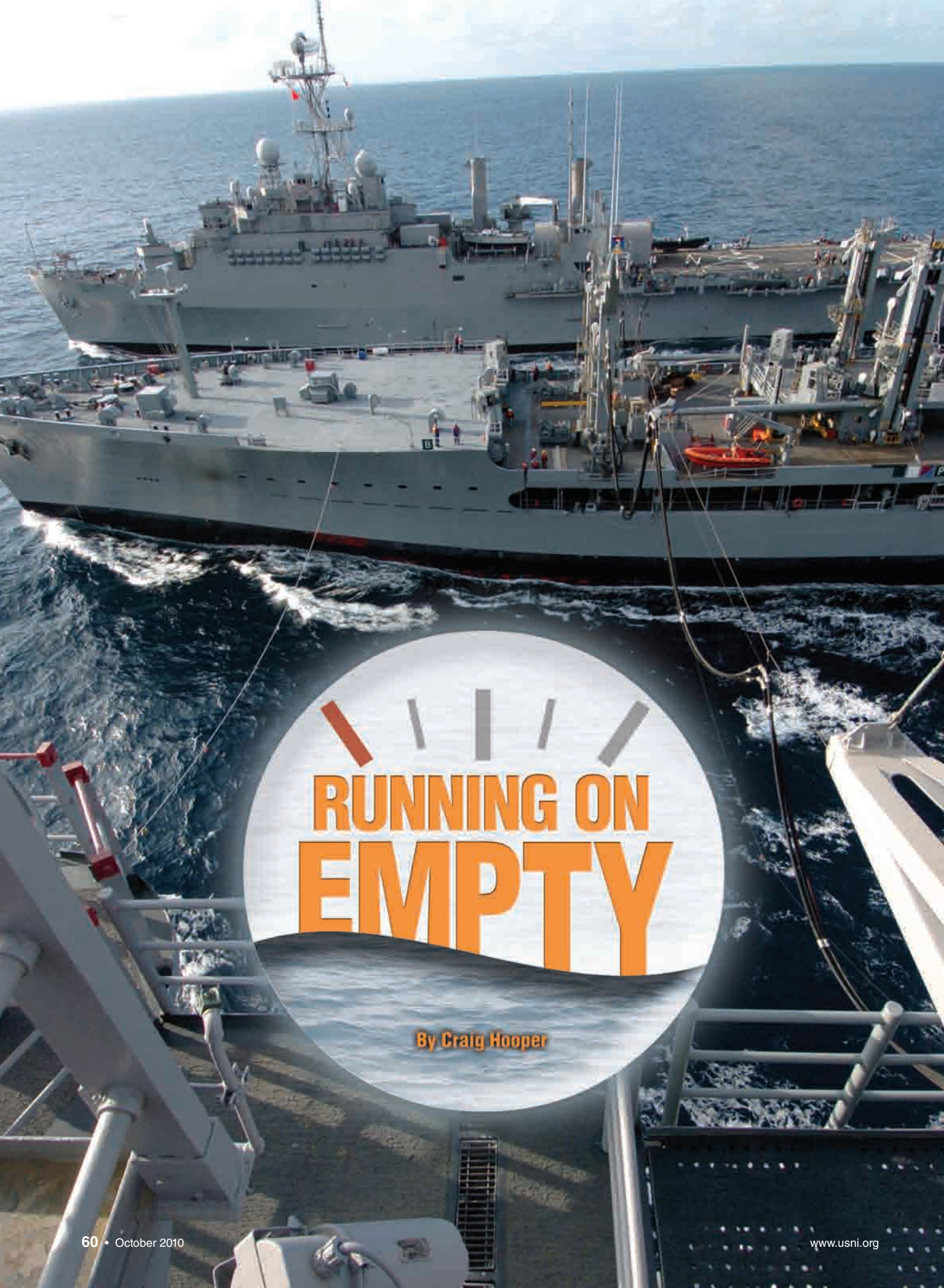

RUNNING ON EMPTY

By Craig Hooper

Pressed by a brutal operations tempo, evolving strategic challenges, and a shifting Fleet structure, the Navy's aging oilers can no longer be taken for granted—new oilers are needed now.

They may be unglamorous, but underway replenishment vessels are some of the hardest-worked assets in the U.S. Fleet. Operated by the Military Sealift Command, the 31 replenishment ships of the Naval Fleet Auxiliary Force spent 5,036 days at sea during the last fiscal year. On average, every available U.S. Fleet replenishment oiler is active and under way for more than six months each year, making America's oilers the most fully committed components of the Combat Logistics Force (CLF).[1]

At this pace, how long can the Navy's middle-aged fuel-distribution platforms remain reliable assets?

American fuel-distributing ships are no longer new. The *Supply*-class underway replenishment vessels, a fleet of four fast combat-support ships built to accompany and resupply carrier battle groups, first entered the water two decades ago. Sixteen slower, less ambitious "single-product" *Henry J. Kaiser*–class fleet replenishment oilers were delivered between 1986 and 1996.

Replacements are not on the horizon. In 2005, Secretary of Defense Donald Rumsfeld canceled the T-AOE(X) station-ship replacement project, leaving America's only "one-stop" class of fast multi-product replenishment platforms to retire in Fiscal Year 2034, after 40 years of service.

New single-product oilers have been pushed to the extreme margins of future shipbuilding plans. The Navy's FY 11 30-year shipbuilding plan suggests procuring two prototype T-AO(X) replenishment oilers between FY 17–20 and purchasing one a year from FY 21–35. By then, each *Kaiser*-class oiler will have served about 35 years.[2]

It is only a matter of time before these hard-run ships start showing their age. What does the future hold for America's oiler fleet?

New Oilers Not Guaranteed

Under the current shipbuilding plan, it will be almost impossible to replace new oilers on a one-for-one basis. By putting off serial T-AO(X) production until FY 21, oiler procurement will be conducted alongside the $84 billion SSBN(X) ballistic-missile submarine replacement program. But with the SSBN(X) absorbing virtually all available shipbuilding funds and the 2020–30 federal budgets expected to be under great stress, orders for next-generation oilers will invariably shrink as the procurement timeline "slides to the right."[3]

Given the expected funding shortfalls, prudence dictates the *Kaiser*-class oilers prepare now to serve well beyond their currently planned 35-year service life. But is an extension of *Kaiser*-class service life a viable option? Over the closing decades of the Cold War, technical advances forced the final generation of inefficient steam-powered oilers out of service rather quickly. Seven *Wichita*-class replenishment oilers entered service between 1969 and 1976, but were retired after just 23 years. Five *Cimarron*-class Fleet oilers, commissioned in the early 1980s, left service after only 17 years. All retired oilers that have not already been scrapped or sunk are simply rotting in the National Defense Reserve Fleet in "disposal" status.

It is an open question if the *Kaiser*s, each built to civilian standards at a time when second-string combat-support ships were being retired after two decades, have enough life left to operate far beyond FY 20.

Even if maintainers do prepare the *Kaiser* class to survive past 2020, the old oilers risk running afoul of global environmental regulations. Thanks to the International Convention for the Prevention of Pollution by Ships, the 12 single-hull members of the 15 remaining *Kaiser*-class vessels are set to become some of the last single-hulled fuel-carrying ships to operate in a top-tier navy. As the United States deploys the "Great Green Fleet," the environmental shortcomings of the old oilers will be all the more noticeable.[4]

Though naval auxiliaries are exempt from international environmental regulations, all signatories are obligated to work toward eventual compliance with the international rules. Other countries are moving to adopt the new standards, and as China, India, and other small navies recapitalize their tiny replenishment fleets, double-hulled replenishment oilers will become the global norm.

In a few years, as more nations take an active interest in the stewardship of littoral zones, single-hulled naval oilers risk wholesale exclusion from critical regions. Earlier this year, the mere prospect of environmental objections from future maritime partners helped the Canadian government bolster its case for the prompt replacement of two 40-year-old single-hulled replenishment vessels, HCMS *Preserver* and HCMS *Protecteur*.[5] If kept in service, the U.S. Navy's single-hulled oilers eventually will face operational restrictions capable of endangering the Fleet.

Short-Term Solutions

Though energy conservation is a central goal, the Navy's appetite for fuel at sea remains on an upward trajectory. Over the last fiscal year, the Military Sealift Command

U.S. NAVY (OMAR A. DOMINGUEZ)

The USNS *Henry J. Kaiser* (T-AO-187, center) supplies fuel to the amphibious assault ship USS *Peleliu* (LHA-5, foreground) and the amphibious landing dock ship USS *Dubuque* (LPD-8) during a replenishment at sea. The ever-busy oilers of the Military Sealift Command are true workhorses of the Fleet, but they comprise an aging asset in a time of shrinking ship-construction budgets.

disbursed a record-busting 710 million gallons of fuel, a remarkable 30 percent increase over FY 08.[6]

Refueling the Fleet has become a difficult task. In a throwback to the early 1970s, when ammunition and combat-stores ships were recruited to serve as improvisational oilers, *Lewis and Clark*–class dry cargo/ammunition ships are now serving in a fuel-distribution role that goes well beyond that originally envisioned by Navy planners.

Though their skippers wield their estimated million-gallon residual-fuel stores with almost reckless aplomb, the utilitarian dry cargo/ammunition ships cannot do it all. Even as the Navy begins employing a wider range of MSC-chartered tankers, amphibious vessels and other combatants to refuel and resupply ships, aging oilers will still struggle to meet future demand. America's underway refueling capabilities are just about maxed out.

The present oil fleet is simply too small, too old, and too environmentally vulnerable to adequately confront future contingencies.

Before his appointment, now-Under Secretary of the Navy Robert Work worried about the Combat Logistics Force. In 2002, Work used a Center for Strategic and Budgetary Assessments (CSBA) white paper to criticize the planning matrix used to size the CLF, writing that the peacetime-sized fleet "presents an attractive asymmetrical target for a potential adversary."[7]

In particular, Under Secretary Work was eager to supplement the aged oiler fleet. In his landmark 2009 CSBA study, "The U.S. Navy: Charting a Course for Tomorrow's Fleet," Work proposed using the proven T-AKE hull of the *Lewis and Clark* class as a basis for a future tanker, and suggested procurement begin as early as FY 11, as builder NASSCO/General Dynamics finishes the 14th and final T-AKE.[8]

But that, as yet, hasn't happened.

If, as expected, next-generation oilers borrow significant design features from the T-AKE program, putting off serial oiler production until FY 21 makes little strategic sense. The present oiler fleet is simply too small, too old, and too environmentally vulnerable to adequately confront future contingencies.

Delay makes little fiscal sense, either. According to recent congressional testimony by General Dynamics Corporation Vice President David K. Heebner, "initiating the T-AO(X) program some five years after the termination of the T-AKE, where the potential exists for using a hull with considerable commonality, will likely sacrifice many efficiencies that might have been realized."[9]

To a cash-strapped Navy and reform-minded Pentagon, those efficiencies should matter.

Link Logistics to Strategy

Even though logistical-support vessels cost far less than the average blue-water combatant, these ships are not cheap. Next-generation triple-product fast supply ships cost well over $1 billion apiece. Twenty-knot T-AKEs, a bargain at $500 million, are only effective as carrier strike-group replenishment platforms in conjunction with an equivalently priced T-AO.

But the front-end investment is worthwhile. These efficiently run ships are proving to be enormously useful. As America's combatant fleet dwindles, CLF vessels are already winning wider mission portfolios and completing important tasks that go beyond the traditional alongside-replenishment brief. But this mission creep, however helpful it may be, comes at a serious risk. With refueling platforms already in short supply, the Fleet can ill afford to lose a replenishment ship to ancillary duties or Fleet experiments.

With more hulls, the efficient mariners of the Military Sealift Command can take on low-threat duties, try new missions, and relieve expensive combatants from certain tasks, granting the fleet an added measure of strategic and fiscal flexibility.

If the future oiler is not to be built along T-AKE lines, force-structure scholars would do well to spend their time pondering just how many oilers the Navy needs, plotting out just what that oiler fleet will be called on to do, how fast they will travel, how they might be defended, and what ancillary missions they will be forced to undertake in the contested seas of tomorrow.

Is the logistics fleet capable of facing the threats of 2020? What will happen when multi-mission logistical vessels are committed to fractious regions, requiring additional self-defense fittings or a larger, combat-ready crew? We do not have an adequate answer.

The CLF, while cost-effective and enormously useful, still reflects the biases of leaders used to operating in the U.S.-dominated seas of the Cold War. But times are changing. The Navy's logistical supply chain is far too important to remain an annoying afterthought, appended onto naval shipbuilding plans when time and funds permit.

In the coming years, new missions and new strategic challenges threaten to overburden America's peacetime-sized at-sea supply train. The Pacific poses a particular risk. In a newly contested Pacific Basin, the long-term survival of present-day basing rights and resupply assistance cannot be guaranteed. Alliances may shift without warning, with trumped-up operational or environmental concerns serving to abruptly invalidate existing logistical-support agreements. If suddenly stripped of secure resupply options in the Pacific Basin, the CLF will be unable to support the Fleet's current menu of peacetime operations.

The ballistic-missile-defense mission offers another logistical challenge. As missile defense evolves into a true strategic tasking, then those dedicated vessels (an estimated 24–38 ships) will demand uninterrupted logistical support.[10]

Add in a growing appetite for dispersed presence missions—Fleet stations, antipiracy patrols, environmental enforcement, and diplomatic projects across Africa, South America, and the South Pacific littoral—oilers will be forced to tend to thirsty customers scattered all over the globe.

A Fuel-Hungry Future Fleet?

At present, the future Fleet is set to contain an array of small, limited-endurance littoral ships or joint high-speed vessels. As these smaller ships enter the service in numbers, their demands for underway replenishment will put America's planned 30–31 ship CLF under added pressure. But supporters of a smaller-ship force are reluctant to recognize that, for a globe-spanning Navy, a small-ship fleet poses a logistical challenge.

American disregard for small-ship logistics is perplexing. Future force planners (including even the foresighted Robert Work) propose greater numbers of ships but not a concomitantly larger auxiliary fleet.[11] In a small-ship Navy, logistics must be at the forefront of strategic planning.

Aside from an unwillingness to grapple with the logistical needs of a small-ship Navy, future force planners must reemphasize that America's handful of new high-end combatants also require intensive logistical support. The two new 45,000-ton *America*-class amphibious-warfare platforms are, in effect, conventionally powered mini-carriers, subject to the logistical penalties inherent in smaller flat-decks. The large DDG-1000, boasting a conventional power plant along with energy-intensive sensors, computer processors, and next-generation weaponry, is projected to have a voracious appetite for fuel as well. And as the DDG-51 production line restarts, any bump in power-plant efficiency seems likely to be offset by missile-defense-related demands for extra cooling and computer-processing power.

Even nuclear-powered surface combatants need fuel. It is no secret that after about a week of intensive operations, committed supercarriers must make a rendezvous with a tanker. But the next-generation CVN-78 *Gerald R. Ford*–class carriers, all boasting a far higher sortie-generation rate than the *Nimitz*-class supercarriers, will put additional "just-in-time" refueling demands on an already highly committed fleet of old oilers.

The Navy obviously hopes that technological innovation will dramatically reduce the Fleet's overall fuel requirements. But even though innovations like unmanned aircraft and next-generation power plants are going to make the Fleet a bit greener, the Navy still will require enormous quantities of liquid hydrocarbons.

Over the medium term, demand for fuel at sea will continue to increase. With the Afghan war continuing and legacy platforms like the fuel-hungry Joint Strike Fighter and the gas-guzzling MV-22 Osprey just entering the Fleet, it will be years before naval fuel demands at sea are significantly reduced.

Despite the conservation focus of Task Force Energy, the future Navy may wake up one day to discover it needs more fuel at sea than ever before. Contingency-driven sprint-speeds or a combat-ready tempo cannot be maintained without energy. High-powered computers, exquisite sensor systems, directed-energy weaponry, electromagnetic catapults, railguns, and other power-hungry innovations demand ready access to plenty of energy—and for the immediate future, that power will only come from fuel delivered by a replenishment oiler.

Can the Private Sector Help?

If demand for liquid hydrocarbons at sea continues to increase and the procurement of replacement oilers is put off, the Navy would be lucky if private contractors were available to disburse fuel in strategically useful places. The service niche is wide open.

U.S. NAVY (RUBEN N. COSS)

Military Sealift Command's fast combat-support ship USNS *Supply* (T-AOE-6) threads the needle between the *Nimitz*-class aircraft carrier USS *Dwight D. Eisenhower* (CVN-69, right) and the guided-missile destroyer USS *Farragut* (DDG-99, left), providing underway replenishment for these forward-deployed warships of the 5th Fleet. The *Supply*-class vessels, built to support carrier battle groups, were put into service two decades ago, but they are relative youngsters compared to some other replenishment ships.

A market for on-demand replenishment can be built. But right now, rather than pay commercial companies to backstop aging oilers, the United States is relying on friendly navies for replenishment support. Seamless at-sea replenishment between partners is an enormous advantage, but even as the United States encourages partner nations to develop their at-sea replenishment resources, American planners are still struggling to understand the potential second-order risks that stem from the assumption of replenishment-at-sea missions by foreign governments.

Take Japan. For eight years, its Maritime Self Defense Force tankers plied the Indian Ocean, disbursing 137 million gallons of oil and 11,000 tons of water to vessels conducting anti-terrorism operations. That service, an incredible convenience for coalition forces, became a major political irritant after Japanese opposition parties accused the JMSDF of materially contributing to the U.S.-led invasion of Iraq. Had private-sector replenishment vessels been available, the Japanese-American alliance would have been spared unnecessary—and completely avoidable—friction.

Naval planners and mainstream policymakers also seem psychologically unprepared to believe the Navy's logistical lifelines might be physically or politically threatened. But in tomorrow's contested seas, the Navy's peacetime-sized logistical support fleet poses a significant source of vulnerability.

The problem is partly generational. Every naval officer in the service today has enjoyed the easy luxury of safe, short, and unthreatened logistical lifelines. Cold War–era operations off Korea and Vietnam faced little threat from the sea. And today, after more than a decade of combat operations in and around the Persian Gulf, a region where refined fuel and consumables are a short, safe transit away, on-demand in-theater access to fuel (and, for that matter, other mission-critical supplies) is far too often taken for granted.

Many of the Navy's publicly available logistical-planning scenarios reflect the twin biases of uncontested seas and committed allies. Current planning documents make sweeping assumptions that, in the event of a future conflict, local sea lanes are safe and nearby resupply bases are readily available. Political considerations are not included, and in rosy (admittedly unclassified) scenarios, allies always provide required supplies in a timely fashion.

Naval policymakers must start thinking a little harder about the security of U.S. logistical lifelines. With new navies emerging and precise long-range antiship weaponry in development, safe transit of auxiliary vessels to and from the Fleet is no longer guaranteed.

The conceptual shift will not come easily. Today, the current oiler fleet itself is, by and large, a peacetime-sized resource designed to please warrior-accountants. Combat-proven qualities of redundancy, flexibility and surge capacity are, at present, valued far less than economy and efficiency. This must change.

Given the present-day tempo, an unscheduled unavailability of a tanker or two materially affects naval operations. Loss of any more risks throwing the Fleet into operational chaos.

Put bluntly, the U.S. Fleet needs a wider set of replenishment options. If the Navy refuses to quickly replenish the existing Military Sealift Command oiler fleet, privately operated, U.S.-flagged replenishment platforms have an opportunity to offer an operational cushion against breakdowns, sudden coalition shifts, or the sinking or asymmetric disablement of oilers in combat. But this will require

U.S. NAVY (BRIEN AHO)

The *Henry J. Kaiser* supplies the name for a class of replenishment oilers that entered service between 1986 and 1996. Although 16 of the *Kaiser*-class vessels were delivered, one of them was sold to Chile in 2009, and those remaining in the U.S. Fleet are facing continued duty well beyond their ostensible 35-year service life.

U.S. NAVY (LEONARD ADAMS)

The USNS *Lewis and Clark (*T-AKE-1) is the namesake of a class of dry cargo/ammunition ships that have been recruited into Military Sealift Command's oil-replenishment fleet. Their fuel-distribution role goes well beyond what Navy planners originally had envisioned.

suitable private-sector hulls, complete with trained crews who are unafraid of entering contested waters.

The Past As Future

With other navies eager to either deploy larger, more fuel-intensive platforms or project a range of smaller platforms farther afield, private-sector replenishment oilers have an opportunity to become viable revenue generators.

Smaller "pocket" station tankers, ice-hardened resupply platforms, and submarine-oriented replenishment vessels may do well serving navies that lack the resources to maintain a wide portfolio of specialty vessels. But this requires a commitment by the Navy to help interested U.S. companies get established.

Ample precedent exists to support private-sector refueling vessels. When naval ships ran on coal, private companies were regularly contracted to support naval operations. Contracting private colliers was a politically delicate task, but for the U.S. Navy, savvy last-second contracting of private colliers supported the prosecution of the Spanish-American War and facilitated the globe-spanning cruise of the Great White Fleet. The Great White Fleet alone required the services of 41 British colliers, seven Norwegian colliers, and a single Austro-Hungarian-flagged collier.[12]

It is worth recalling that, in 1907, before the Great White Fleet embarked, the Navy maintained 16 colliers and 6 faster coal-carrying "auxiliary cruisers"—more refueling-oriented vessels than are available today. After observing the logistical challenges confronted by the fleet's globe-spanning cruise, the Navy re-evaluated, and, for the first—and only—time in American history, directed more funds toward auxiliary construction than to combatants.[13]

What will America's logistical wake-up call be this time around?

New construction offers the simplest avenue to supplement the aging and hard-run oilers of the peacetime-sized Combat Logistics Force. But if new platforms are going to be slow in arriving, a handful of additional, privately run oilers grant the Navy (and other maritime partners) an operational buffer, extra surge capacity, and a far less politically risky means of providing logistical support for globally committed warships. But to do this, the Navy needs a logistical roadmap for the future. Without an updated maritime strategy and an accompanying logistical plan, the future Fleet risks running on empty.

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