed from the counter-terrorism and stability operations of the 2000s. This calls for a reappraisal of the maritime littoral operating environment and the ships the US is building.

PART III

ABIDING REALITIES: THREATS IN THE MARITIME LITTORALS

Perhaps the best place to begin the strategic conversation is by examining the risks and threats of sea control operations, including combat, in littoral waters today and into the near future. This is not to say hostilities between the US and regional states are preordained. But a realistic appraisal of what's expected from the 30-year shipbuilding plan begins with a look at real ships and aircraft in real bodies of water. These stand out. They are the Persian Gulf, and the South and East China Seas.



THE PERSIAN GULF

The United States has been operating surface ships almost continuously in the Persian Gulf since 1949 and aircraft carriers regularly since 1990. Measuring slightly more than 600 miles long with a variable width of about one third of that at its widest, it shrinks considerably in the Strait of Hormuz where it connects to the Gulf of Oman.

While shallow by oceanic standards – some 300 feet at the most and slightly more than half of that on average – surface warships up to the size of a US cruiser can operate comfortably in most areas of the Gulf. Likewise *Nimitz*-class carriers and US submarines have access to quite large contiguous sections of navigable waters. Indeed some of the world's very largest super tankers come to Gulf ports to load oil.

But should a crisis arise with Iran, the Gulf like most constrained seas comes with its own

particular risks to US and allied naval operations. Mark Gunzinger of CSBA summed up the littoral challenges this way:

Iran's hybrid strategy would continue at sea, where its naval forces would engage in swarming 'hit-and-run' attacks using sophisticated guided munitions in the confined and crowded littorals of the Strait of Hormuz and possibly out into the Gulf of Oman....Iran could coordinate these attacks with salvos of anti-ship cruise missiles and swarms of unmanned aircraft launched either from the Iranian shore or from the islands guarding the entrance to the Persian Gulf.

Leaving aside for the moment the question of whether the Iranians could orchestrate all this, the scenario does yield a good list of potential dangers which the operational commander would have to consider. Anti-ship missiles would be among the top concerns. Fired individually or in salvos, these relatively low-cost weapons can inflict significant damage if successful. For instance, two Iraqi air-launched missiles struck *USS Stark* in the mid-1980s with significant loss of life and total mission impairment. Britain lost the *HMS Sheffield* after an Argentinian *Exocet* missile attack during the Falklands War of 1982.

Since then Iran has continued to invest in and improve this part of their force to include more and newer missiles as well as more capable launch systems, predominantly sea and land. Experience tells how difficult it is to locate, target and strike mobile land launchers before they can position and fire (or reposition to a hide site after firing). The effectiveness of land-based anti-ship missiles was demonstrated when an Iranian-provided *Exocet*-family missile hit and damaged the Israeli corvette *Hanit* about ten miles off Beirut during the Lebanon incursion in 2006. While details of targeting are not known (visual or radar), *Hanit* was effectively put out of action and a merchant ship reportedly some 40 miles further away was hit and sunk from one of at least two Hezbollah missiles fired that day.

Ship-launched anti-ship missiles are often

the weapons of choice for the Iranian Navy and Iranian Revolutionary Guard Navy and can be found in numbers on small purpose-built fast attack craft and ships as large as corvettes. While any over-the-horizon attack requires a modicum of effective targeting, the high sub-Mach speed and low radar profile make these especially difficult to detect and counter. Iran has also reportedly acquired and deployed the Russian-designed *Sunburn* supersonic anti-ship guided missile. The *Sunburn* compounds the overall threat because it reduces significantly the reaction time of defensive systems, especially point defense systems. While Iranian naval forces still lack a fully networked system of targeting and weapons control, they have sufficient inventory of platforms and missiles to give more than passing concern to US commanders. The ultimate outcome of any engagement against US naval forces is not in question, but presuming the Iranians choose the time, place and weapons to launch an attack only the most robust shipboard anti-air defense systems will likely be able to withstand the onslaught unscathed.

Iran's undersea weapons include submerged and surface-launched torpedoes and mines. For the time being the Iranian submarine force lacks sufficient numbers and tactical experience to pose a sustained threat. Likewise anti-ship torpedoes fired from surface craft have to get well within the offensive arc of their targets to be effective. Still in a melee against a group of torpedo-equipped small craft fair consideration must be given to this capability.

Naval mines on the other hand pose a sustained threat if undetected while being laid and employed properly within their design specifications. Mines include relatively simple ones designed to float at or below the surface at different depths. They are typically anchored to the sea floor. These so-called contact mines are triggered when they come in contact with a ship's hull, which is what happened to *USS Samuel B. Roberts* in the Gulf in 1988. More advanced mines can be moored, bottom laid, or partially buried and can be triggered by a range of phenomenon

incidental to a ship passing near them such as by magnetic field, acoustic signature or pressure changes. Very high end mines can act more like a torpedo to engage their target and increasingly many mines are equipped with various target discriminators and anti-countermeasure subsystems and attributes.

Employed in the Gulf both by the Iraqi Navy in the 1980s and 1990s and the Iranians during the same period, and occasionally successful, their full potential was never realized. The methodical improvement in all areas of naval warfare in Iran probably includes the ability to implant mines in tactically significant ways with a decent probability that their deployment won't be detected every time. These mines can be laid by surface ships, submarines and aircraft with varying levels of speed and covertness.

The Navy in 2009 estimated a total of a quarter million sea mines in the hands of more than 50 navies. "There are mines that can actually pinpoint the size and shape of a ship in the water as it's passing by at various speeds," said the captain of the *USS Avenger* in 2011. "The technology out there is incredible. If they are doing (what they're doing) with an iPhone, what do you think they're doing with weapons?"⁷

Clearing mines is typically the forte of specialized craft and systems and is characterized by the amount of time it takes to accomplish to a high degree of certainty. That said, implanting an effective mine field takes time and exposes the force doing it to counter-detection. And notwithstanding the large inventory of mines reported to be in the Iran inventory, there are limits to how large an area they could effectively control. A more likely scenario would be to use mines less broadly but in ways that could achieve at least one early "hit" so as to disrupt opposing naval operations and/or maritime trade in a certain area.

Given the *USS Samuel B. Roberts* and other examples, prudence dictates planning and designing (as best able) for the eventuality that a ship may suffer a mine strike. This includes at a minimum the range of countermeasure techniques to minimize relevant hull-induced signatures. It also

argues for more than bare sufficiency in water-tight integrity and reserve buoyancy, attributes somewhat related to ship size. Roughly a third of the fifteen or so US ships hit by mines during and since the Korean War sank and these were mostly smaller than destroyer-size ships.⁸

SOUTH CHINA SEA AND EAST CHINA SEA

A ship steaming at 20 knots can travel the entire Persian Gulf in slightly over a day. That's about the time it takes to cross only the southern half of the East China Sea (ECS) from Okinawa to Taiwan. Continuing on to Singapore would add three more days. Parts of these two seas rest atop the resource rich East Asian continental shelf and overall they have significant depth variability as well as a large number of reefs and small islands most notably in the South China Sea (SCS).

That is not the only difference between these contested seas. If fighting were to break out in the Gulf, US forces would likely only have to cope with one or a few different types of threats at a time with less than optimum synchronization by the Iranians. Such would not be the case today in an East Asia scenario, and as China continues its military modernization and operational training that reality will only become more of an issue in the future.

Consider China's progress as detailed by the Office of Naval Intelligence.

- "In contrast to its narrow focus a just decade ago, the PLA(N) is evolving to meet a wide range of missions including conflict with Taiwan, enforcement of maritime claims, protection of economic interests, as well as counter-piracy and humanitarian missions."
- "The PLA(N) currently possesses approximately 77 principal surface combatants, more than 60 submarines, 55 medium and large amphibious ships, and roughly 85 missile-equipped small combatants."
- "The PLA(N) is rapidly retiring legacy combatants in favor of larger, multi-mission ships, equipped with advanced anti-ship, anti-air, and anti-submarine weapons and sensors. During 2013 alone, over fifty naval ships

were laid down, launched, or commissioned, with a similar number expected in 2014."⁹

Admiral Samuel Locklear, Commander, United States Pacific Command, has spoken publicly about the dangers of the littoral environment. "Our historic dominance is diminishing," Locklear told surface Navy officers. "No question. Let me say it again. Our historic dominance, that most of us in our careers have enjoyed, is diminishing." Locklear went on to warn that the basic air superiority and basic sea superiority of recent years simply won't be there in certain places in the world in the 21st Century.

These facts create a daunting political and increasingly military dynamic between and among the regional states. China's change in foreign policy has expanded the definition of "littorals" by adding a number of tiny, contested islands as scenes of maritime encounters. This can be seen most acutely in the tension between China and Japan over the Senkaku Islands (Diaoyu in Chinese) in the East China Sea and between China and various countries regarding different islands in the South China Sea. The East China Sea has become a scene of almost daily encounters between Japan and China at sea and in the air. Japan's Ministry of Defense charted a 400% increase in scrambles against Chinese air force and navy fighters from 2010 to 2013.

The United States is involved in these dynamics because of formal alliances, as well as broader international and economic reasons such as freedom of navigation and rules of international law. President Obama made clear on his April 2014 visit to Japan that the US will continue to stand by its mutual defense treaty obligations. "Let me reiterate that our treaty commitment to Japan's security is absolute, and Article 5 [of the bilateral security treaty] covers all territories under Japan's administration, including the Senkaku Islands," Obama stated at a joint press conference with Japanese Prime Minister Shinzo Abe.

It is difficult to pick one area that stands out from the rest in the People's Liberation Army Navy (PLAN) modernization efforts. For example, China reportedly has up to 80,000 mines it can deploy.



However, the demonstrated commitment to its nuclear and conventional-powered general purpose submarine force is testament to a serious effort with real operational ramifications. Many observers have commented on the gap between US (and Japanese) submarine capabilities and those of the PLAN. These remain significant, but efforts to improve all facets of their undersea warfare including offensive and defensive capabilities continue. Indigenously designed and constructed submarines are rapidly replacing aging Russian ones. Even as this transformation is occurring, the PLAN continues submarine operations in all three of its Fleet training areas and beyond. It is also modernizing support and basing infrastructure apace.

Perhaps more important than a one-on-one comparison between USN and PLAN submarine classes is the operational dimension. Although China has fewer than a dozen nuclear powered attack submarines, they have about three times as many conventional ones. In comparison, the US Pacific Fleet has fewer than three dozen total submarines with most home-ported in Hawaii or mainland US ports. The US routinely operates some of these in the Western Pacific and it certainly can order more forward as needed. But regardless of that, PLAN submarines (like the rest of their ships) have a shorter transit time to likely patrol areas in the ECS and SCS.

Inevitably the quality and quantity of China's submarines and their weapons will improve but already in the near term the US Navy would have to overcome an antisubmarine warfare challenge against "good enough" opposition. Action in this area would include deep water operations principally against PLAN nuclear powered submarines and in progressively shallower waters, against the more numerous conventional force the closer to China proper operations occurred. US forces would employ submarines, ships and aircraft in this effort. With multiple warfare areas in play more or less continuously, a much higher premium will be placed on US naval forces for sustainable multi-mission operations.

Sustained operations will put real pressure on surface warships. In all probability, they would be "fighting" in three dimensions – air, surface, subsurface – literally around the clock. Add to this the demands of maneuver, either as part of carrier and amphibious groups or supporting them in small groups ranging well ahead or on the flanks. When all of this is factored in, the only ships that will be relevant will be those built with sufficient fuel capacity, adequate numbers of trained Sailors for 24-hour operations, and the aggregate of systems capable in all of these three dimensions of sea control all the time.

Granted, some of the tasks in the littorals will be "low-end" missions for which any sort of presence and response might suffice. Yet the likelihood of confrontation and the inherent nature of the maritime littoral environment argues strongly for versatile ships that can defend themselves well and conduct the full range of missions. The very dynamism of naval engagements and the asynchronous nature of combat in the different domains offer many opportunities for a thinking enemy to confound and disrupt the best-laid plans.

**SUSTAINED OPERATIONS
WILL PUT REAL PRESSURE ON
SURFACE WARSHIPS.**

PART IV RE-EVALUATION AND QUESTIONS

Franklin D. Roosevelt once famously said trying to change the Navy was like punching a feather bed. Maximum effort left no discernible mark.¹⁰

As discussed, change is here. It's the form that's in question. With the FY 2015 budget proposal both DoD and Congress signaled that the balance of strategy and specific ship priorities no longer added up. The accent on peace-keeping, presence and Phase 0 with a fleet filled out by cheaper, modular types was unraveled in part by budget philosophy and execution shortcomings – but mostly by changes in the threat environment.

“Strategy’s role is to give coherence and direction to the process of allocating money among competing types of ships and aircraft and different accounts for spare parts, missile systems, defense planning and the training of forces. It provides guidelines to aid us in allocating both resources and shortages,” as former Secretary of the Navy John Lehman wrote in the 1980s.¹¹

Washington today is only just beginning to reinvigorate discussion on radical technologies (such as directed energy) and potential surprise threats from peer navies. As a result, the shipbuilding plan may inadequately position the Navy to take account of rising naval activity by China (and Russia) and the increasing global requirement for ships with combat capability.

The key to a strategic conversation is to re-examine how elements of the shipbuilding plan stack up against developing threats, operational realities, and policy requirements. This final section seeks to raise a few questions helpful to stimulating a deeper conversation about the Navy.

QUESTION ONE: LCS

Secretary of Defense Hagel raised pointed questions about LCS and recommended a cut from 54 to 32 ships:

Regarding the Navy’s littoral combat ship [LCS], I am concerned that the Navy is relying too heavily on the LCS to achieve its long-term goals for ship numbers. Therefore, no

new contract negotiations beyond 32 ships will go forward. With this decision, the LCS line will continue beyond our five-year budget plan with no interruptions. The LCS was designed to perform certain missions – such as mine sweeping and anti-submarine warfare – in a relatively permissive environment. But we need to closely examine whether the LCS has the independent protection and firepower to operate and survive against a more advanced military adversary and emerging new technologies, especially in the Asia Pacific. If we were to build out the LCS program to 52 ships, as previously planned, it would represent one-sixth of our future 300-ship Navy. Given continued fiscal restraints, we must direct shipbuilding resources toward platforms that can operate in every region and along the full spectrum of conflict.¹²

LCS evolved to have an inherent point defense capability against low-to-medium air and missile threats and consequently rely on others (i.e. AEGIS cruisers and destroyers) for most of its protection. This translated into two versions of the rolling airframe point defense missile system on the two classes of ships and a dual-purpose 57mm rapid fire gun on both. In approximate terms this equates to a five-to-eight mile arc around the ship at best. By contrast, the 5-inch naval gun on a DDG has a range in excess of thirteen miles and area missiles capable comfortably beyond 50 miles in addition to its own comparable point defense systems.

If the ship is intended to operate alone or in small LCS groups, it will still lack the necessary air defense in all but the most benign environments. Neither class has anything fielded or planned for the ship for anti-surface warfare beyond what may be considered a point defense analog to its air defense systems, which will be only slightly longer than twelve miles for the Griffin missile. The use of either of the manned MH-60 variants would typically require putting the helicopter inside a reasonable air defense range of many of the world’s warships. Likewise

the unmanned Fire Scout helicopter would face the same challenge to employ its likely suite of weapons.

Further, for antisubmarine warfare, the mission package is planned to include variable depth sonar, torpedo defense system, and a multifunction towed array for use in screening both in-transit forces (including Strike Groups). This package will also utilize embarked manned and unmanned aircraft, constituting the sole way of attacking a submerged threat from LCS. As with the mine warfare mission package, ASW is still a future capability and the program has encountered a number of challenges. It will not completely match the capability of the FFG class in the ASW mission. Nor will it begin operational testing before 2016, which is fifteen years into the program.

Regarding operational mobility, both LCS have less total unrefueled range at eighteen knots with *Independence* at 4300 nm and *Freedom* at 3500 nm. A DDG has a range of about 4400 nm at 20 knots. The *Freedom*-class will be significantly constrained in range when operating “on-plane” which is its likely mode of operation owing to its reported tendency to be uncomfortable and tiring for the crew when “hull-borne” in any sort of seaway. *Independence*-class when at higher speeds will also experience a diminished range. In both cases, the step function fuel usage occurring at about 16-18 knots is dramatic and does pose a logistics challenge for operational commanders since warships routinely operate tactically in the 20 knots and above regime.

It is unfortunate that LCS was designed for an operational environment which – if it ever really existed – is fast receding astern when measured against a resolute and capable adversary. Emerging nations like China and re-emerging ones like Russia have capabilities that can moot the entire concept.

In fairness, LCS was intended originally to have a proof of concept phase to let contractors and Navy experts work out inevitable challenges including in the modules. Decision makers at the time, both Fleet operators and

acquisition professionals, knew there would be many and wished to build flexibility into the process up front. Perhaps LCS transitioned into a program of record too early. What’s harder to reconcile is that a program underway since 2001 has yet to materially bring anything meaningful to the Fleet. A serious rethinking is needed as well as recognition that many of the capabilities being sought exist already in the Navy.

QUESTION TWO: DDGs

When the destroyer *Donald G. Cook* was in the news as subject of undue interest by Russian fighters, a NATO spokesman made a subtle but telling point. That ship was “more than capable of defending herself from two Su-24s” the spokesman pointed out. The *Donald G. Cook* was one of four destroyers dispatched to Rota, Spain for patrols as part of a NATO reassurance mission designed to send very clear signals to Russia in its dealings with Ukraine.

Guided missile destroyers and cruisers have proven to be potent and flexible. Even in low-end missions such as “pirate alley” the commander of CTF 151 embarked in the USS *Vella Gulf*, a cruiser, and paired often with destroyers such as USS *Mahan*.¹³

What makes the DDG-51 Burkes compelling is their value to operational commanders who confront a range of ever-improving potential adversaries around the world. The “threats to surface combatants continue to grow, not just from advanced military powers, but from the proliferation of more advanced, precise anti-ship munitions around the globe,” said Christine Fox when she was Acting Secretary of Defense.¹⁴

Arleigh Burke-class guided missile destroyers are a good example of the blend of capabilities that tactical and operational commanders have consistently sought. Yet while its systems are well-known, their attributes sometimes get less attention.

First, DDGs confer tactical flexibility. They are highly mobile ships with good sustained speed, excellent unrefueled range, a powerful and reliable engineering plant and



Aegis Destroyer USS Donald G. Cook

well regarded sea-keeping abilities in higher sea states. It is easy to overlook, for instance, that most of the world's oceans and littorals are *not* like the Persian Gulf. One needs only be off the coast of northwest Spain or south of Crete in the Mediterranean to experience some nasty winds and seas, not to mention what the Atlantic and Pacific can produce. While in command of a guided missile frigate, one of the authors was in an exercise above the Arctic Circle in the Norwegian Sea in February as part of an Aircraft Carrier Strike Group. While the winds and seas certainly had an effect on operations (and were, to say the least, memorable), there were very few days when operations were beyond the reach of the ship – the smallest in the group. The larger ships did even better and had a *Burke*-class been along, it would have done the best. Neither LCS would have measured up. Fitness as a seagoing vessel for the fullest range of ocean environments is a necessary precondition for a global warship.

Second, *Burke*-class DDGs have weapons systems depth and networked extendibility and its AEGIS combat system is in many respects as good as that of a cruiser. With the addition of a flight deck and hangar, the majority of ships of the class have the added capability of carrying a helicopter which is an integrated extension of the ship's combat systems (principally for anti-submarine and anti-surface warfare). The specifics of the AEGIS are beyond the scope of this paper,

but suffice to say the ability to sense and integrate data in three dimensions (four counting passively electronic sensors) and display relevant information in a decision-friendly fashion are inherent. Including the helicopter in the equation, the surface and subsurface surveillance area can encompass hundreds and hundreds of square miles beyond the ship's surface radar horizon. Similarly the SPY-1 family of radars allows for surveillance from the horizon outward well over a hundred miles with essentially hemispherical coverage. Equally importantly, this high-speed, high-data sensor is backed up by weapons with considerable reach and capability. When the Navy decided to move beyond its test bed ballistic missile defense cruisers, they chose the *Burke* class to carry this operational capability into the fleet. Add to this robust anti-air and missile capability an integral long-range anti-ship missile and a full suite of ship and helicopter-launched torpedoes, the *Burke* class can rightly be assessed as a premier global warship.

Third, DDGs may be ton-for-ton the most survivable surface warship in the world. Incorporating the tough lessons of naval warfare, the ship has inherent damage control features in its construction and a modern set of damage control subsystems that allow for rapid determination of degree of damage and equally rapid segregation of key systems to maintain continuity of engineering and combat systems services. Backing up these state-of-the-art systems are sufficient numbers of trained crew. They can work in shifts around the clock to save their ship and restore vital services. If one of the measures of survivability of a ship is its inherent reserve of stability, equally important is its reserve of crew for sustained combat operations and sustained damage control efforts. DDGs are not over-manned but they are decisively not undermanned.

QUESTION THREE: AIRCRAFT CARRIERS

No ship type has been more active than aircraft carriers in the wars and operations of the past two decades.

The littorals after 1991 emerged as a

prime location from which to launch naval airpower ashore. This is just what the Navy did for more than ten years, beginning with Operation Enduring Freedom in 2001. The Navy massed four carriers to provide primary air superiority coverage at the beginning of the Afghanistan war. Five carriers brought 250 F/A-18s and other aircraft to war for Operation Iraqi Freedom in March 2003. The carrier-based F/A-18EF dropped more ordnance than any other type of fighter except the USAF F-15E.¹⁵

Iran, for one, got the message. “Aircraft carriers are the symbol of America’s military might,” declared Iranian Admiral Ali Fedavi in a characteristic broadside. “The carriers are responsible for supplying America’s air power. So, it’s natural that we want to sink the carriers.”¹⁶



USS George H W Bush

Periodically, analysts made arguments in favor of building smaller carriers. The ideas claimed greater survivability and economy. The Navy’s shipbuilding plan never took the bait. For starters, a small carrier concept sacrificed seakeeping. The North Arabian Gulf or the South China Sea both experience rough seas above Sea State 5 (wave heights at 8-13 feet) during the worst months of the year. No commander wants to hear that excuse for sortie cancellation. Their deck sizes preclude airwings optimized for

repeated, persistent operations in heavily-defended battlespace. Even the larger “small” carrier concepts at 50,000 to 60,000 tons displacement cannot embark with the full complement of aircraft needed to execute a variety of missions or sustain 24-hour flight operations. Increasing air activity by Russia and China will call for more carrier sorties, not fewer.

The intellectual debate over small carriers quieted with the commissioning of the CVN-78 *Ford*-class carrier. CVN-78 kept the *Nimitz*-class hull but made significant changes such as positioning the island further back, opening up deck space. Steam catapults were replaced by a new electromagnetic design. Electrical generating capacity tripled, opening up potential for directed energy weapons in the future. The new design enhanced wartime sortie generation potential and added aircraft munitions storage space.

However, new questions about carrier operations have arisen as the focus shifted to the Pacific. These are becoming an important part of the strategic conversation. Among them are how the airwing will handle defended airspace and greater numbers of adversary fighters; and whether land-based ballistic missiles impose operational constraints on the carrier at sea.

At the same time, the requirement for carriers has shifted. The yardstick of the 1990s and 2000s was how carriers flew sorties for land-based missions. The carrier contribution to joint operations was often measured in air operations: How many on-call sorties could the carrier provide the Combined Forces Air Component Commander? How could multiple carriers sustain 24-hour operations? How much ordnance could carrier-based strike aircraft deliver?

Those remain valid metrics, but threats in the Pacific are expanding the roles for airwings with renewed emphasis on some traditionally crucial missions. Fleet air defense, long-range engagement of enemy aircraft, reconnaissance and surveillance, and destruction of enemy air defenses are all priority missions. On occasion, aircraft carriers may provide the swiftest means

of ensuring or augmenting air superiority – as they did in the opening days of Operation Enduring Freedom over Afghanistan in 2001. Most joint commanders would far prefer to go to war with a mix of land and sea-based airpower. But that alternative is not always guaranteed.

All these missions should be considered in carrier sizing discussions. The next years present rolling choices about carrier refueling and the build rate for the *Ford*-class. Yet a look at world events shows plainly this is no time to be thinking about cutting aircraft carriers.

QUESTION FOUR: AMPHIBIOUS SHIPS

Both Japan and China are boosting and exercising their capabilities to conduct amphibious operations. While the US plans to maintain a strong amphibious capability, this depends directly on the new LX(R) entering the inventory in less than a decade and then being purchased in quantity as remaining LHA, older LHD and LSD classes of ships retire.

The amphibious ship USS *Bataan* with 1,000 embarked Marines moved closer to Libya as civil strife escalated in June 2014. When the USS *Bataan* deployed, it took up a common role: standing by in case of a non-combatant evacuation or NEO. While other forces such as strategic airlift often participate, Amphibious Ready Groups (ARGs) are uniquely well-suited for NEOs. A NEO typically moves a few hundred or a few thousand people over a matter of days

or weeks. Locations in the past 20 years have varied from coastal Africa to Albania, the Central African Republic and closer to home, Haiti. Amphibious ships can remain in place for extended periods while policy coalesces. It's difficult to picture littoral combat ships, for example, serving in the NEO role.

Amphibious ships respond to crises, exercise with foreign navies, provide humanitarian assistance, and can conduct assaults and raids. Future amphibious warfare concepts center on Marines launching from ships to take objectives where conditions require it. Amphibious ships also have useful volume and command and control. They could in fact host many of the autonomous platforms and mission modules being considered for the LCS classes of ships.

For the shipbuilding plan, the Navy expects to keep commissioning the *San Antonio*-class ships and to retire older amphibious ships. A point to include in the strategic conversation is how to ensure that the “amphibs” optimize for appropriate roles – even as they explore new ones. It's also important to ensure amphibious ships don't end up serving by default as inventory-reduction bill-payers in future budget crunches.

QUESTION FIVE: A NEW FRIGATE?

Secretary of Defense Hagel asked for “alternative proposals to procure a capable and lethal small surface combatant, generally consistent with the capabilities of a frigate.”¹⁷

A Small Surface Combatant Task Force began work in 2014 on the potential frigate. Whatever ideas arise, three points should be kept in mind. First is an early lesson of LCS. “We had thought that the commercial variant would not be that far away from what we needed. I'll tell you, that was underestimated,” said CNO Admiral Gary Roughead in 2008 as he looked back on the genesis of the LCS program.¹⁸ No doubt there will be an impulse toward quick options – but the strategic mission should prevail.

Second, one of the biggest changes in the Navy since the birth of LCS is the dominance and



USS *Mesa Verde* LPD-19 and USNS *Robert E. Peary* T-AKE-5



success of the sea-based missile defense mission. Quietly, this has become a linchpin of joint military operations and alliance relations. Any new ship for the US Navy should be able to contribute significantly to this mission, albeit in the terminal defense phase.

Third, this new frigate must be lethal, survivable and capable of global operations. Just as it is no time to consider scrapping carriers, this is no time to hark back to part of what set the tone for LCS: the hankering for light, cheap ships in an unproven swarming, networked conops resting on invalid assumptions about the operational environment.

Acting Deputy Secretary of Defense Christine Fox made a statement that applies well to future decision on a frigate. “Niche platforms that can conduct a certain mission in a permissive environment have a valuable place in the Navy’s inventory. Yet we need more ships with the protection and firepower to survive against a more advanced military adversary.”¹⁹

World navies are full of frigates in the hands of allies and adversaries alike. The British Royal Navy’s Type 23 *Duke*-class frigates “have proven their versatility by dealing with virtually every mission imaginable in the four corners of the globe.”²⁰ China also has over 200 fast missile boats of old and new types, all carrying the C-801 and/or C-802 anti-ship missile.

Whatever direction the frigate may take, Fox was right to note “the threats to surface combatants continue to grow, not just from advanced military powers, but from the proliferation of more advanced, precise anti-ship munitions around the globe... given more advanced anti-ship munitions being developed by potential adversaries, I believe it is an imperative to devote increasing focus and resources to the survivability of our battle fleet.”

PART V CONCLUSION

Fiscal Year 2015 was a warning. Few doubt that budget pressures will continue and could drive more reshaping in FY 2016. “We will be forced into much tougher decisions on the Navy surface fleet,” Hagel said. In that case, the strategic priorities – not just a budget drill – will be more important than ever.

Maybe the silver lining of these years of sequester debate is a chance to open the deeper strategic conversation about the force mix and ship-building plan for the US Navy. As Locklear put it, the “underlying thing behind the whole pivot is that after two decades of really difficult work in the Middle East, we have to look globally at where our long term national interests, our children’s and grand children’s, are going to be most important....The consistent vector is in the long term to make sure we get it right in the Asia-Pacific.”²¹

The Navy is actively attempting to reverse the decline in its ship inventory. Secretary of the Navy Ray Mabus recently testified: “On September 11th, 2001, our fleet stood at 316 ships. By 2008, after one of the great military build-ups in American history, that number had dropped to 278 ships.” The current plan is intended to bring the inventory of ships above 300 by the year 2020.

As the Navy lays out its shipbuilding plans, it might well be mindful that large surface combatants – of which *Burke*-class ships will be the vast majority – are the backbone of the surface force and the indispensable participant in any sea control operation. Small surface combatants have a role but only if they possess integral multi-mission capability and can operate fully as a part of a Strike Group. Some of the AE-GIS-equipped frigates of our allies are illustrative of the ability to package a great deal into smaller hulls. But at the end of the day, the load will be borne by larger ships and it is there a global Navy needs to first and foremost put its intellectual, fiscal and other efforts.

Perhaps there is inspiration to be found in the strategic conversations of the 1970s and

1980s. Building ships for a tough, blue-water environment that could keep ahead of adversary technology was a top priority. Professional – and political – debate about the future direction of the US Navy gravitated toward analysis of new technology and the mitigating effects of real-world operating conditions, fleet defenses and tactics. Typical debate included how fast technology matured and how long it took fleet tactics to incorporate advances. One scholar cited everything from dreadnought fire control systems to the possible use of space-based guidance to make points about the maturation of new technologies.²²

A guiding theme was ensuring against technological surprise. “The perennial concern of military planners is that technological surprise will give an opponent a decisive advantage in event of war,” wrote a naval scholar in the mid-1980s. “Technological developments combined with tactical innovation can bring about fundamental change in fighting capabilities. The concern is over how to anticipate such change, particularly if it comes suddenly.”²³

One thing experience has proven, however is that ships with inherent capability and ample armament fare better over time. They can adapt more quickly to change than ships that had less capability from the start.

Now those are good themes for starting a strategic conversation.

ENDNOTES

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