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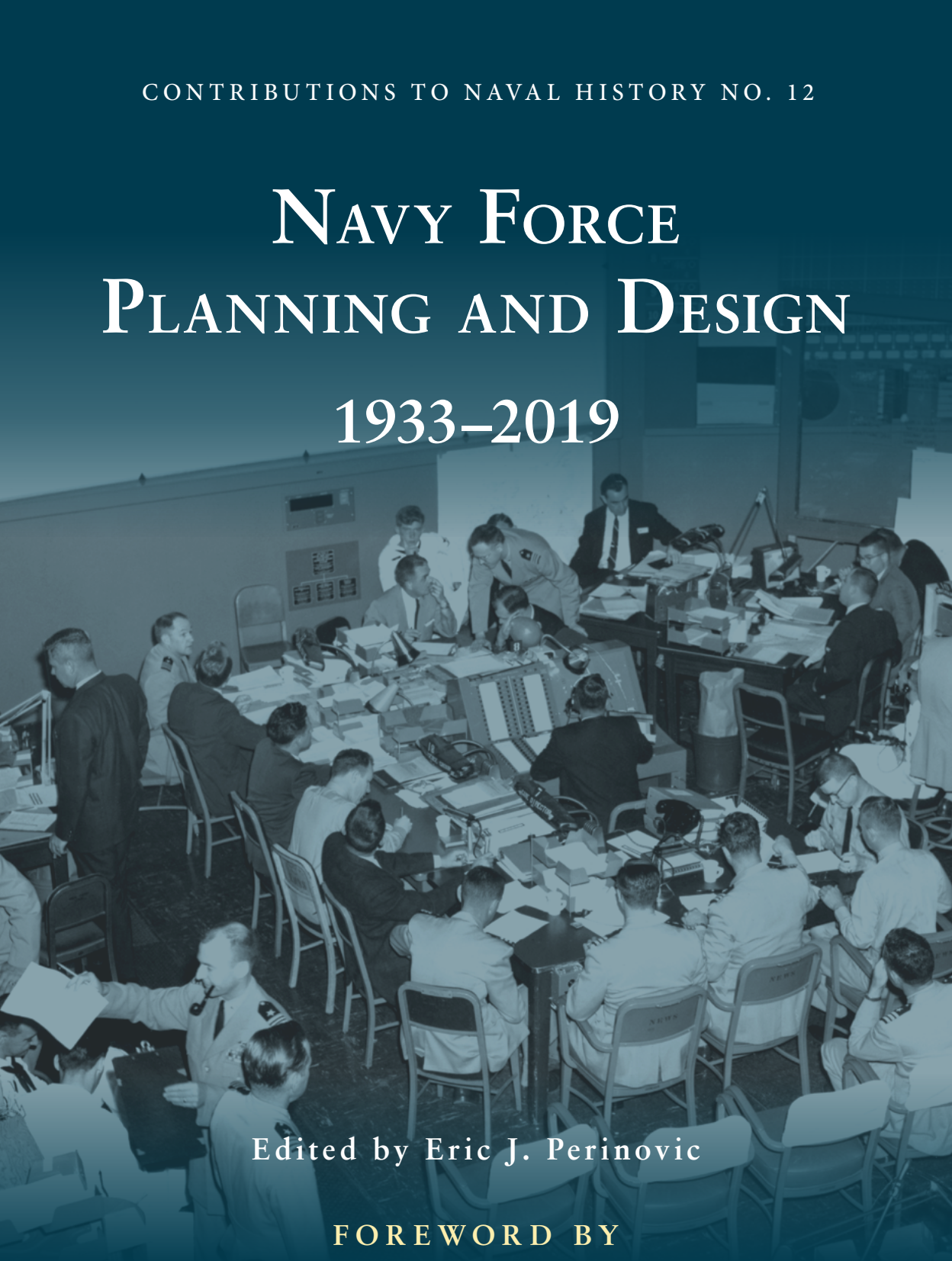
Navy Force Planning and Design 1933–2019



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Vice Admiral Jeffrey W. Hughes, USN

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Navy Force Planning and Design 1933–2019

Daniel P.M. Curzon
Eric J. Perinovic
Tyler A. Pitrof
Shawn R. Woodford

Edited by Eric J. Perinovic

FOREWORD BY
VICE ADMIRAL JEFFREY W. HUGHES, USN

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Contents

Foreword

In June 2020, Chief of Naval Operations (CNO) Admiral Michael M. Gilday directed the formation of the Directorate of Warfighting Development (OPNAV N7) to appropriately focus the Navy on achieving "warfighting advantage in order to deter, dissuade, and deny or defeat adversaries by engaging in three broad, interrelated lines of effort: warfighter development, warfare development, and warfighter corps development." N7 is the Navy's office of primary responsibility for developing and refining Navy strategy and its alignment across the Department of Defense. In addition to leading strategy-related functions to include strategic analysis/net assessment, service-level concept development, and education and related talent management, a primary focus area is ensuring that Navy strategy truly guides the development of the annual Program Objective Memorandum (POM) to deliver the strategy-informed, concept-required, future warfighting capabilities.

However, N7 is far from the first OPNAV organization charged with thinking about the Navy's future and formulating strategy. Some of these predecessor organizations succeeded, some failed, but they all labored in the attempt. There is much to be learned by examining and contextualizing their efforts in relation to our modern challenges. In 2022, during my tenure as Deputy Chief of Naval Operations for Warfighting Development, the Strategy and Strategic Concepts Branch (OPNAV N722) commissioned the Naval History and Heritage Command (NHHC) to write an analytical history of how post–World War II CNOs approached future planning and force design. Furthermore, they were asked to detail how CNOs organized OPNAV to align and integrate long-range planning, strategy, budgeting, and

programming. NHHC's historians produced a comprehensive study tracking the ebbs and flows of Navy strategy, force planning, and force design from the 1930s to the modern day. Their work shows that all too frequently the only constant in Navy long-range planning was that its importance and efficacy depended on the personal interest of individual CNOs. The authors provide the contemporary Navy with a clear understanding of how we got to where we are today. They give examples of how, when, and why CNOs and their staffs have succeeded or been unable to articulate a clear and actionable vision to prepare the Navy for future operating environments while balancing contemporary needs. They detail the evolving interrelationship between Navy planning and the joint warfighting community, as well as its relationship with national and international political and economic developments. Finally, they illustrate the variety of tactics employed by CNOs in engaging with the Secretary of the Navy, Office of the Secretary of Defense, presidential administrations, and Congress to advocate the Navy's strategic priorities.

Specifically, the authors of this study show how CNOs Fleet Admiral William D. Leahy, Admiral Harold R. Stark, and Fleet Admiral Ernest J. King built the Two Ocean Navy in the 1930s and 1940s that won World War II and remained the fleet's backbone for the next three decades. The authors describe how postwar CNOs including Admiral Robert B. Carney and Admiral Arleigh A. Burke used nuclear and technological developments to give the Navy newfound strategic purpose while contending with tight budgets and intense interservice rivalries following defense unification. They underscore the limitations that Secretary of Defense McNamara's reforms placed on Navy planning. In response, CNOs including Admiral Elmo R. Zumwalt and Admiral James L. Holloway tried to reconcile programming and strategy to make the future fleet far more capable than the one it replaced in the face of shrinking budgets, constrained authorities, and a rising peer competitor threat.

The authors relate how the Navy reached its postwar zenith when successive CNOs Admiral Thomas B. Hayward, Admiral James D. Watkins, and Admiral Carlisle A. H. Trost took advantage of improved political and economic fortunes. Those leaders worked with the Navy secretariat to prioritize iterative strategy making, strengthen institutional mechanisms, and forge a service-wide consensus to produce the 1980s Maritime Strategy. In turn, the authors show how after 1989, CNOs including Admiral Frank B. Kelso, Admiral Jeremy M. Boorda, Admiral Vernon E. Clark, and Admiral Michael G. Mullen struggled with long-range planning as the Navy coped

with shrinking budgets and the lack of a peer competitor. N7 has taken the challenge of developing strategy head-on. It is working to provide the Navy with an actionable and iterative process to look realistically at the future operating environment and provide the fleet with the concepts, capabilities, and platforms our sailors will need to fight, dominate, and win against any adversary. While force design is inherently a forward-looking process, this historical study enables the Navy to learn from our past to inform the present and guide the future.

Vice Admiral Jeffrey W. Hughes
Deputy Chief of Staff for Capability Development
NATO Allied Command Transformation

Introduction

This study examines how post–World War II Chiefs of Naval Operations planned future fleets and how they integrated long-range planning, strategy, budgeting and programming into the process. It assesses the external and internal impediments CNOs faced in implementing future force planning and the different approaches they adopted to overcome them. The study concludes with implications to consider in future Navy force planning and design.

It argues that strategy, policy, and funding decisions made by the President, the Secretary of Defense, and Congress determined Navy force planning and design outcomes. Navy leaders had a say in the decision-making process, but their influence declined over time as various defense reform initiatives gradually concentrated authority over military strategy, budgeting, and programming in the hands of the Secretary of Defense and the chairman of the Joint Chiefs of Staff. CNOs and Secretaries of the Navy (SECNAVs) had to balance current readiness and force structure with investments in the future force, forcing them into difficult tradeoffs or accepting incremental change. As an example, while the Maritime Strategy (1981–89) is often lauded as a high point of postwar Navy planning, it was not a calculated attempt at force design and focused overtly on current readiness and force structure. Navy leaders used the political importance and economic stimulus attached to it by the Reagan administration and Congress to unify the service behind a strategic concept and 600-ship force structure over three successive CNO tenures. Replicating this success could offer a way to improve future force planning and design outcomes.

The first iteration of this study originated in July 2022 with a request from Mr. Bruce Stubbs, director of the OPNAV N722 Strategy and Concepts Branch, to Rear Admiral Samuel Cox (retired), director of the Naval History and Heritage Command (NHHC), asking for:

> . . . an analytical history of the post–WWII CNOs' approaches to Force Design (i.e., planning the Future Fleet) with special emphasis on how they organized OPNAV to integrate long-range planning, strategy, and budgeting/programming into an effective whole. This analytical history would include a synthesis of their approaches and an assessment of the implications.

This task was assigned to the OPNAV Support Section, Histories Branch, NHHC. During initial research, it became clear that two modifications to the original request were necessary to yield a useful answer. First, the current definition of force design in joint doctrine is very recent and does not adequately encompass the approaches the Navy used to plan its future force structure in the post–World War II period.

> **Force Design (5–15 years).** The Joint Force constantly innovates to discover new ways of operating, and to integrate revolutionary capabilities that maintain and expand the competitive space in accordance with NDS prioritization. The Joint Force innovates to retain and expand competitive advantage against any adversary. Bold new warfighting *concepts* and leapahead *technologies*—those which enable rapid improvements over incremental change—are tested by *experimentation*, and serve as catalysts for force development to enable the Joint Force to operate differently.[1]

So, the authors adopted the looser definition of force design as "planning the future fleet" in tandem with the articulation of strategy and long-range planning as a reasonable and simple substitute.

Second, early research also revealed that the Navy did not plan the future fleet or undertake strategy in a continuous or uniform manner during the postwar period. Looking at long-term planning, even in its relationship

to strategy, budgeting, and programming, would not effectively account for the range of external and internal factors involved in the process. So, the study was broadened to include the concept of force planning, which is not a doctrinal term. However, Dr. Richmond Lloyd, formerly the William B. Ruger Chair of National Security Economics and professor in the Security, Strategy, and Forces Course in the Naval War College's National Security Decision Making Department has usefully defined it as "[T]he process of establishing military requirements based on an appraisal of the security needs of the nation, and selecting military forces to meet those requirements within fiscal limitations."[2] Thus, this study includes the broader context of international events and conflicts; foreign, national security, and domestic policy; interservice, bureaucratic, and institutional politics; national military strategy; and technological development, among others, as it affected future fleet planning.

In a further effort to delimit what was a large and challenging topic, this study focuses primarily on the planning of the battle fleet and major combatant forces. This includes aircraft carriers, battleships, cruisers, destroyers and large escorts, submarines, and large amphibious ships, as well as naval aircraft and major weapons systems. An account of the planning and design of the Navy's auxiliary and support fleet is an important and telling story in itself, but that will require a separate research effort.

This study is broken down into five chapters, spanning the time period from 1933 to 2019. The first chapter begins with the development of the wartime Two-Ocean Navy, which began in 1933. This is key to understanding the post–World War II Cold War Navy. It also establishes a baseline for comprehending how the Navy force planning and design process functioned up through World War II, in contrast to how it changed drastically over the following decades. Chapter Two assesses the period from 1950 to 1969, which can be seen as a transitional phase from the World War II Navy to the Navy of the modern era. Chapter Three covers the period from 1970 to 1989, which saw the Navy emerge from another period of challenge to achieve its peak success during the Maritime Strategy era. The fourth chapter looks at the Navy's struggles to adapt to the post–Cold War environment from 1990 to 2010 with declining resources and a challenging strategic situation. Chapter Five examines the Navy's experiences from 2011 to 2019, as it faced adjusting to a new period of Great Power competition. The conclusion summarizes the main arguments presented. It ends by presenting a set of possible implications for future Navy force planning and design efforts derived from the study and its conclusions.

ONE

The Rise and Decline of the Two-Ocean Navy, 1933–49

For the first 25 years of the post–World War II era, the core of the Navy was the "Two-Ocean" fleet rapidly built between 1940 and 1945. Understanding Navy force planning and design during the Cold War and after requires a grasp of the origins of this existing structure. This chapter outlines the process for determining the size and composition of the Navy as it existed before the war. It describes the renaissance of U.S. naval power that began in 1933, culminating with a Navy dominant in both the Atlantic and Pacific Oceans by 1945. It concludes by examining how the Navy fared in the early post–World War II environment, as it faced demobilization; changes in the national security institutional framework; interservice rivalry over budgets, roles and missions; and the threat posed by Soviet military power. In the course of this 16-year period, naval technology rapidly advanced as the Navy evolved from a force built around battleships— intended to secure control of the sea through decisive naval gunfire battles in the Pacific—to one centered on aircraft carriers and naval airpower capable of both sea control and power projection on a global scale. This process occurred in spite of the institutional framework for force design rather than because of it—with the ultimate elevation of the aircraft carrier resulting primarily from a combination of wartime exigencies and the efforts of Fleet Admiral Ernest J. King. This ultimately spelled the end of prewar force design practices.

Procurement Under the "Treaty System," 1933–38

Before World War II, force planning and design decisions fell collectively on the Secretary of the Navy (SECNAV), the Chief of Naval Operations (CNO), the President, and Congress. Each played a separate but interrelated part in the decision-making process. The SECNAV, as the presidentially nominated and congressionally confirmed head of the Department of the Navy (part of the Cabinet of the United States until 1949), reviewed and approved all proposed shipbuilding plans and managed the procurement process. As the senior Navy military officer, the CNO managed the Navy's internal process for determining the number and characteristics of the ships needed to carry out its roles and missions. The President, as commander-in-chief, decided national foreign, military, and naval policy, which shaped all aspects of Navy force planning. Congress provided for and maintained the Navy per constitutional writ, deciding the number and types of ships to acquire through its legislative authorization, spending, and oversight authority.[1]

While the SECNAV had the final say within the Navy over shipbuilding decisions, the internal process of determining the "number, types, and military characteristics of ships" reflected a service that—partly due to tradition and culture, partly by legislative design—divided authority between senior civilian and military leadership, the supporting shore establishment, and the fleet at sea. Navy leaders evolved a "fluid, even messy" process for centralized planning and decentralized execution that connected the perspectives of the various service stakeholders with the policy, strategy, operational, and tactical planning and analysis which yielded force requirements.[2]

The CNO and the General Board of the Navy served as primary advisors to the SECNAV on shipbuilding decisions. As the ranking naval officer responsible for operations, readiness, and planning under the SECNAV's direction, the CNO usually initiated most new ship programs. Within the CNO's staff, the Office of the Chief of Naval Operations (OPNAV), the War Plans Division prepared two products that helped determine the Navy's force requirements: "Basic War Plans" and the CNO's annual "Estimate of the Situation and Base Development Program." The Basic War Plans, regularly reviewed and updated, outlined the Navy's best course of action should war break out. They were color coded and addressed specific potential adversaries, such as Japan (Orange) or Great Britain (Red). The fleet commands, naval districts, and material bureaus communicated continuously with OPNAV as they wrote their Contributory Plans to the Basic War Plans. Planners also incorporated information from Naval War College

war-games and the annual Fleet Problems. The War Plans Division reviewed these plans each year to assess the Navy's missions and the forces available to execute them to determine gaps. The CNO's annual estimate summarized the Navy's requirements for the next two fiscal years and formed the basis for its annual budget submissions to the Bureau of the Budget and to Congress, along with the "Operating Force Plan" which projected ships in commission and shore personnel two fiscal years ahead.[3]

General Board meeting at the Navy Department, Washington, DC, 1932. Those seated are (*left to right*): Rear Admiral Mark L. Bristol; Rear Admiral Charles B. McVay Jr.; Captain John W. Greenslade; Commander Theodore S. Wilkinson (secretary); Rear Admiral Jehu V. Chase; and Captain Cyrus W. Cole. Standing are (*left to right*): Lieutenant Colonel Lewis C. Lucas, USMC (Ret.), and Commander Edgar M. Williams. The number over the door in left center is 2748, indicating that this office was located on the second deck of the Main Navy Building. Note portrait of Admiral of the Navy George Dewey, first president of the General Board, on the wall to the left. (NHHC, NH 50175)

The General Board advised the SECNAV on general characteristics for the size, speed, armament, habitability, survivability, and endurance for new vessels. Originally created in response to planning failures during the Span-

ish-American War, the General Board wrote studies and held hearings on any topic requested by the SECNAV. This included war plans, naval policy, strategy, tactics, and features for new construction. The board's size varied throughout the course of its existence, but in the 1930s it was generally composed of six senior flag officers on shore duty between major command appointments, along with two O-5s or O-6s that were being prepared for flag rank to serve as secretaries. Efforts were made to ensure that these individuals were drawn from throughout the Navy's officer corps to reflect a span of perspectives. General Board hearings served an integrating function, providing a forum for the CNO, the bureau chiefs, fleet commanders, and their representatives to debate matters of concern and build consensus on solutions. In the 1920s, these individuals were all ex officio members of the board itself. CNOs presided over the General Board until Admiral William V. Pratt removed his office from ex officio membership in 1932 to enable the board to more freely express its views. Thereafter, the eight members of the board functioned in a manner more akin to the U.S. Supreme Court, studying the Navy's most important debates of the day. The board's reports therefore often helped reconcile conflicting views in the officer corps.[4]

The General Board and the CNO drew upon data and technical expertise from the Navy's bureaus in developing ship requirements. The material bureaus were semi-independent and reported directly to the SECNAV, though the CNO had authority to coordinate, but not direct, their activities. Led by rear admirals, each had its own planning section, individual funding lines in the federal budget, and allies in Congress. The Bureaus of Construction and Repair (BuC&R), Engineering (BuEng), and Ordnance (BuOrd) were directly involved in shipbuilding, and the Bureau of Aeronautics (BuAer) had been created in 1921 to develop the fleet's burgeoning air arm. BuC&R managed the design and building of ships. BuEng oversaw power and propulsion systems. BuOrd had responsibility for armament, ammunition, and armor. Once a design had been approved, BuC&R and BuEng prepared plans and specifications for construction contracts.[5]

The Navy in 1933

Historians Thomas C. Hone and Curtis Utz argue that "The 'treaty system' derailed the ability of the Secretary of the Navy and the CNO to set the Navy's basic agenda."[6] SECNAVs and CNOs struggled through the 1920s and early 1930s to align Navy force planning with presidential and congressional policy. This stemmed from a decade of commitment to inter-

national naval arms control and economy-minded U.S. governments. Presidents Warren Harding (1921–23), Calvin Coolidge (1923–29), and Herbert Hoover (1929–32) all pursued negotiation and treaties as a means of curbing military arms races widely thought to have precipitated the First World War. Congresses through the 1920s were also committed to lower taxation and fiscal stringency and sought to restrain military spending in general.[7] The parties to the Washington (1922) and London (1930) treaties—the United States, Great Britain, France, Italy, and Japan—agreed to cap the numerical size, aggregate tonnage, individual vessel tonnage, and armament of their navies. In 1930, a 10-year "holiday" on new battleship construction, first approved in 1922, was extended through 1936. In exchange for consenting to an unequal capital ship and tonnage limit ratio of 3:5:5 with the United States and Great Britain, Japan obtained a ban on building, fortifying, or improving, new naval bases in the Pacific Ocean.[8]

While many in the Navy opposed the treaty limitations, the political reluctance to build the fleet up to the numbers allowed posed the real constraint. Navy leaders subscribed to the national policy articulated in 1915 of building a fleet "second to none," at least equal in size to the British Royal Navy. Many believed the treaties guaranteed this parity and the Navy's force recommendations through the 1920s were predicated on building a full treaty fleet.[9] Between 1922 and 1932, the Navy laid down or received appropriations for only one aircraft carrier, 16 cruisers, 11 destroyers and six submarines. The Hoover administration's dedication to military disarmament in tandem with the onset of the Great Depression in 1929 led to cuts to the Navy's budget and further circumscribed shipbuilding. Just days after the Japanese invasion of Manchuria in September 1931, Hoover cancelled all Navy shipbuilding planned for fiscal year (FY) 1933.[10] In response, Congressman Carl Vinson (D–Georgia), chair of the House Naval Affairs Committee, proposed legislation in January 1932 for a 10-year ship construction program to replace overage vessels and bring the fleet up to treaty limits. However, Hoover opposed additional naval spending in the face of the global Great Depression, and Vinson's efforts failed to advance out of committee.[11]

In reaction to the budgetary shortfalls, CNO Admiral William Pratt's 1932 annual "Estimate of the Situation" warned SECNAV Charles Adams that the Navy's basic war plan could not be executed "due to failure to initiate and carry on a well-balanced program of new construction."[12] On 30 June 1932, the United States Navy's battle fleet totaled just under one million aggregate tons. It was composed of just 148 combat ships in commission

that were crewed at 85% of their peacetime complements. An additional 45 ships operated with further reduced crews or remained at dockside undergoing modernization. To alleviate personnel and operating fund deficits, 19 destroyers and 11 submarines were placed in reserve commission with rotating crews to simply maintain them at a satisfactory state of readiness.[13] Despite the pledge to be "second to none," the early 1930s Navy was inferior in many respects to both the British and Japanese navies. In the event that Congress refused to allocate additional funds to shipbuilding, then the Navy estimated that the fleet would fall short of permitted treaty caps by tens of thousands of tons in aircraft carriers and cruisers, and well over a hundred thousand tons in destroyers, by 1935.[14]

In his FY 1932 annual report, SECNAV Adams reported that "[O]ur present building program does not provide for – (a) A treaty navy. (b) Replacement of overage vessels. (c) Rectifying our already seriously impaired position relative to other signatories to the naval treaties nor for preventing further undermining of that position."[15] The sclerotic pace of shipbuilding had larger ramifications. An American construction boom between 1914 and 1921 yielded a large number of naval and merchant ships, followed by a virtual halt through the next decade as a result of overproduction and the naval treaties.[16] Adams warned:

> The private shipbuilding industry in the United States is in serious condition due to almost complete lack of work either commercial or government. Permanent injury to this vital industry would mean serious impairment to the national defense and to the maritime and general economic welfare of the country.[17]

To survive, the "Big Three" firms—Newport News, New York Ship, and Bethlehem Steel Fore River—began colluding to specialize their work, ensuring that government contracts for specific types of ships always went to specific companies. Suspecting profiteering, Congress responded in 1929 with the Dallinger amendment, which ruled that half of all new naval construction had to be done in Navy shipyards. The other three remaining private builders, Bath Iron Works, Federal Shipping and Drydock Company, and Electric Boat, survived due to a combination of factors, namely continued heavy cruiser construction and the 1928 Maritime Act that generated a minor increase in demand for passenger liners and cargo ships. The Navy

maintained eight public yards, but only six built ships in this period: Portsmouth, Boston, Philadelphia, New York, Norfolk, and Puget Sound. Mare Island focused on repairs and Charleston effectively shut down.[18]

The treaty system significantly influenced Navy strategic thinking. Japan succeeded Germany as the primary naval threat after 1919 and the Navy shifted its battle force to the U.S. west coast under a Commander-in-Chief, U.S. Fleet (CINCUS). Navy leaders remained committed to Alfred Thayer Mahan's concept of decisive battle between capital ships to determine sea control. But as historian John Kuehn argued, geography and the treaty ban on new bases and fortifications posed a strategic and operational problem: how to wage a naval campaign in the Pacific without forward bases. The Joint Army-Navy Board—comprising of the service chiefs and their senior war planners, reporting to the respective service secretaries—sought to develop a solution for War Plan Orange. Navy planners conceived a three-stage war. Conflict would begin with Japan attacking U.S. bases in the Philippines and Guam and seizing key resource areas in the Western Pacific. In the second phase, the prevailing operational concept called for the U.S. Fleet to concentrate in its eastern Pacific bastion and steam directly to relieve the Philippines, a gambit known as the "Through Ticket." Navy strategists expected the decisive battle with the Imperial Navy to occur after this stage, ending in victory. The final phase called for an air and sea blockade of Japan to force capitulation. By the early 1930s, however, Navy planners conceded the Through Ticket to be impracticable due to Japanese control of the Central Pacific islands.[19] They focused instead on options for seizing interim bases in the Central Pacific, a route dubbed the "Royal Road," and seeking attritional naval combat before moving on toward the Philippines or Japan and seeking the decisive battle. The Army proved amenable to the Royal Road approach and approved plans that committed scarce ground forces and Army Air Corps aircraft to enable it. While the service planners tacitly discarded options for the relief of the Philippines, the Joint Board itself would not countenance the political impossibility of abandoning their defense.[20]

War Plan Orange defined Navy force design priorities. Faced with campaigning over great distances, long-range gun battles, amphibious landings, and the growing efficacy of air power, Navy leaders advocated for a battle fleet balanced between its mainstay battleship battle line and key complementary vessel types—aircraft carriers, cruisers, destroyers, submarines—and aviation. The General Board prioritized modernization for the 10 oldest battleships for greater range and speed; improved torpedo, mine, and air

defenses; and increased gunnery range. It recommended cruiser designs that traded armor for range, speed, and powerful 8-inch guns, ideal for scouting. When these were limited by agreement, the board advocated large light cruisers mounting 12–15 rapid-fire 6-inch guns, potentially capable of outshooting existing rivals. It sought larger ocean-going submarines capable of keeping pace with and attacking battleships. The Navy also looked at different ways to leverage airpower to apply seapower in the Pacific. It experimented with carrier aviation support for the battle line, but also in independent task forces. With Congress reluctant to buy aircraft carriers, the General Board investigated designs for hybrid cruisers with auxiliary flight decks intended to increase the number of aircraft at sea while diluting the risk of losing a carrier in battle. Battleships and cruisers likewise were equipped with multiple aircraft for spotting and scouting. Navy leaders lobbied unsuccessfully for auxiliaries for a fleet train necessary to support long-range operations in the vast Pacific.[21]

The Roosevelt Renaissance, 1933–38

The Navy's circumstances changed with the election of New York governor Franklin D. Roosevelt as President in November 1932. Roosevelt had been an ardent proponent of naval expansion while serving as Assistant SECNAV during World War I in the Woodrow Wilson administration. Widely expected to support new ship construction, the shipbuilding industry backed his campaign. Roosevelt selected 70-year-old Claude Swanson as his SECNAV, while telling others "I am my own Secretary of the Navy." The new President worried privately that the Navy had become inferior to the Japanese fleet, but he publicly supported arms control and avoided any policy challenging the Pacific geo-political status quo.[22]

On 16 June 1933, Roosevelt signed an executive order allocating up to $238 million to the Navy for naval shipbuilding and authorizing "the construction of certain vessels, the construction whereof conforms to the London Naval Treaty and has heretofore been approved by me." Congress passed the National Industrial Recovery Act (NIRA) the next day, appropriating the funding and adding $30 million more for Navy yard improvements. Roosevelt publicly emphasized the legislation as one-time unemployment assistance, while telling Swanson, "Claude, we got away with murder." Navy yards were allocated half of this new construction, but the private Big Three firms received the balance of the rest, including the carriers and design responsibility for the new cruisers. Contracts for the smaller vessels were

awarded to other yards, and a second round of NIRA funding took place in 1934, providing crucial business to sustain the shipbuilders.[23]

Vinson and Admiral William H. Standley, Pratt's successor as CNO, drafted legislation in autumn 1933 formalizing a program of new construction and replacement of overage vessels as permitted by treaty. Congress passed the Vinson-Trammell Act in March 1934, which set "the composition of the United States Navy . . . at the limit prescribed by [the Washington and London] treaties." As a check on private shipbuilders, the act mandated that the first and every other ship in each class, except carriers, be constructed in Navy shipyards to establish a baseline for cost and characteristics. Commercial shipyards were also limited to no more than a 10% profit on building contracts. It also authorized the President to procure naval aircraft "commensurate with a treaty navy," of which no less than 10% of which were to be built in government facilities. In approving the bill, Roosevelt made it clear publicly that new construction had been authorized but not yet appropriated for; that would be up to future Congresses. He also reiterated his commitment to existing treaties and arms control.[24]

President Franklin D. Roosevelt signs the Vinson-Trammell Act with (*left to right*) Congressman Carl Vinson, Assistant Secretary of the Navy Henry L. Roosevelt, and Congressman Fred Britton, 27 March 1934. (NHHC, NH 973)

Standley pressed the President and Congress to rebuild the U.S.'s aging and deteriorating merchant fleet, which would provide essential auxiliary vessels for the Navy in the event of war. The Merchant Marine Act, passed by Congress in June 1936, established the U.S. Maritime Commission to issue contracts to builders and lease or sell government-built vessels to private interests. It also subsidized private shipbuilders and the maritime industry to build and operate ships with dual civilian-military characteristics. The Maritime Commission worked closely with the Navy to ensure that the new merchant ships met necessary requirements. Between 1936 and 1939, the commission contracted for 141 ships worth $345 million, providing more work for shipbuilders.[25]

The expiration of the treaty holiday at the end of 1936 heralded the first U.S. battleship construction since 1921. Congress authorized two in the Navy's FY 1937 building program as overage replacements if the President certified other treaty signatories were building new battleships as well. Roosevelt waited until after the 1936 election to do so and Swanson did not approve the 16-inch gun armament until July 1937, after the keel of the first ship had been laid. Two more treaty battleships were part of the Navy's FY 1938 building plan. Congress appropriated funds for two *South Dakota*-class battleships in April 1938 and then for two more in a June supplemental in response to the deteriorating international situation.[26]

The increase in shipbuilding led Navy leaders to seek more centralized control over the process within the service and its relations with Congress. In autumn of 1934, Standley instructed the bureaus to send plans for new ships to him for referral to the SECNAV for approval, under secretarial guidance granting him oversight over new construction. Swanson and Roosevelt declined to grant additional authority over the bureaus, as Standley sought to increase contracting with newer companies to innovate and expand the shipbuilding industrial base to meet the new demand. The increasing complexity of warship design led to more integration of ship systems fabricated by specialized subcontractors, rather than by the yards themselves, a trend the older firms resisted. Standley had to trust the bureau leaders to do this instead. Swanson also standardized Navy relations with Congress, which had become accustomed to working directly with bureaus and offices on the budget and legislation. He directed that the Navy Judge Advocate General coordinate collaboration on non-budget matters; a deputy legislative counsel was eventually designated to act as congressional liaison. These individuals shepherded Navy legislation and were eventually supplemented by liaison officers assigned to each naval affairs committee. The SECNAV remained

the primary point of contact with Congress while routing routine interactions through the CNO and legislative counsel, and coordinating with the President's Bureau of the Budget through the Navy budget officer.[27]

The End of the Treaty System

Passage of the Vinson-Trammell Act in 1934 presaged the end of the treaty system. Shortly thereafter, Japan announced that it would withdraw from the Washington agreement when it expired at the end of 1935. At the instigation of the hardline faction in the Imperial Navy, the Japanese walked out of new arms control talks in London in 1936 after the U.S. and Great Britain declined to agree to numerical parity. In December 1936, Japan joined the Anti-Comintern Pact and aligned itself with Nazi Germany and Italy. The Imperial Japanese Army invaded China in July 1937 and precipitated a diplomatic crisis with the U.S. by bombing the Navy gunboat *Panay* on the Yangtze River in December.[28]

The darkening international situation prompted changes in strategic planning. Army, Navy, and Marine Corps planners on the Joint Board's Joint Planning Committee (JPC) continued to work on the Orange plans for an offensive against Japan, but by 1935 stopped discussing in detail possible operations beyond the capture of forward bases in the Marshall or Caroline Islands.[29] Disturbed by German rearmament, the Army turned strongly against Plan Orange in late 1937 and called for a defensive posture in the Pacific. In November 1937, the Joint Board deemed Orange "unsound in general" and "wholly inapplicable." CNO Admiral William Leahy notified Roosevelt that the Navy nevertheless continued to advocate the focus on Japan and a maximum effort in the Pacific in event of war.[30]

In late 1937, Roosevelt turned to Leahy, a personal acquaintance from his stint as Assistant SECNAV, to develop a naval response to the international situation. They agreed the Navy needed to expand beyond treaty limits and to preserve the existing balanced composition of the fleet while pursuing larger, faster, and better armed designs. In a meeting with Vinson and Assistant SECNAV Charles Edison (standing in for an ill Swanson) in January 1938, Roosevelt proposed a 20% increase in naval construction. Leahy worked with Vinson to hammer out the details and the President sent Congress a special message amplifying the request. Vinson and Leahy led the legislative effort, coordinating testimony and lobbying resistant congress members. Leahy testified emphatically for a Navy "able to impose a blockade and at the same time not allow another power to control the movement of

American goods and supplies." The authorization, known as the Naval Act of 1938, passed in May.[31]

The 1934 and 1938 congressional authorizations enabled the Navy to formulate a 10-year shipbuilding program for constructing 14 battleships, five carriers, 27 cruisers, 78 destroyers, and 49 submarines by 1948.[32] While the scale of new construction proved to be a boon for many private shipbuilders, others found the profit caps and the investment costs to upgrade their yards for naval work less enticing than contracting for the reviving civilian shipping market. Future increases in shipbuilding would require finding ways to increase construction capacity.[33]

The Two-Ocean Navy, 1938–45

The Genesis of the Two-Ocean Navy

The Navy began considering requirements for global war following the European crisis over Czechoslovakia in 1938. In November, the Joint Board reviewed American strategy and options for defending the Western Hemisphere against simultaneous aggression by Germany and Italy in the Atlantic and Japan in the Pacific. Potential allies were assumed to be neutral or defeated. A supporting study by the Navy General Board in December examined requirements for offensive operations against the combined naval forces of these adversaries. This offered the first tangible estimate for a true two-ocean Navy. It calculated the number of battleships needed to maintain numerical parity against Japanese in the Pacific, including amphibious and detached operations, while protecting deploying Army expeditionary forces in the Atlantic and denying naval support to Axis operations in South America. Achieving parity actually required a 5:3 battleship advantage in the Pacific and 4:3 in the Atlantic including detached operations and expected repair and replenishment rates. That advantage requirement translated into 40 battleships with a balanced supporting fleet of 18 aircraft carriers, 108 cruisers, 399 destroyers, and an appropriate number of auxiliaries. The Joint Board adopted these figures in April 1939 and recommended fresh strategic planning. In June 1939, it began work on the Rainbow series of joint war plans. One set assumed the U.S. had no major allies and postulated a hemispheric defense with a strategic defense (Rainbow 1), a limited Pacific offensive (Rainbow 3), or a limited Atlantic offensive (Rainbow 4). The others presumed an alliance with Great Britain and France, with the U.S. taking the offensive either in the Pacific (Rainbow 2) or the Atlantic (Rainbow 5).[34]

After war broke out in Europe in September 1939, Vinson and new CNO Admiral Harold Stark discussed another shipbuilding increase. Stark and OPNAV wanted a two-ocean fleet expansion, but Vinson settled on a 25% boost as politically feasible. Vinson's proposal encountered skeptical opponents asking why the Navy needed another authorization despite not yet having asked for money for the remaining two hundred thousand tons authorized in 1934 and 1938. Stark's testimony warned of a dark scenario where the Navy faced off alone against the German, Japanese, and Italian fleets augmented by the captured British and French navies. House legislators whittled the bill down to a two-year, 11% increase that languished through the spring of 1940 due to personal acrimony between Vinson and Senate Naval Affairs Committee Chair David Walsh. After Navy Department legislative staff brokered a truce, Congress finally passed the bill on 14 June 1940, authorizing 79,500 tons of carriers, 66,500 tons of cruisers, 21,000 tons of submarines, and 75,000 tons of auxiliaries.[35]

The collapse of France in June 1940 and the prospect of British defeat galvanized Congress. On 17 June, Vinson submitted draft legislation in the House proposing an expansion of the Navy by another 1.25 million tons, a 70% increase over the current program. The measure passed Vinson's committee unanimously on 18 June and the full House on a voice vote on

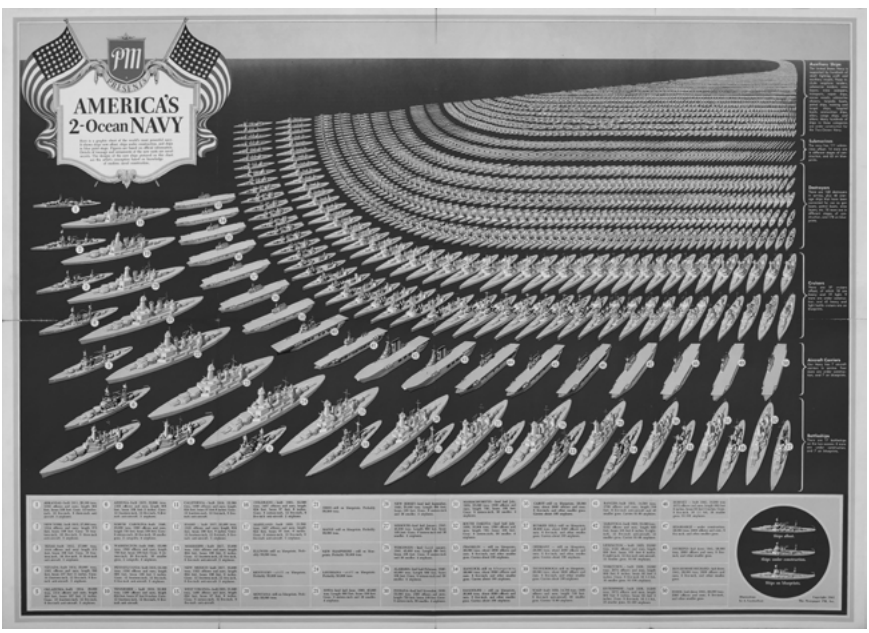
Table 1. Ships Appropriated Under Congressional Authorizations, 1933–40

	Month/ Year	Battle-ships	Carriers	Cruisers	Destroy-ers	Submarines	Other
National Industrial Recovery Act	Jun 1933		2	4	20	4	4
Vinson-Trammell Act	Mar 1934		1	6	65	30	
Merchant Marine Act	Jun 1936						141
Naval Act of 1938	May 1938	3	2	9	23	9	26
Naval Expan-sion Act of 1940	Jun 1940		3	5	30	22	
Two-Ocean Navy Act	Jul 1940	7	7	33	155	43	14

Source: Heinrich, *Warship Builders*, 28, 32, 38, 40, 46, 90.

22 June. Walsh pushed the Senate version through unanimously as well and Roosevelt signed the Two-Ocean Navy Act on 19 July. By 9 September, the Navy had let contracts for 199 vessels, many using authority granted by the act to use no-bid agreements. Congress also rescinded the Vinson-Trammell Act limit on profits. American shipyards were building 52 combatants and 62 other types on 1 June 1940. This had risen to 368 combatants and 338 other vessels by February 1941. In July 1940, the Navy had a total of 29 shipyards building new construction and 19 working on conversions and repairs. By December 1941, this expanded to 156 and 76, respectively.[36]

Roosevelt continued to prepare the government for possible war. With congressional authorization, he had established the Executive Office of the President in April 1939, under which he began creating or aligning boards and offices for coordinating strategy, policy, and the economy. He brought the Joint Board under his immediate "supervision and direction" in July 1939. SECNAV Swanson died that month, and Roosevelt replaced him with Assistant SECNAV Edison on an interim basis. In response to a request by Edison to consolidate BuC&R and BuEng, Vinson introduced a bill in early 1940 to abolish the Navy Department bureau system and create an office under the SECNAV to manage procurement, parallel to the CNO. In the



"America's 2-Ocean Navy," poster by A. Leydenfrost, 1941. (NHHC, 2004-005-001)

face of unanimous opposition from Navy leadership and the bureaus, Vinson consented instead to a proposal by Edison to establish an Under Secretary of the Navy in June 1940 to coordinate the procurement activities of the bureaus. The same legislation merged BuC&R and BuEng into the new Bureau of Ships (BuShips). Roosevelt replaced Edison in July 1940 with Frank Knox, a newspaper publisher, Republican internationalist, and supporter of Navy expansion. To fill the new undersecretary post, Roosevelt selected James Forrestal, a Wall Street executive and World War I aviator.[37]

Roosevelt proceeded more cautiously with strategic war planning as the world awaited the outcome of the Battle of Britain. Joint planners completed Rainbow 4 in May 1940, which assumed the U.S. would face Germany, Italy, and Japan along with the captured French and British fleets. A pessimistic General Board study requested by Stark estimated a true two-ocean navy to be beyond America's ability to afford. It could provide for one strong enough to take the offensive in one ocean and hold in the other. That fleet required 32 battleships, 15 carriers, 87 cruisers, 373 destroyers, and 185 submarines. This estimate had informed the Two-Ocean Navy Act. However, Britain held through the autumn of 1940, the French fleet remained out of German hands, and Roosevelt won reelection in November. At that point, Stark agreed with Army Chief of Staff General George Marshall that in event of war, Germany would be the priority opponent, and that the U.S. would assume the defensive in the Pacific. Roosevelt's tacit approval of Stark's "Plan Dog" enabled secret staff planning with Britain that led to agreement on the Germany-first strategy in January 1941. Joint planners completed Rainbow 5 in April 1941, and the Joint Board approved it in May.[38]

This agreement soon led to the first estimate for joint war requirements. Concerned about economic conflicts between U.S. rearmament and Lend-Lease aid for Britain, Roosevelt asked the Joint Board in July 1941 to report on "the overall production requirements required to defeat our potential enemies." That month, OPNAV's War Plans Division had estimated that current shipbuilding goals would be reached by 1945. A General Board review commissioned by Knox determined that seven additional carriers, 30 cruisers, and hundreds of smaller craft could be built by extending the shipbuilding program to 1946. This provided the basis for the Navy's response to the President, which together with the Army and Army Air Force's reports, became known as the "Victory Plan" completed in September 1941. Unfortunately, the parallel character of the Victory Plan planning effort, unwillingness to address potential conflicts, and an unconstrained

approach to resourcing concealed interservice disagreements that would manifest in a much larger fashion in the near future.[39]

The Maximum War Effort Planning Program

The Japanese attack on Pearl Harbor on 7 December 1941 and America's entry into World War II had a major impact on Navy force planning. Shortly after the war broke out, Roosevelt and Knox selected Admiral Ernest J. King, then commanding the recently recreated Atlantic Fleet, to become CINCUS, a post whose acronym King promptly renamed as COMINCH. In March 1942, Roosevelt dual-hatted King as CNO, centralizing strategic and operational authority over the Navy in one office, including coordination and direction of the bureaus, and making King the primary naval advisor to the President and the SECNAV. A pugnacious, self-admitted "sonofabitch," King wasted no time exercising the authority given to him. He incorporated elements of OPNAV's War Plans, Fleet Training, and Ship Movements divisions into his new COMINCH staff while delegating OPNAV's administrative and support functions to Vice CNO (VCNO) Vice Admiral Frederick J. Horne to oversee. Within the COMINCH Plans Division, King added a Future Plans Section to coordinate production planning and forthcoming operations. Horne empowered the OPNAV OP-23 Fleet Maintenance Division to oversee bureau logistical and production activities in support of operational requirements. Together they gradually usurped the General Board's role of overseeing the shipbuilding program.[40]

King's influence on Navy force planning began minimally but quickly expanded. As of December 1941, the Navy had contracted no new construction since September 1940. On 11 December, CNO Stark recommended a new expansion based on estimates informing the Victory Plan to add nine hundred thousand tons to the existing shipbuilding program by 1944. This considerably exceeded projected U.S. shipbuilding capacity. Congress passed supplemental funding on 23 December 1941 for 150,000 tons, which used the remaining available shipyard space through 1943.[41]

At this point, King exerted his influence in support of maximizing balanced fleet construction. Congress passed the Emergency Construction Program in February 1942 to build 1,799 minor combatants including landing craft and destroyer escorts for Britain. In contrast, the General Board outlined a wartime fleet goal in January 1942 for 34 battleships, 12 battlecruisers, 24 carriers, 104 cruisers, 379 destroyers, and 207 submarines. It argued against the light carriers and prioritized battleships over fleet

carriers. King overruled the General Board in May, deferring construction on two *Iowa*-class and five *Montana*-class battleships indefinitely to divert limited steel production to five carriers and ten cruisers instead. A submariner, King also lobbied Congress for more submarines to execute unrestricted submarine warfare against Japan, announced by Stark on 7 December 1941. Congress passed the Submarine Act in May 1942 funding 102 vessels totaling two hundred thousand tons.[42]

In June 1942, Vinson introduced legislation for what would be the last major congressional naval expansion authorization of the war. The bill, passed on 9 July, authorized the Navy to maintain more than 5.25 million tons of underage combatants, retain a half-million tons of overage vessels, and to automatically replace losses, while still leaving nearly 250,000 authorized tons unallocated. This authorization, in addition to those since 1933 that preceded it, proved sufficient to underwrite the entire wartime combatant shipbuilding program. Congress also enabled the President, the SECNAV, and COMINCH to adjust shipbuilding schedules and priorities without its explicit permission, although still requiring funding to proceed through the regular budget review and appropriations process.[43]

Table 2. Ships Appropriated Under Congressional Authorizations, 1941–45

Month/Year	Battleships	Carriers	Cruisers	Destroyers	Submarines	Other
Dec 1941		2	2	17	23	
Feb 1942						1,799
May 1942					102	
Jun 1942		62 (Including 48 CVEs)	33	100		1,320

Source: Davidson, *The Unsinkable Fleet,* 32–37; U.S. Department of the Navy, *An Administrative History of the Bureau of Ships During World War II,* vol. 2, 209–12, 333.

Defending the Wartime Shipbuilding Program

Having established a high-priority, maximum effort, naval shipbuilding program, King then had to defend it among competing demands on U.S. wartime industrial production and manpower. Unlike the prewar Victory Program, senior American political and military leaders faced the task of planning a global war effort with finite resources. In December 1941–January 1942, the United States and Great Britain affirmed their Germany-first strategy, a defensive posture in the Pacific, the priority of protecting the sea lines of communication between North America and England, and the need to build large numbers of amphibious vessels.[44]

The ad hoc Joint Chiefs of Staff (JCS) replaced the Joint Board in January 1942 as the primary military advisory body to the President. It included King, Marshall, and Army Air Force Chief of Staff Henry "Hap" Arnold. Roosevelt added retired CNO William Leahy as his military chief of staff in June 1942. King supported Marshall and Arnold's objective of invading France as soon as practicable in order to defeat Germany. However, he disagreed that the U.S. should stand on the defensive against Japan and pressed for a Pacific strategy rooted in prewar War Plan Orange planning.[45]

King's determined pursuit of this strategy provoked a succession of debates among political and military leadership over resourcing. In January 1942, Roosevelt established production targets for 1942 and 1943 derived from the Victory Plan that balanced air, sea, and land requirements. It soon became obvious that the services were competing with each other and with other sectors of the economy. Roosevelt had created the War Production Board (WPB) in January 1941 to coordinate wartime industrial mobilization and to determine precedence between competing requirements. The Navy's economic priority would be altered 21 times between December 1941 and July 1945.[46]

King acted aggressively to protect Navy shipbuilding. He warned Knox in February 1942 that the WPB had allocated resources for Army forces not scheduled to deploy overseas until 1943 while shortages of shipping and escorts limited current operations. In March, King and Knox complained to Roosevelt that the WPB priorities assigned to the Navy were too low to meet its building program objectives and stressed the need to balance short-term naval needs against longer-term Army and industrial requirements. Roosevelt set WPB goals in May 1942 prioritizing Navy production for 1943 over that scheduled for 1944. Horne told King that this would indefinitely delay dozens of battleships, carriers, cruisers, and half of the auxiliaries

under construction. King alerted Roosevelt that this cutback would occur just when the Navy expected to be waging an all-out offensive, which convinced the President to rescind it.[47]

In July 1942, in response to decisions by Roosevelt and the JCS to invade the Solomon Islands and North Africa, destroyers and destroyer escorts became the top shipbuilding priority. While this caused "almost continuous turmoil" and "great confusion" in the shipbuilding program according to BuShips, it yielded 306 escort ships in 1943, 46 more than planned. After losing three carriers in the Pacific by September 1942 (and a fourth in October), the WPB elevated the first five *Essex* carriers to class B priority. King then finally prevailed on the President to approve two large *Midway*-class carriers in December 1942, though Roosevelt accurately predicted that they would not be completed before the war ended.[48]

King and Navy planners adopted a similarly aggressive stance in JCS debates to defend the Navy's Pacific strategy and shipbuilding program. In October 1942, the WPB informed Roosevelt that only 75% of the year's production goals would be met and that 40% of the 1943 targets needed to be deferred to 1944. The President asked the JCS to prioritize requirements, but their planners divided over service lines. Navy staffers rejected Army Air Force arguments that aircraft production should have priority over shipbuilding. The impasse lingered into March 1943, when King agreed to assign part of the Navy's program a lower priority. A month later, the WPB reported that all requested production for 1943 could be achieved after the Navy and Army Air Force reduced unachievable aircraft production targets.[49]

By early 1943, Navy intelligence estimated U.S. and British shipbuilding programs were out producing Axis shipyards in every category except submarines. This afforded them an overwhelming advantage even if attritional losses were equal. Nevertheless, Horne recommended in May 1943 that King seek Roosevelt's permission to add 921,000 tons of authorized construction to the Navy's building program for FY 1944. Horne explained to Congress that this new construction replaced ships sunk, overage, and cancelled. Congressional appropriators passed the Navy budget requests with little question or debate.[50]

This still left over a million tons of unallocated shipbuilding capacity by 1946 in America's burgeoning shipyards. BuShips invested $2 billion in public and private shipyards and component manufacturing plants during the war. The number of yards building new construction peaked at 322 in December 1942 and those doing conversion and repair crested at 248 in

September 1944. Shipyard activity occurred in 34 of 48 states. Knox established the Office of Procurement & Material (OP&M) under Forrestal in January 1942, which streamlined procurement without overly centralizing planning. OP&M and BuShips collaborated with WPB in November 1942 on a Controlled Materials Plan to efficiently allocate critical resources. The bureaus provided data for OP&M to coordinate requirements with emerging "just in time" supply chains and WPB economic planning. Revamped contracting combined with statutory regulation mandated by presidential executive order empowered Navy auditors and financial analysts to pare down costs and prevent excess profiteering.[51]

Naval historian Thomas Heinrich identified specific factors that enabled U.S. shipbuilders to far outproduce the rest of the world. The cartel that helped the Big Three survive the 1920s and 1930s construction drought also fostered yard specialization, design, and construction expertise. Government investment in naval shipyards, influenced by suspected private industry profiteering, created a design and construction capability able to take on the most complex shipbuilding projects. The Navy allowed yards to experiment with production floor methods in the 1930s which led to arc welding and other fabrication techniques that maximized wartime batch production capacity. Insistence by the Navy and Maritime Commission that work be allocated to yards specialized for particular jobs—construction of merchant vessels, overhauls and repairs, and building heavy combatants—allowed for optimal allocation of projects and increased production. Above all, the U.S. invested far greater resources and funding in absolute terms in its shipbuilding enterprise than its adversaries, enabling construction on an unmatched scale.[52]

In May 1943, Roosevelt appointed James F. Byrnes to head a new Office of War Mobilization (OWM) with authority over all government agencies involved in war production. A former chair of the Senate Appropriations Committee Navy Subcommittee and Roosevelt confidante dubbed the "assistant President" in the media, Byrnes directed OWM to assess government-wide production requirements. In August, Byrnes questioned the justification for the Navy's building program to Roosevelt, which had been based on the threat of facing combined Axis seapower alone. By this point, King had to bow to strategic reality and in response to allied victory in the Battle of the Atlantic, recommended cancellation of 205 destroyer escorts to reallocate the resources to landing ship construction, which Roosevelt approved.[53]

In September 1943, based on the OWM review, Byrnes recommended that Roosevelt further cut Navy construction, citing the Italian fleet's recent surrender and the large share of workers and resourcing committed to shipbuilding. The same month Forrestal also suggested that the President review the Navy's program in light of changing strategic circumstances. Roosevelt referred the matter to the JCS. King argued that increased naval construction allowed the Navy to conduct more operations, thereby ending the war faster. Knox echoed King's case that calculations of ship tonnage did not reflect the need for decisive operational superiority. JCS planners concurred that lowering building requirements would be counterproductive. In December 1943, civilian munitions planners observed that the Navy program would consume more workers and material in 1944 than 1943, even though the U.S. and Britain had 2–1 advantage in all ship types except submarines. JCS planners seeking to ascertain Navy ship requirements reported in March 1944 that no estimates could be made pending plans for Japan's final defeat. Army planners challenged this, but Navy planners reiterated King's arguments, noting that shipbuilding requirements were limited only by production capacity. Japanese resistance would grow as U.S. forces closed with the home islands. King prevailed when JCS planners finally declared in June 1944 that the matter lay beyond their purview.[54]

In early 1944, a new challenge emerged to the building program of the Navy's own making. COMINCH and OPNAV planners realized that they had significantly underestimated the personnel needed to adequately crew and support the new ships joining the fleet. Unable to reliably determine personnel requirements, the planners had overstated them to compensate for uncertainty. Overestimates of combat losses also complicated forecasts. The Army had accepted personnel cuts in 1943 in favor of the Navy but needed additional forces in anticipation of major combat in 1944. King had asked the JCS in January 1944 to accelerate the Navy's 1944 year-end personnel allotment to mid-year. Revised staff forecasts in March 1944 suggested that the Navy would still be short by 340,000 personnel by the end of 1944 and a half-million by mid-1945. A special committee found some surplus manpower among shore and support elements, but King had to again ask the JCS for more personnel. The JCS approved King's request for 390,000 additional draftees in July.[55]

The Navy's personnel crisis prompted Forrestal, who had succeeded Knox as SECNAV in April 1944, to try to assert some control over the shipbuilding program. In May, Horne recommended King add new construction up to the authorized FY 1945 limit of 400,000 tons. Warned that adding new

ships while facing a personnel crisis sent a questionable political message, Forrestal instructed King in June 1944 to begin recommending monthly potential shipbuilding reductions. King created a Special Committee on Cutbacks in his COMINCH staff, which produced assessments largely validating the existing program. King agreed to reductions in submarine and destroyer escort production and cut four obsolescent light cruisers that were under construction.[56]

Endgame and Postwar

Historians assert that the Navy started planning for the postwar era late relative to the Army, but in practice, King's wartime shipbuilding plan constituted its vision for the future fleet.[57] Navy Department postwar planning started in early 1943 when Knox instructed the General Board to determine which Pacific air bases to retain after the war. After the Army invited Knox to join postwar planning discussions, VCNO Horne assigned Admiral Harry E. Yarnell to lead a special section in his office in August 1943 to determine the number and types of Navy units to maintain in commission

Table 3. Navy Demobilization Plans

Title	Month/ Year	Personnel (Officers/ Enlisted)	Carriers (Heavy Light)	Battle-ships	Cruisers	Destroyers (DDs/DEs)	Subs
Demobiliza-tion Plan 1	Dec 1943	75,000/ 750,000	21/22	9	42	151/100	150
Demobiliza-tion Plan 2	Aug 1944	50,000/ 500,000	12/22	9	42	151/100	150
Basic Postwar Plan No. 1	Apr 1945	50,000/ 500,000	10/10	5	31	135	
Basic Postwar Plan No. 2	Mar 1946	437,000	12/10	4	29	126	80

Sources: Barlow, *From Hot War to Cold*, 35–56; Hone and Utz, *History of OPNAV*, 188–89; Palmer, *Origins of the Maritime Strategy*, 13–14, 18; U.S. Congress, House of Representatives, House Committee on Appropriations, *Navy Department Appropriation Bill for 1947: Hearings Before the Subcommittee of the Committee on Appropriations*, 79th Cong., 2nd sess. (GPO, 1947), 31–38, 46–47; Secretary of the Navy, *Annual Report of the Secretary of the Navy for the Fiscal Year 1947* (GPO, 1948), 7; "Hearings on Effect on Navy of Demobilization and Proposed Budget Cut," in U.S. Congress, House of Representatives, House Committee on Naval Affairs, *Sundry Legislation Affecting the Naval Establishment 1946*, 79th Cong., 2nd sess. (GPO, 1946), 2754.

and which shore facilities to retain. Horne circulated Yarnell's Postwar Demobilization Plan 1 in December 1943. It assumed the U.S. and Britain would be neither allies nor adversaries and that the Soviet Union would build up its navy. The plan projected a postwar Navy of 75,000 officers and 750,000 enlisted personnel, three numbered fleets, and six major task forces for a cost of $7 billion a year.[58] Yarnell next completed Navy Postwar Demobilization Plan 2 in August 1944, which assumed U.S. responsibility for the Western Atlantic and Pacific Oceans, while Britain patrolled the Eastern Atlantic, Mediterranean, Indian Ocean, and areas adjacent to its Pacific interests. It forecasted that no major power would engage in military aggression. This projected a substantially reduced cost of $3 billion. Yarnell started but did not complete a third version.[59]

King's COMINCH staff drafted its own postwar study in January 1944 that resembled Yarnell's first plan. It based numbered fleets in Hawaii, California, and Virginia, with additional fleet bases in the Philippines and Truk, and forward task forces in the Philippines, Caroline Islands, the Northern Pacific, the Canal Zone, the Caribbean, and Europe. King declined his staff's recommendation in August 1944 to consult the JCS on the subject and rebuffed Forrestal's requests for more information. In October, he reassigned postwar planning responsibility from Horne to Deputy COMINCH/Deputy CNO Admiral Richard Edwards. The COMINCH Post-War Naval Planning Section outlined major assumptions which King provided to Forrestal for approval in the spring of 1945. These formed the basis for Basic Postwar Plan No. 1, furnished to Forrestal on 29 April 1945, who approved it on 5 May. King believed there would be a progressive postwar reduction in naval strength, constantly reviewed and paced by events. The plan envisioned a balanced surface, air, submarine, and amphibious force large enough to control the Pacific and Western Atlantic, and to protect lines of communications with forward bases worldwide to permit a prompt peacekeeping response.[60]

In December 1944, Forrestal informed Vinson that 750,000 tons of authorized construction remained unallocated, a combination of previous authorizations increased by cancellations, combat losses, and vessels becoming overage. Vinson directed Forrestal to request congressional funding and begin contracting to use the remaining tonnage authorization.[61] The Bureau of the Budget, Congress, and OWM all pushed back on the request. Budget Director Harold D. Smith raised with Roosevelt the inevitable strain on manpower and production, pointing out that the new ships would not likely be built before the war ended. In April, the House Appropriations

Committee included no allocation for new ships in the 1946 Navy budget and instructed the service not to undertake any further construction without specific approval. King sought a waiver to allow the Naval Appropriations Subcommittee to approve building contracts but was denied. This ended Congress's "blank check" for wartime naval construction.[62]

In May 1945, Forrestal recommended to Roosevelt's successor, Harry S. Truman, and to Congress a revised FY 1946 shipbuilding program for 12 advanced antiaircraft cruisers and new destroyers and submarines to preserve the nation's postwar naval technological and industrial base. Forrestal had created a Ship Characteristics Board (SCB) in March to complement the General Board and to provide a forum for the most recent operational experience to be incorporated into new ship designs. In July, Forrestal bowed to the inevitable and instructed King to cut shipbuilding to save money. Additional cuts in September totaled almost a million tons, reducing the program from 202 ships to 146. Japan formally surrendered on 2 September 1945. Two days later, Truman asked Congress to cancel $50 billion in war spending, including $17 billion in Navy authorizations.[63]

With the war won, King insisted upon revoking the executive orders establishing COMINCH. Truman issued EO 9635 on 29 September placing the CNO in "command of the operating forces" and shore establishments through the SECNAV. It designated the CNO as the "principal naval advisor to the President and to the Secretary of the Navy" with command of the operating forces and as the "principal naval advisor and military executive to the Secretary of the Navy on the conduct of the activities of the naval establishment." The bureaus were firmly under the charge of the secretariat, though they reported through the CNO. This necessitated a reorganization of OPNAV, which now contained a combination of functional and warfighting directorates led by three-star deputy CNOs (DCNOs). Forrestal rechartered the SCB in November, placing it under the CNO and assigning the DCNO for Logistics (OP-04) as the senior member. He also granted the CNO authority to determine to assign matters to either the General Board or the SCB.[64] Vinson had introduced a House resolution in October calling for Basic Postwar Plan No. 1 to become the basis for the postwar Navy. He held hearings on the matter but was unable to generate enough support for legislation. King resigned as CNO on 12 November.[65]

On the day Japan formally surrendered to the Allied powers ending World War II, the Two-Ocean Navy comprised of 1,166 major combatant vessels. This included 23 battleships, 28 heavy and light aircraft carriers, 71 escort carriers, 73 heavy and light cruisers, 377 destroyers, 361 destroyer

escorts, and 234 submarines. This force had sustained heavy losses following the initial U.S. entry into the war in 1942, but in combination with British and allied navies in the Mediterranean and Atlantic, and mostly on its own in the Pacific, the Navy decisively defeated and destroyed Japanese, German, and Italian seapower. It conducted multiple multi-division Marine Corps and Army amphibious assaults, while escorting and sustaining the global deployment of millions of Army and Army Air Corps personnel.[66] It had become the most powerful navy in history, dwarfing in size those of the remaining naval powers and affording the U.S. postwar global supremacy at sea.

The Post-War Navy, 1945–49

While the Navy stood at the pinnacle in both size and accomplishment by the end of 1945, it also faced a very uncertain future. Several open questions existed that would influence future force planning. Having defeated all potential naval rivals, what kind of a postwar force structure would Congress and the President be willing to maintain? What role would the Navy play in U.S. military policy going forward? The Army actively sought service unification while the Army Air Force agitated for recognition as a separate service. This raised the issue of defining service roles and missions, a difficult issue largely avoided during the war. The Navy also faced several potential technological challenges to its newfound naval supremacy. The biggest was the emergence of nuclear weapons and power. No one had a clear idea what impact nuclear weapons would have on naval warfare. Did atomic bombs make navies obsolete, as some airpower advocates claimed? Should the Navy employ nuclear weapons? If so, how and in what manner? How should the Navy integrate nuclear propulsion, jet aircraft, and guided missiles? How should it deal with the dissemination of advanced German submarine technology to the Soviet Union?

Demobilization, 1945–47

Fleet Admiral Chester W. Nimitz succeeded King as CNO in December 1945. He faced the immediate task of managing demobilization while also orienting the Navy toward the future. Forrestal and King had doubts about Basic Postwar Plan 1, so COMINCH asked senior officers returning from the Pacific to review it. OPNAV issued Basic Postwar Plan 1A in December, which maintained personnel levels and boosted active carriers and

aircraft while reducing surface forces. However, the Bureau of the Budget imposed further cuts to Navy funding over the winter. In response, OP-30 crafted Basic Postwar Plan No. 2 in March 1946 to fit within the budget. It forecasted a reduction of Navy personnel from 3.38 million in mid-1945 to 950,000 by 30 June 1946 and 437,000 by mid-1947. The gradual decline reflected requirements for crews to prepare ships for reserve, inactivation, and disposal, and for nuclear weapons tests scheduled for 1946. Operation Magic Carpet from October 1945 through August 1946 repatriated three million U.S. service members from overseas, which involved 532 Navy ships at its peak. Basic Postwar Plan 2 called for operating forces to be distributed between the Pacific and Atlantic fleets and an independent European command to assist occupation forces in Germany and Japan, all prepared to support and promote American foreign policy objectives.[67]

In late 1945 and early 1946, the Truman administration and Congress further reviewed the Navy's shipbuilding program, cancelling 38 vessels and suspending work on 17 others. In May 1946, Congress declared that any ship at least 20% complete as of 1 March would be finished. One hundred and twenty-nine vessels were delivered between July 1945 and June

Aerial port bow view of USS *Midway* (CVA-41) while operating in the South China Sea, 27 October 1965. (NHHC, USN 1114878)

1946, including two *Midway*s, four *Essex*es, 10 escort carriers, five heavy cruisers, five light cruisers, 61 destroyers, 13 escorts, and 28 submarines.[68]

Several strategic considerations and technological developments shaped Navy force planning in the immediate postwar period. While the Truman administration regarded the emerging security environment cautiously, Forrestal oriented the Navy toward the Soviet Union as the most likely near future threat. He spoke publicly and before Congress about the need for a strong Navy "for the maintenance of peace," despite the lack of a peer-level naval adversary.[69] On their own initiative, JCS staff began planning postwar military policy and a strategy for a new global war in August 1945, identifying sociopolitical conflict with the Soviets as the most probable contingency. They developed a concept of operations in December 1945 which became Joint Basic Outline Plan Pincher, approved as the basis for further planning in June 1946. OPNAV's OP-30 Strategic Plans Division, under OP-03 DCNO (Operations) Vice Admiral Forrest Sherman, Nimitz's wartime chief planner, contributed the Navy's input. Joint Staff planners expected the Soviet army to overrun Western Europe, the Near and Middle East, and parts of Scandinavia at the outset of hostilities. In response, the U.S. would secure lines of communication and forward bases in Britain, Egypt, India, Italy, and Western China from which to stage a long-range strategic bombing campaign against Soviet industry. JCS planners envisioned the Navy destroying Soviet naval and maritime power and blockading its coasts. Sherman and OP-30 thought a war would be protracted and that Navy missions would include defending sea lines of communication; providing the forward combat power to defend allied countries and bases on the Soviet Atlantic, Mediterranean, and Pacific peripheries; and to cover ground force evacuations and amphibious assaults to seize bases. Due to the limited availability of atomic weapons, Navy planners believed the U.S. would have to rely on conventional forces, at least initially. Sherman favored carrier-based offensive operations in the North Sea, Barents Sea, Eastern Mediterranean, and Sea of Japan against Soviet littoral bases and land-based airpower. He deemed the best antisubmarine warfare (ASW) strategy was to target Soviet submarine pens and supporting infrastructure while U.S. submarines hunted Soviet boats in conjunction with offensive mining operations.[70]

The Navy found advanced German submarine technology to be an immediate naval threat. Both the U.S. and Soviet Union took possession of captured U-boats at the end of the war, including two new designs, the Type XXI and the Type XXIII. The Type XXI boat had advanced diesel

engines and electric motors that gave it a submerged speed of 17 knots, while the Type XXIII had a revolutionary new closed-cycle turbine power plant that propelled it underwater up to 26 knots. These characteristics rendered existing Navy ASW capabilities obsolete. OPNAV planners realized that Soviet submarines using this technology threatened control of the sea in a war. Nimitz directed the General Board in January 1946 to consider the development of an antisubmarine ship capable of countering high-speed submarines. In June, he briefed Truman on the threat and recent Navy operational tests that showed the new submarines could attack existing ASW defenses with relative impunity and were virtually immune from destruction in deep water by current ships or aircraft. The Office of Naval Intelligence estimated that the Soviets could build between 30 and 50 advanced subs by 1949 and 100 to 300 by 1950, which greatly exaggerated actual capacity.[71]

The Navy also had its own new submarine technology in prospect. While it had limited participation in the Army's Manhattan Project during the war, several Navy officers developed nuclear expertise as individual contributors. Naval Research Laboratory (NRL) personnel detailed by BuShips to a Manhattan Project policy committee in November 1944 were impressed by the potential for using atomic energy to power ships. BuShips and NRL independently explored possible naval applications. NRL proposed its first nuclear-powered submarine design in March 1946. In April, the General Board recommended that "active comprehensive study and development of atomic power for utilization in propulsion of Naval units be initiated without delay." BuShips sent officers to Oak Ridge Laboratory in Tennessee to study reactor technology in June 1946, including Captain Hyman G. Rickover, a 46-year-old "engineering duty only" line officer, who quickly grasped the technology and its potential for development.[72] In January 1947, Nimitz approved the incremental replacement of existing submarines with improved diesel versions. He also supported high priority development of closed-system propulsion designs for improved underwater performance and "nuclear power plants for eventual installation in submarines to give unlimited submerged endurance at high speed."[73]

The Navy developed a more ambivalent attitude towards nuclear weapons. An aide to Forrestal suggested atomic tests on surplus ships in August 1945. BuShips recommended this as well "to clear up its influence on naval warfare." The Army Air Force proposed tests on captured Japanese vessels in October, which King countered by recommending a joint operation under JCS auspices. In November, he created OP-06 DCNO (Special Weapons) in OPNAV under Vice Admiral William H. P. Blandy and assigned it cogni-

zance for nuclear weapons, guided missiles, and planning the forthcoming tests. Truman approved Operation Crossroads in January 1946. The tests sank relatively few ships but would have inflicted massive radiation casualties on personnel in wartime. Senior Navy leaders concluded that ships were not unusually vulnerable to nuclear weapons and would not necessitate major changes to the fleet for at least a decade. They believed that atomic bombs were deliverable only by heavy bomber or ballistic missile, the latter of which would not achieve long range for another 25 years. Nimitz disestablished OP-06 in November 1946, reassigning nuclear weapons to OP-03 (Operations) and guided missiles to OP-05 (Air).[74]

Meanwhile, Navy guided missile research had begun in January 1944. BuOrd and BuAer initiated multiple, often competing, air-to-air, surface-to-air, and surface-to-surface programs in response to requirements from OPNAV's warfare directorates and divisions. Congress established the Office of Naval Research (ONR) in 1946, to coordinate, but not direct, applied research. In August 1947, OPNAV prioritized the development of a ship-to-air missile capable of intercepting high-altitude jet bombers.[75]

After entering development in 1942, the Navy's first jet fighter, the twin-engine McDonnell FH-1 Phantom, initially flew in January 1945, and successfully operated from the *Midway*-class carrier *Franklin D. Roosevelt* (CVB-42) in July 1946. But by 1946, it was not yet clear that naval jets were operationally feasible due to poor fuel efficiency and long take-off runs, which limited them to use on the *Midway*s and modified *Essex*es. With the Air Force moving to all jet aircraft however, the Navy faced pressure to keep pace. When the Navy selected the Douglas F3D Skyknight as its jet night fighter in April 1946, it contracted with Grumman for a backup design which became the F9F-2 Panther. Grumman also introduced the F2D Banshee, an improvement on the FH-1. The Panther and Banshee both first flew in 1947 and together became the Navy's first large-scale jet acquisitions (418 F9Fs and 234 F2Hs in FY1949). [76]

Technological and strategic considerations also heavily influenced ship design characteristics after the war, particularly aircraft carriers. BuShips began studying a follow-on to the *Midway*s in mid-1945. In December 1945, BuAer recommended to Nimitz designing a carrier-based heavy bomber capable of delivering bomb loads up to 12,000 pounds, and a large flush-deck carrier capable of accommodating it. Nimitz assigned studies of these concepts to Vice Admiral Arthur W. Radford, OP-05 DCNO (Air), and Vice Admiral Robert Carney, OP-04 DCNO (Logistics), in February 1946. SCB completed its initial design study 6A in June for a ship 1,190 feet long,

displacing 69,200 tons. It could only operate 24 heavy bombers intended for nuclear attacks, requiring escort by at least two other carriers for defense.[77]

In the austere postwar environment of November 1946, Nimitz instructed Carney to modify the *Midway*s to permit operation of the new heavy bomber and nuclear weapons. This involved strengthening flight decks, enlarging bomb elevators, and adding facilities for atomic weapon handling, loading, and stowage. The Navy organized VC-5, a squadron of Lockheed P2V-3C Neptunes modified to carry Mk. I Little Boy gun-type atomic bombs, in September 1948, providing it with an initial atomic weapon delivery capability.[78]

Force Planning and the Unification Debates

After World War II, Navy force planning became increasingly subject to the outcomes of larger political debates over service roles and missions and unification. The JCS, in its wartime configuration, failed to reconcile these differences and agreed in June 1946 to suspend further deliberations unless the President or Congress required them to reconsider.[79]

Congress held inconclusive hearings on General Marshall's proposal for a single executive military department and military chief of staff in 1944. Hearings resumed in early 1946, but opposition from Forrestal (who believed the Army would dominate such a structure) and the Marine Corps blocked legislative compromise. In May 1946, Truman told the Navy and War secretaries to come to terms on unification or he would decide them himself. Ensuing talks resolved most disagreements, but in June, Truman backed a unified defense department, an independent Air Force, leaving the Marines under Navy control, and assigning land-based naval air missions to the Air Force. Forrestal realized the Navy could not prevent unification and sought compromise. Congress restarted hearings on a compromise unification bill in March 1947, which passed in July and Truman signed into law as the National Security Act of 1947.[80]

While the initial legislation contained much of what Navy supporters sought, it now interposed a decision-maker between the SECNAV, CNO, and the President. The new Office of the Secretary of Defense (OSD) exerted "general direction, authority, and control" of the Department of Defense, serving as "principal assistant to the President." While the act established an independent Air Force, the services remained executive departments under cabinet-rank secretaries, united as the "national military establishment." Truman issued Executive Order 9877 in July 1947 to implement

the act by formally defining service roles and missions. It allocated the strategic bombardment mission to the Air Force while granting the Navy its land-based air capability. The order permitted the Marine Corps to field large-sized units with organic air support but in limited numbers. Truman and Congress had intended for the National Security Act and EO 9877 to resolve interservice rivalries, but instead they would intensify.[81]

In January 1947, Navy planners had developed doubts about the ability of heavy bombers to reach their targets and the effectiveness of an atomic offensive due to the limited nuclear arsenal available. They questioned the emphasis on strategic bombing in joint planning, suspecting that it might not prove as decisive as asserted. Nor had the Truman administration stated a policy on whether or not nuclear weapons would be used in a war.[82] The uncertain strategic direction and lack of funding forced a precipitous decline in the number of private shipyards engaged in naval shipbuilding from the wartime peak of 228 to five by July 1947.[83] In response, under Forrestal's guidance, annual recommendations were adapted to a long-term plan designed to sustain a healthy shipbuilding industry.[84]

Simultaneously, progress had slowed on nuclear propulsion in 1947 as the civilian Atomic Energy Commission (AEC) took responsibility for all nuclear development. After persistent lobbying by the industrious Rickover, however, Nimitz advised SECNAV John J. Sullivan in December 1947 of a requirement for a high-speed submarine of unlimited underwater endurance powered by nuclear energy. He forwarded Rickover's prediction of a nuclear submarine by the mid-1950s possibly armed with guided missiles with a 500-mile range and nuclear warheads. Sullivan sent this to SECDEF Forrestal and directed BuShips to begin reactor development with the AEC. BuShips designated Rickover as its AEC liaison in July 1948, and placed him in charge of its own new nuclear power branch in August. After painstaking negotiations that consumed most of the year, the AEC signed an agreement with Westinghouse in December 1948 to develop a submarine nuclear propulsion plant for the Navy "within the shortest possible time." The AEC installed Rickover in its reactor division in January 1949 to oversee the project, with a dual chain of command to BuShips. In March 1949, at Rickover's urging, the AEC and Westinghouse prioritized work on a light water-cooled reactor design.[85]

Admiral Louis E. Denfeld, 1947–49

According to historian Jeffrey Barlow, "From the Navy's vantage point, by early 1948 the fate of the aircraft carrier development program (and, by implication, naval aviation itself) had become inextricably tied to the larger issue of service roles and missions."[86] Admiral Louis E. Denfeld succeeded Nimitz as CNO on 15 December 1947. A surface and submarine officer, Denfeld had not held a major wartime command nor experienced much combat. He had been selected for his political contacts, developed while directing the Bureau of Personnel and as DCNO (Personnel), but had the support of the Navy aviation community. Denfeld chose Admiral Arthur Radford, an outspoken naval aviation advocate, as his VCNO. Sherman left to take command of the Sixth Fleet in the Mediterranean.[87] The new CNO found himself immediately enmeshed in renewed interservice controversy. In April 1948, a memo leaked to the public, written by OP-57 director Rear Admiral Daniel Gallery, argued that the Navy should take the strategic bombardment mission from the Air Force. While Gallery did not reflect Navy strategic or policy thinking, media attention to these statements, coupled with Navy criticism of the strategic bombing offensive in joint planning forums, led the Air Force to publicly and privately attack the validity of carrier aviation.[88]

The conflict restarted just as Forrestal attempted to revise EO 9877 defining roles and missions in early 1948. After JCS planners deadlocked over changes, Forrestal invited the service chiefs to meet in Key West, Florida in March to work out the differences. Denfeld assured the Air Force that the Navy did not want the strategic bombing mission and Radford spoke skillfully and effectively in support of naval aviation. This yielded JCS agreement that Navy carriers had a collateral function in the air offensive and could strike inland targets and use nuclear weapons. They also agreed the Navy could build its flush-deck carrier and develop heavy attack aircraft even if a clear naval need for them did not exist. The Army dropped its resistance to Marine Corps division-sized forces. Forrestal drafted a new roles and mission statement, and Truman revoked EO 9877 in April. In mid-summer, the JCS disagreed over which targets the Navy could attack with nuclear weapons and the Air Force's role as executive agent for weapons custody. Forrestal again convened the JCS in Newport, Rhode Island, in August 1948 to work out disagreements. The Navy agreed to leave the Air Force temporarily in charge of custody in exchange for an agreement that each service could plan to use nuclear weapons.[89]

Defense budget battles intensified Navy-Air Force conflict. Truman and Congress had cut the Navy's FY 1948 budget to $3.935 billion, which allowed for 288 active combatants, and capped the next budget at the same level. Amid increasing tensions with the Soviet Union, the JCS—now included in OSD's budget process—recommended reinstatement of selective service due to falling postwar enlistments. Actual Navy strength declined to 397,000 officers and sailors in FY 1948, forcing it to immobilize or place on limited duty 107 ships. For its part, the Air Force argued that it needed 70 groups to bring it into balance with the other services. Truman acceded to a $3.841 billion supplemental in May, but Congress approved nearly $1 billion more in overall FY 1949 spending. It also reinstated selective service in June.[90]

In testimony before Congress in May 1948 in support of the FY 1949 budget, Sullivan and Denfeld asserted that the JCS had approved the 6A carrier. Recently retired General Spaatz challenged this, forcing Forrestal to ask the JCS to consider it formally. Air Force Chief of Staff Hoyt Vandenberg refused to approve or disapprove the carrier without a budget review. After the rest of the JCS assented however, Truman considered the matter closed. Sullivan also testified that the 6A carrier would be a prototype, despite OPNAV's plans to request three more by FY 1952. This likely reflected Forrestal's belief that the Navy would have to test the new ship to build support for more. Congress approved the Navy's FY 1949 program in June 1948, including the new carrier and appropriated money to begin construction. In July, Sullivan designated it CVA (Attack Aircraft Carrier) 58, later named *United States*.[91]

In June 1948, the Navy General Board contributed "National Security and Navy Contributions Thereto Over the Next Ten Years," a follow-on to the force estimate of the previous November. Largely the work of Captain Arleigh Burke, it expanded on the Navy strategic thinking outlined in the previous study. It reiterated that a war with the Soviets would not be "cheap or easy," but rather "long and intense." The study reflected the Navy's belief that "War within the next ten years will be fought largely with weapons of World War II improved though they may be. They will be employed to achieve the fundamental and unchanged objective of the war, breaking the will of the enemy to resist." It criticized the unification effort for jeopardizing the interservice consensus needed to plan the necessary balance of air, sea, and land forces. Identifying Europe and the Middle East as the critical theaters, the study supported the use of airpower to reduce Soviet military and industrial capacity. It argued that future naval warfare would be fought "in accord with principles of naval warfare proved valid in the past," and

emphasized the need for mobility and long-range fires to sustain offensive operations stating:

> Naval operations in the future will be characterized by the need for more ships, more mobility and more endurance for both ships and aircraft. There will be greater emphasis than ever before on naval air, amphibious and antisubmarine operations. Long-range weapons, long-range detection and identification devices, and homing or guided missiles and torpedoes will be necessary to combat enemy air and submarines.
>
> The superiority of the offensive by such means as submarines, high speed aircraft and guided missiles will persist until means are developed to detect and destroy them with a high degree of certainty. There is little prospect of these being accomplished in the near future.

It concluded that "The Navy's initial [wartime] tasks . . . will place many demands . . . for immediate operations in widely separated parts of the world. Fulfillment of all such demands may well be beyond the capacity of the Navy in being."[92]

In July 1948, Truman reduced the prospective FY 1950 defense budget to $14.4 billion. The first JCS estimate for a joint force commensurate with the perceived threat totaled nearly $30 billion. They calculated that it would require $3.6 billion above the FY 1949 budget just to maintain existing readiness. In October, a revision cut elements of the existing war plan, including the Navy's defense of the Eastern Mediterranean, which reduced Navy requirements to 11 fleet carriers, while the Army and Air Force preferred five. In response, Denfeld and Radford challenged the Air Force's current ability to deliver nuclear attacks. The JCS failed to provide Forrestal with a force recommendation under the President's budget, but they did hash out an agreement on a $16.9 billion plan, including the SECDEF's compromise on eight carriers. The JCS called it "insufficient to implement national policy in any war situation which can be foreseen." Truman rejected this nevertheless and sent Congress a defense budget request in January 1949 for just $13.399 billion. This included $4.347 billion for the Navy and called for 292 combatants, 8 attack carriers, and 14 carrier air groups.[93]

Declining defense budgets limited options for planners, which intensified the split between Navy and Air Force strategic views. JCS planners struggled throughout 1948 to complete a plan without national guidance for wartime objectives or a policy on the use of nuclear weapons. Truman reserved to himself decisions to employ atomic weapons, but in July 1948, Forrestal instructed the JCS to prioritize nuclear war plans over conventional ones. He nevertheless shared the Navy's skepticism. In October 1948 he asked the JCS to assess whether the U.S. could wage a successful strategic air offensive against the Soviets and what the effects of it would be. Vandenberg reported in December that the Air Force could launch a nuclear strike as planned but Denfeld challenged the conclusion. The JCS Joint Intelligence Committee backed the CNO in April 1949, suggesting such a strike would not likely prevent Soviet forces from overrunning Western Europe, the Middle East, and Far East. Eventually, however, it would halt their advances and force them to postpone or cancel further operations.[94]

1949: Revolt of the Admirals

Forrestal left office before he could act on these reports. Exhausted by the demands of his job, Truman replaced him in March 1949. He remained a staunch Navy supporter but felt let down by the unwillingness of its leaders to accept interservice compromise. Among all of the Navy's immediate postwar force planning challenges, Forrestal likely contributed the most lasting change. Frustrated by his inability to tame service rivalry, he had recommended revisions to the National Security Act which Truman forwarded to Congress in March 1949. Following Congressional approval, Truman signed the amended National Security Act on 10 August 1949. It gave the SECDEF unambiguous authority to direct the executive Department of Defense and downgraded the services to military departments in it. The service secretaries lost their right to make recommendations directly to the President (but they could still do so to Congress). It also formally created the position of the chairman of the Joint Chiefs of Staff (CJCS) to preside over the JCS. These changes closed loopholes left by the original legislation and firmly interposed the OSD and CJCS between the SECNAV and CNO and the President and Congress on strategic, budgetary and force planning matters.[95]

Forrestal's replacement, Louis Johnson, had directed an aircraft manufacturer during the war and supported Truman's 1948 reelection campaign. Vain and egotistical, Johnson committed to Truman's budget austerity.

Among his first acts in April 1949 was to ask General of the Army Dwight D. Eisenhower, who temporarily presided over the JCS at Truman's request, to evaluate building the *United States*, for which the keel had just been laid at Newport News Shipyard. Both the Army and Air Force argued that the ship duplicated existing land-based air capabilities and Johnson canceled it on 23 April. It is not clear if he read Denfeld's supporting statement. After Truman backed Johnson's decision, SECNAV Sullivan resigned. In July 1949, Johnson proposed a revised Navy force structure of 238 combatants and four carriers. Denfeld protested that this would reduce offensive naval power below that needed for sustained operations during the crucial beginning of a war, limit the U.S. use of the seas, and eliminate the Navy's ability to project force into Europe or the Eastern Mediterranean, freeing the Soviets to concentrate against the United Kingdom. Johnson relented somewhat and raised the Navy's carrier allotment back to six (later seven).[96]

The keel plate of USS *United States* (CVA-58) being laid in a construction dry dock at the Newport News Shipbuilding and Dry Dock Company shipyard, Newport News, Virginia, 18 April 1949. The carrier was cancelled a few days later, on 23 April. (NARA, 80-G-707176)

The Navy–Air Force debate became a public spectacle in August and October 1949, when Vinson's House Armed Services Committee held hearings sparked by anonymous allegations of fraud (lodged surreptitiously by two Navy Department employees) in the acquisition of the B-36 heavy bomber. It also looked into the cancellation of the *United States* and the interservice strategy debate. Radford, who had left OPNAV to take over as Commander-in-Chief, U.S. Pacific Fleet (CINCPACFLT), and Burke coordinated the Navy's participation. The first set of hearings uncovered the Navy's role in instigating them and found no malfeasance in the B-36 program. Faced with a public relations debacle, Radford's testimony in October effectively critiqued the B-36's operational performance and the limitations of an "atomic blitz" strategy while promoting the merits of naval aviation. To the consternation of SECNAV Francis Matthews, Denfeld backed Radford and spoke out in support of carrier aviation. With the approval of Truman and Johnson, Matthews relieved Denfeld as CNO on 28 October 1949, ending what was later called "The Revolt of the Admirals." Vinson's committee concluded in February 1950 that the B-36 program should proceed as planned. While deploring the handling of the *United States*' cancellation, it did not call for reinstatement. It also determined that the JCS structure did not allow adequate consideration of all service views and sponsored legislation to limit the CJCS to a two-year term and to add the Marine Corps Commandant as a member. Barlow credited the Navy's vocal defense of naval aviation as instrumental in changing minds in Congress in favor of retaining carrier air power.[97]

In December 1949, the JCS approved war plan Offtackle, which reflected the strategic limits imposed by budget constraints, and remained in effect until 1952. It had been developed under political guidance from National Security Council (NSC)—NSC 20/4— requested by Forrestal in mid-1948, that defined U.S. war objectives as eliminating Soviet power beyond its borders, destroying its military-industrial capability to wage aggressive war, and impairing the ability of the surviving regime to defeat its internal rivals. The plan called for an offensive in Europe while standing on the defense in Asia. It built upon a strategic bombing offensive using 292 nuclear weapons launched from bases in the United Kingdom, Northwest Africa, and Okinawa. A lack of forces precluded a defense of the Eastern Mediterranean, but all effort would be made to hold the Western Mediterranean and a bridgehead in Europe. The Navy wanted to mobilize 16 carriers within three weeks of the outbreak of conflict, but the Army and Air Force would only agree to 10. It also wanted 15 light and escort carriers to support amphibi-

ous operations, but the other services believed it only needed one of each. The plan estimated that an invasion to regain Western Europe would take two years to prepare.[98] Faced with interservice opposition to its role in the strategic air offensive, the Navy began to reconsider its warfighting concept. An August 1949 OP-55 (Air Warfare Division) study determined that Soviet air power posed a greater immediate threat than submarines, especially to U.S. naval forces deployed in the Mediterranean. To overcome land-based air forces, Navy carrier groups needed large numbers of high-performance aircraft to attack Soviet air bases. The OP-55 study provided a justification for large aircraft carriers not based on nuclear strikes. It proposed building a *Midway*-size carrier or converting an *Essex*-class carrier to flush-deck configurations, signaling a potential way forward in force planning.[99]

Conclusion

Under-resourcing left an aging Navy of just 148 commissioned combatants by 1933, well below limits imposed by international treaties. Between 1933 and 1938, Congress and President Franklin Roosevelt authorized increased funding for the Navy to build up to these limits. This permitted CNOs William Pratt and William Standley to acquire the types of ships needed for a balanced fleet capable of executing Navy war plans. By 1938, Congress and Roosevelt agreed to build the Navy beyond treaty limits in response to the deteriorating international security situation. In 1940, Congress funded a true two-ocean fleet. CNOs William Leahy and Harold Stark continued to build a balanced fleet to execute revised strategic plans that forecasted a global conflict.

Between 1942 and 1945, Congress provided essentially open-ended approval to build a fleet limited only by shipbuilding capacity and available materials and personnel. While Roosevelt preferred to prioritize strategic short-term needs, such as antisubmarine escorts and landing ships, CNO Ernest King pursued construction of a balanced battle fleet, replacing battleships with aircraft carriers (and their air wings) as the main capital ship. This yielded a Navy of unprecedented size, 1,166 major combatants, capable of undertaking simultaneous offensive operations against Japan, Germany, and Italy. This fleet conducted sea control and power projection operations in the Atlantic and Pacific simultaneously, informed by prewar planning using a Mahanian warfighting concept adapted from prewar experience. This enabled the Navy to defeat its adversaries and to establish unquestioned control of the world's seas.

After 1945, the Navy's plans for a robust postwar fleet were trimmed by Congress and the President due to the lack of a perceived naval threat. CNOs Chester Nimitz and Louis Denfield sought to preserve a balanced force structure to conduct wartime carrier-based conventional and nuclear offensive strike and amphibious assault missions. Interservice disagreement over roles and missions arising from unification disputes influenced post-war budget allocations, which shrank the fleet to 248 commissioned major combatants, including only seven carriers, by June 1950. Reduced funding curtailed plans for orderly shipbuilding and technological innovation based on postwar changes in naval warfare and strategic war planning.

TWO

The Navy in a Period of Transition, 1950–70

Navy force planning and design experienced a period of transition from 1950 to 1970 with the advent of missiles, jets, and nuclear technology. Lacking a peer naval adversary in the immediate postwar period, the Navy shifted its focus from sea control to power projection in the Korean and Vietnam conflicts, as well as strategic deterrence with the development of nuclear-powered submarines armed with nuclear-tipped ballistic missiles. These years featured a feast and famine cycle of increased funding during wars and crises followed by decreases in times of relative peace, posing difficult block obsolescence challenges. It also marked the zenith of postwar Navy long-range planning during the mid-to-late 1950s, followed by its gradual decline in influence though the 1960s.

Despite the lack of a peer naval competitor, the Navy doubled down on its commitment to the capital ship in the form of the first generation of "supercarriers," which the President and Congress supported in the face of the seemingly imminent and growing threat posed by Soviet military power. Navy leaders continued to seek a balanced battle fleet architecture centered on the fleet carrier as the capital ship, the number of which determined the size and composition of supporting forces. The success of nuclear propulsion drove interest in employing it across as much of the Navy as possible, but the expense, along with development of increasingly capable, increasingly expensive weapons systems and aircraft led to hard choices.

Complicating matters further was the imposition of strict civilian budgetary control in the form of Secretary of Defense Robert S. McNamara's Planning, Programming, and Budgeting System (PPBS) in the early 1960s, which has dominated the Navy's approach to force design ever since.

This period marked the reassertion of naval aviation's importance following the post–1945 doldrums that accompanied the Air Force's ascendancy. The outbreak of the Korean War reinforced the value and flexibility of the carrier air wing in both the air superiority and close air support roles. However, it also showed that the Navy's contemporary aircraft placed aviators at a disadvantage sparking investments to create a fully integrated and multi-layered defensive network with the ships of the task force. The effort evolved throughout the 1950s and 1960s as technologies improved, reaching maturity in the late 1970s with the Outer Air Battle doctrine.

The Eisenhower administration's "New Look" strategy marked a shift in the Navy's nuclear deterrence mission. Carrier aviation's role in strategic nuclear deterrence was reduced in favor of tactical nuclear weaponry deployable by the air wing's fighter and light attack aircraft. Instead, the strategic nuclear mission de-emphasized carrier-based strategic bombers and focused instead on the development of the Regulus cruise missile and the highly successful Polaris submarine-launched ballistic missile that armed the *George Washington*, *Ethan Allen Lafayette*, *James Madison* and *Benjamin Franklin* classes that comprised the "41 for Freedom" fleet ballistic missile submarines. Indeed, Polaris-equipped submarines became a serious competitor with the carriers for funding and shipbuilding. Vietnam, like Korea, vindicated the importance of carrier aviation. The use of carrier aircraft for strike, escort, and air superiority demonstrated the need for adaptable multirole aircraft like the highly successful McDonnell F-4 Phantom II (F4H until the 1962 introduction of the tri-service aircraft designation system).[1]

The Korean War Resurgence, 1950–53

Admiral Forrest P. Sherman (1949–51)

Following CNO Louis Denfeld's relief in October 1949, President Harry S. Truman approached retired Fleet Admiral Chester W. Nimitz about returning. Nimitz declined, recommending his protégé, Admiral Forrest P. Sherman. A career naval aviator and former DCNO (Operations), Sherman had been away from Washington during the so-called "Revolt of the Admirals." On 2 November 1949, he became CNO.[2] He assumed office at a

difficult moment for the Navy and also for the world's geostrategic balance. With the benefit of stolen American nuclear secrets, the Soviet Union had successfully tested its own atomic weapon on 29 August 1949. After several decades of civil war, Jiang Jieshi (Chiang Kai-Shek) and his Nationalist Party fled to Taiwan and its surrounding islands to regroup, while Mao Zedong announced the formation of the People's Republic of China (PRC) on 1 October 1949. For much of the American public, the Soviets had achieved nuclear parity several years before expectations and China had fallen to the communists.[3] The Cold War was heating up.

In January 1950, Truman instructed the secretaries of State and Defense to study the impact of the Soviet nuclear test on national security. Completed in April, NSC-68 reported "ominous trends" in the international situation and advocated for creating "such political and economic conditions in the free world, backed by force sufficient to inhibit Soviet attack, that the Kremlin will accommodate itself to these conditions, gradually withdraw, and eventually change its policies drastically." In particular, NSC-68 called attention to a growing gap in conventional strength, noting that the contemporary capabilities of the U.S. military were insufficient to deter conflict and, in a war, would rely on nuclear strikes and delaying actions until a sufficient military force could be constituted. It called for $221 billion in additional spending to build up conventional forces over the next five years.[4]

In mid-1950, the Navy's active fleet comprised 238 ships, including seven fleet carriers, four light carriers, four escort carriers, one battleship, 13 cruisers, 136 destroyers, and 73 submarines. The majority of the fleet was deployed in either the Atlantic or Mediterranean out of concern for recent aggressive Soviet actions in Europe (the 1948 Czech Crisis and the Berlin Blockade), which had led to the founding of the North Atlantic Treaty Organization (NATO) in 1949.[5] The initial JCS estimate for the forces needed to fulfill NSC-68 called for growing the fleet to 324 active vessels in FY 1954, which would be a 45 percent increase. However, Sherman considered these figures unrealistic under the likely budget despite 324 ships being a shadow of the 1945 fleet.[6]

Despite the NSC's recommendations, Truman and Secretary of Defense Louis A. Johnson at first remained committed to lower defense spending—until circumstances drastically changed their thinking. On 25 June 1950, communist North Korea invaded American-backed South Korea. General of the Army Douglas MacArthur, commander of U.S. forces in the Far East, had only poorly equipped, maintained, and trained Army and Air Force units in Japan with which to respond. The Seventh Fleet in the Philippines

had more striking power in the form of Task Force 77 including *Valley Forge* (CV-45), but was focused on the Taiwan Straits as Truman was concerned the PRC would use the Korean conflict as a distraction to stage an invasion of the island.[7]

To counter aggression in Korea and the perceptions of a growing Soviet threat, Truman reversed course and accelerated spending on defense. His administration sold the NSC-68 vision to raise public support for the increased costs.[8] Congress increased Defense Department funding from $14.3 billion in FY 1950 to $45.2 billion in FY 1951, including three supplementary spending bills.[9] Johnson approved a JCS recommendation to increase the Navy in FY 1951 to 322 major combatants, two additional Marine divisions, and 855,549 personnel. In September 1950, Truman approved NSC-68 as a statement of national policy, and in December he endorsed a Navy buildup by FY 1952 to 397 ships, including nine attack, five light, and six escort carriers, 2 1/3 Marine divisions, and 866,000 personnel.[10] The Navy's FY 1951 to 1953 budgets remain the largest increases in terms of real growth since the end of World War II.[11] Increased resourcing alleviated interservice rivalry somewhat, but debates persisted, especially as the Navy received less funding than the other services. Sherman sought to commission the largest fleet possible, but primarily used the Navy's funds to reactivate, convert, and modernize mothballed World War II vessels rather than order new ships. The number of active fleet carriers grew from reactivations from the Reserve Fleet.[12]

Table 4. Annual Navy Budget, FY 1950–54

FY	Total ($ millions)	Real Growth (%)
1950	4,253	2.9
1951	12,431	122.2
1952	16,170	34.6
1953	12,684	-19.2
1954	9,389	-18.8

Sources: Adapted from: *National Defense Budget Estimates for FY 2023*, table 6-20, 222.

Table 5. Major Navy Combatant Vessels in Commission, FY 1950–54

FY	Total	CVA	CVL	CVE	BB	CA/CL	DD	SS
1950	238	7	4	4	1	13	136	73
1951	342	12	5	10	3	15	209	88
1952	400	14	5	10	4	19	243	105
1953	409	14	5	10	4	19	247	110
1954	406	14	13		4	18	247	110

Sources: Poole, *The JCS and National Policy, 1950–1952*, 71; U.S. Department of Defense, *Semiannual Report of the Secretary of Defense and the Semiannual Reports of the Secretary of the Army, Secretary of the Navy, Secretary of the Air Force, January 1 to June 30, 1953* (GPO, 1953), 174; U.S. Department of Defense, *Semiannual Report of the Secretary of Defense and the Semiannual Reports of the Secretary of the Army, Secretary of the Navy, Secretary of the Air Force, January 1 to June 30, 1954* (GPO, 1955), table 1:Fleet Strengths, 30 June 1954, 160.

The Korean War provided Sherman and Navy planners an opening to push for new aircraft carriers and a large supporting fleet. Navy carriers provided the majority of the close air support for both Marine Corps and Army ground forces in Korea. Fast carrier task forces remained the Navy's primary striking force and organizing principle. In the wake of the so-called "Revolt of the Admirals" hearings, Congress remained interested in funding a new large-deck ship, but Sherman downplayed the matter to avoid antagonizing Johnson and to quietly refine new designs. Sherman presciently persuaded Johnson to fund a seventh operational carrier for full-time deployment in the Western Pacific. In March 1951, Congress authorized the construction of a supercarrier that would become *Forrestal* (CVB-59).[13] The 60,000-ton *Forrestal*-class carriers drew upon the design of the cancelled *United States*. However, the first vessel would not be authorized and funded until FY 1952. To facilitate the NSC-68 buildup, the Navy reactivated ships from the Reserve Fleet and obtained funds in FY 1951 to refit 39 *Fletcher*-class destroyers with 3-inch/50 antiaircraft guns, alter four destroyer escorts to ASW configurations, and convert 33 GUPPY II, snorkel, and radar picket submarines. Overall, Sherman also secured funding for 128 conversions of World War II–era ships for FY 1951 and 1952, including the

extensive SCB-27A *Essex*-class modifications that allowed them to operate jets. He also set the trend for CNOs to request new carrier funding annually after FY 1952.[14]

A view of the reserve fleet laid up at Naval Station, San Diego in the 1950s. The large number of ships built during World War II provided the Navy with a ready reserve to draw from in times of conflict until the 1970s without requiring extensive new construction. (NHHC, NH 80755)

In the autumn of 1950, Sherman lobbied Vinson to dissolve the General Board. A critical component of the pre-World War II force design process, the majority of the Board's functions, had been centralized into OPNAV by CNO/COMINCH Ernest J. King. While the Board had begun to recover a measure of its former talent and brainpower in the immediate postwar years (albeit at more junior levels of O-5 and O-6), it nevertheless now seemingly represented both a duplication of OPNAV's efforts and, due to the "Revolt of the Admirals," a dangerous additional center of power. To regain some of the CNO's authority, Vinson and his colleagues encouraged Secretary of the Navy Matthews to disband the General Board in March 1951. With its dissolution, Navy long-range planning virtually disappeared until 1954.[15] OPNAV's OP-30 (Strategic Plans Division) and the JCS staff had long-range functions; however, both focused on operational plans over longer-range studies during that period.[16]

Simultaneously, Sherman made significant investments in applied science and technology research aimed at several different goals.[17] In 1950, he convinced Truman and Congress to appropriate $40 million (about twice the price of a destroyer) to build a hull for a nuclear-powered submarine in the FY 1952 shipbuilding program. The design, dubbed *Nautilus* (SSN-571), continued to increase in size throughout 1951 and 1952 as BuShips successfully argued to build various components, e.g. torpedo tubes, into the design, aiming for an operational vessel and not just a prototype. The Navy launched *Nautilus* in 1954 with high hopes. While *Nautilus* was under construction, the Navy also experimented with different mission concepts for submarines. Among these were boats specifically designed to destroy other subs by hunting using sonar, the submarine killer SSK type. This proved so promising in wargames and exercises that it essentially replaced all other submarine types in service at that time.[18]

Equally important was Sherman's support for guided munitions research. While the United States had employed a few guided bombs toward the end of the war in the Pacific, the kamikaze campaign against the American fleet off of Okinawa convinced leadership to look into defensive munitions.[19] The Navy, like the other services, invested in multiple missile projects, with the best known and most successful being the Sidewinder air-to-air missile program begun in 1949. The Johns Hopkins University Applied Physics Laboratory had also set up the Bumblebee Project toward the end of World War II to create a rocket-propelled surface-to-air missile. This evolved into what the Navy dubbed the "Three T's"–the Talos, Terrier, and Tartar. While Talos seemed the most promising, the first of the Three T's to complete the research and development (R&D) process and proceed to production was the medium-sized Terrier surface-to-air missile. With the outbreak of the Korean conflict, Navy leadership decided it was worth the risk to deploy Terrier and requested funding to convert *Boston* (CA-69) and *Canberra* (CA-70) into the first missile cruisers (CAG-1/2) in the FY 1952 shipbuilding plan.[20]

Admiral William M. Fechteler (1951–53)

Sherman's unexpected death in July 1951 forced the Truman administration to rapidly identify a replacement. To avoid disrupting the leadership of the newly formed NATO or Korean commands, Truman settled on Admiral William M. Fechteler, the Commander in Chief, Atlantic Fleet. A battleship

officer during World War II, who spent time with the Bureau of Navigation and Bureau of Personnel, Fechteler became CNO on 16 August 1951.[21] His tour started in a better spot than Sherman's. The ongoing Korean conflict ensured that the Navy had important and high-profile missions to fulfill, especially close air support for the Army and Marines. Fechteler also had a great relationship with Secretary of the Navy Dan A. Kimball and good relations with Secretary of Defense George C. Marshall and his replacement, Robert A. Lovett.

Such connections smoothed the Navy's requests for ships, including Congressional approval for a second *Forrestal*-class carrier. Fechteler persuaded Truman that NSC-68's goal of 12 carriers by FY 1952 should be increased to 14, citing air support demands in the Western Pacific and concerns about drawing too many resources away from the Mediterranean. Truman supported him over the Air Force's objections.[22] He also invested in new destroyers and submarines and other modernization and conversion efforts. When the Korean conflict stalemated in 1952 however, Congress scaled back defense spending. Fechteler sacrificed force structure to save funds for the second *Forrestal*-class carrier. He continued to emphasize the balanced fleet, even if the majority of what he could do was protect the gains Sherman had made.[23]

Fechteler did not see newly developed technologies as a panacea, but he encouraged the development of shipborne guided missiles. As OP-30 (Strategic Plans Division) director under Fechteler, Rear Admiral Arleigh Burke established OP-303 to prepare studies on the "potential impact of new technology and guided missiles."[24] Navy leadership granted Sidewinder full program status in 1952, which achieved the first air-to-air missile shoot down of a target in 1953.[25] The first Terriers were deployed aboard two newly converted cruisers for testing, while researchers expanded the missile's capability from beam riding to homing.[26] Talos researchers began work on a pair of variants with extended range and improved flight characteristics, and tested a nuclear warhead-capable prototype.[27] Fechteler similarly supported work on launching guided munitions from submerged platforms. In July 1952, *Tunny* (SS/SSG/APSS/LPSS-282) conducted the first submarine launch of the XSSM-N-8 missile, which was an off-shoot of the XSSM-N-8 Regulus shipborne design. The Regulus I was the Navy's shipborne answer to utilize tactical nuclear weaponry in addition to delivery by carrier-based bombers.[28]

USS *Galveston* (CLG-3) launches a Talos guided missile on 24 February 1959, the first time the Talos was fired at sea. (NHHC, NH 98846)

Navy Force Planning and Eisenhower's "New Look," 1953–61

Admiral Robert B. Carney (1953–55)

Dwight Eisenhower was elected President in November 1952 on a platform of ending the Korean War and reducing military spending. Eisenhower believed that defense expenditures needed to be cut back to ensure economic strength, that the JCS needed to regain their lost public stature, and that parochial service disputes invalidated much of the good that the JCS could achieve.[29] To reduce spending, Eisenhower shifted defense budgeting from short-term priorities to longer investments, relying on the treasury secretary and budget director to rein in expenditures. Simultaneously, Secretary of Defense Charles E. Wilson addressed departmental organization through a blue-ribbon panel under Nelson A. Rockefeller. The April 1953 Rockefeller Committee report recommended further centralizing functions under OSD and removing the JCS from the operational chain of command.

Many of these recommendations were embraced by the subsequent July 1954 reorganization of the Defense Department, although the JCS's operational authority was not impaired.[30] Meanwhile, Eisenhower selected Admiral Robert B. Carney, with whom he had recently worked in NATO, as the next CNO.[31] Carney had served as Denfeld's budget negotiator in the JCS, where he proved an able defender of the Navy's interests in an era of budgetary retrenchment.[32]

The JCS recommended in August 1952 that the U.S. consolidate its overextended forces back to CONUS to create a strategic reserve and instead rely on allied military forces to secure the peripheries, supplemented by Air Force and Navy firepower at friction points. The notion of relying on nuclear weapons to balance out reduced conventional forces emerged after the Soviet Union detonated its first thermonuclear device on 12 August. The Eisenhower administration dubbed this long-haul approach to security a "New Look," and, following the acceptance of NSC 162/2, OSD wrangled with the JCS over how to translate the first offset strategy into force structure.[33]

The Navy immediately considered this translation problematic. Carney and Army Chief of Staff General Matthew B. Ridgway both observed that the New Look strategy overlooked limited wars by depending on nuclear weapons to buy time for mass mobilization. Economizing conventional forces could thus have grave consequences. Nevertheless, planners wanted the Air Force to have 137 wings mostly focused on nuclear-payload delivery. As a result, the Air Force's share of the defense budget peaked at 46% for several years, until the New Look passed out of favor.[34]

Despite these circumstances, Carney secured resources for shipbuilding to maintain the fleet's strength. Following the trend set by Sherman, the CNO requested a *Forrestal*-class carrier during both years of his tenure, which Congress funded. Carney also secured funding for the first conversion of a heavy cruiser to the Talos missile system and kept up a small but steady stream of destroyer construction and modernization. He wagered successfully on the future of nuclear-powered naval vessels. Before the successful tests and exercises with attack submarines and *Nautilus,* he secured support for two more nuclear-powered boats.[35] The force composition was still predicated on carriers, but the surface and underwater fleets were also getting some improved capabilities, in part reflecting the return of long-range planning.

The Korean War revived naval aviation by demonstrating the continued relevance of the carrier air wing to effectively support operations ashore and engage hostile aircraft. Indeed, the Korean War pushed the Navy to rein-

vest heavily in carrier aviation, as better-trained U.S. naval aviators flying F4U Corsairs and F9F Panthers frequently found themselves pitted against far more advanced Soviet MiG 15s. The Navy needed to turn to multiple industry partners to rapidly deploy a new generation of combat aircraft to gain and maintain air superiority, and the FY 1954 aircraft building program called for 1,052 aircraft by the end of 1955. Further, Korea showed the astronomical costs of operating prop and jet combat aircraft simultaneously, and encouraged the Navy to focus on developing multirole, all-weather, and guided missile armed jet aircraft (the first largescale effort being the McDonnell F3H Demon) through the 1950s.[36] These efforts eventually coalesced into the development of the highly successful McDonnell F-4 Phantom II starting in 1954.[37]

Following Burke's departure from OP-30, Carney created an ad hoc committee to examine long-range shipbuilding. The committee pulled members from across OPNAV and began work in April 1954. It examined carrier task force composition for the first time since World War II.[38] Carney tasked OP-60 with assessing future responsibilities and providing a strategic estimate; simultaneously, he assigned the chief of naval research to analyze which technologies would likely be state-of-the-art in the next 10 to 15 years, with a special focus on American, allied, and adversary capabilities. The committee took twenty months to complete its final report. It presented the preliminary version to Carney in spring 1955 and briefed the final version in December to his successor as CNO, Admiral Burke.[39]

The committee recommended areas for investment and research for the subsequent "The Navy of the 1970 Era" study. It identified fleet air defense as the most pressing issue. The report recommended fast-tracking long-range air search radar development and Terrier and Talos deployments to the fleet. It also pushed for nuclear-powered submarines and research into nuclear propulsion for surface vessels, especially carriers and cruisers, to cut logistical strings and better deter conflict. The report suggested accelerating the integration of guided missile ships into the fleet through FY 1958. It argued that limited conventional conflicts, especially proxy ones, were most likely—a view directly challenging the New Look.[40]

The study considered the threat of general war for deterrence as dangerous and counterproductive. The committee advocated limiting deterrent forces and emphasizing a strong, balanced fleet capable of meeting any contingency. It conceptualized building around five or more carrier task forces with guided missile-armed escorts and an expanded submarine force. To accomplish this, the committee recommended a shipbuilding and conversion

program between FY 1958 and FY 1967 of 24 aircraft and helicopter carriers (a dozen nuclear-powered); 15 nuclear-powered missile cruisers; 5 battleship conversions to deploy missiles; 15 cruiser conversions to carry missiles; 246 destroyers and escort vessels primarily equipped with missiles; and 27 submarines, chiefly nuclear-powered, with 20 armed with surface-to-surface cruise missiles. It deemed this plan economically viable, coming in at around $2 billion per year. Navy leadership considered this level of investment the minimum necessary to maintain a modern fleet. The proposed program was not internally coherent, however. It had amalgamated projects favored by the various committee members and their officers, who intended the report to begin the conversation about the fleet size and composition.[41]

Several technological development efforts reached fruition during Carney's tenure. Successful tests of new diesel and nuclear-powered attack submarines in exercises in 1954 and 1955 led Navy leaders to revise the size and composition for a new submarine fleet. The Sound Surveillance System (SOSUS)—a product of underwater sound research conducted under the last three CNOs—also came online and rapidly expanded, with the first stations erected in the Pacific in May 1954.[42] Navy leadership declared the SSM-N-8 Regulus (Regulus I and its sub-variants) operational in May 1954 and increased deployments the following year.[43] The Navy began operational testing and evaluation assessment of the Terrier missile system in July.[44] Finally, Talos, the large, long range interceptor missile, made strong progress and Carney sought funds to convert *Galveston* (CL-93/CLG-3) to carry the missile at an price tag of $60 million.[45]

Admiral Arleigh A. Burke (1955–61)

Growing increasingly concerned with interservice fights, Eisenhower replaced Carney after a two-year tour.[46] Seeking reform, Eisenhower worked with Secretary of the Navy Charles S. Thomas to find a suitable replacement. They reached past 92 senior admirals to fleet up a reluctant Rear Admiral Burke to be CNO. Burke had an enviable record, serving with distinction in World War II and participating in much of the Navy's postwar long-range planning. Over Burke's three terms as CNO, the President used him as a sounding board on a range of issues.[47]

Burke arrived in Washington, DC, two months before he was to take office with the purpose of examining all of the Navy's problems. Of import for fleet composition was Burke's study of a core issue at the heart of strategic warfare: delivery of nuclear weapons. He concluded that eventually

On 6 June 1957, President Dwight D. Eisenhower and Chief of Naval Operations Arleigh Burke toured USS *Saratoga* (CVA-60). (NHHC, K-22610)

ballistic missiles would replace bombers. Burke then took that insight further, noting that if land-based launch sites were easily targeted and thus vulnerable, the solution would be a mobile launch platform. He believed the Navy could do that. After speaking with the Navy's missile researchers, he reached out informally to the other services; by promising Navy funds, he secured access to the Army's Project Jupiter ballistic missile.[48]

Burke's arrangements metamorphosed into the Fleet Ballistic Missile (FBM) project, codenamed Polaris. Burke created a Special Projects Office under Rear Admiral William F. "Red" Raborn Jr. that drew resources from across the Navy. The goal was nothing less than a solid-propellant, nuclear-tipped missile with a range of 1,500 nautical miles that could be launched from a submerged submarine, six of which Burke aimed to construct by 1965.[49] This research proceeded quickly and was stimulated further in the wake of the Soviet launch of Sputnik I in October 1957.[50] In November 1960, the first Polaris-armed nuclear submarine, *George Washington* (SSBN-598), went on its initial operational patrol.[51]

Burke argued for "finite deterrence" throughout the remainder of his tenure and eventually suggested that 40 Polaris-armed submarines, each with 16 missiles, were sufficient to deter Soviet aggression and more economically feasible in the long-term than the Air Force's Strategic Air Command. Burke believed, incorrectly as it turned out, that this finite deterrence posture would also free up funds for the Navy to use on preparing for non-nuclear conflicts. Burke's advocacy for trimmed down, Navy-centric targeting priorities provoked heavy opposition, but the Navy ended up with 41 Polaris-armed nuclear submarines in three classes by the mid-1960s.[52]

Despite his emphasis on Polaris, Burke still worked to improve the overall capabilities of the Navy while limited to only receiving about a quarter of DOD's budget.[53] The Navy was also grappling with how to most efficiently integrate into the North American Air Defense System (NORAD) and design a defense in depth for both CONUS and the fleet. Conceptually, the Navy worked to create a layered missile defense network to link a task force's radar with long-range airborne early warning and control aircraft (AEW) and guide both airborne and shipborne missiles to Soviet bomber formations at ranges of 200 nautical miles.[54] Conversely, a 1956 OP-93 (Long Range Objectives Group) report emphasized the belief that shipborne long-range guided missiles should replace long-range carrier strike aircraft, and suggested that carrier air wings instead be dominated by less expensive low altitude attack aircraft. This was followed in 1959 by a report that found Regulus more effective at penetrating Soviet air defenses than carrier aircraft. By the end of the 1950s, Burke cancelled programs including the Martin P6M Seamaster supersonic strategic bomber flying boat and Regulus II cruise missile to reallocate funds to Polaris. The major cost overruns for these systems, both cancelled and approved, sparked calls for fiscal management reform within DOD.[55]

Burke supported the balanced fleet concept. The Navy's perception of international security developments suggested that conventional forces would be just as important as nuclear assets and that Polaris would free up the carriers to focus on power projection. Aircraft carriers remained the center of the battle fleet but the role of their escorts came under review as technology evolved. Rather than the multi-purpose vessels of World War II, destroyers had become defensive assets. Due to cost, the Navy wound up with austere general-purpose destroyers—the *Charles F. Adams* and *Farragut* classes—for its immediate future. However, the start of Tartar missile production in FY 1957 and advances in sonar and antisubmarine weapon systems, especially those capable of deployment from helicopters,

soon resulted in destroyer designs optimized for AAW (anti-aircraft warfare) or ASW fleet escort.[56]

The success of nuclear submarine development led Admiral Rickover to advocate for an all-nuclear navy. Burke discussed nuclear propulsion with him shortly after becoming CNO. Rickover thereafter decided that all future submarines should be nuclear-powered. Rickover was interested in a similarly powered surface fleet, ordering feasibility studies for a nuclear-powered attack carrier, heavy cruiser, and carrier escort, which reported favorably. Burke pushed for prototype nuclear-powered surface vessels in FY 1957, leading to Congressional funding first for *Enterprise* (CVN-65) and *Long Beach* (CLGN-160) in FY 1957, and then *Bainbridge* (DLGN-25/CGN-25) in FY 1958. *Enterprise* was a step-up in size and displacement from the *Forrestal* class and the new conventionally powered *Kitty Hawk* class, which entered service with the nuclear carrier in 1961. However, the newly developed nuclear ships were expensive compared to conventional counterparts. Moreover, issues arose during construction and fighting among competing authorities delayed acquisition until the late 1960s. Through the next decade, Congress and the Defense Department consistently sought options for smaller carriers, delaying new construction.[57]

While not originally responsible for the organization's establishment, Burke's tenure defined the high point of OP-93 (Long Range Objectives Group). Carney established OP-93 in February 1955, but it did not begin operating until 1956. By the time it did so, Burke had significantly enhanced and extended OP-93's responsibilities and clarified and strengthened its organizational position in OPNAV by placing it within the CNO's immediate office. Following several annual Navy Long Range and Mid-Range Objective Statements, OP-93 produced a long-range planning document in 1958 – "The Navy of the 1970 Era." This report divided the next 15 years into two areas of concern, the "ability to deter all-out war," as represented by strategic forces, and the assumed externality that "the more certainly we can deter all-out war, the more certain the threat of limited aggression will become." To achieve those goals, the authors advocated for a Navy larger than 900 ships with approximately 7,000 aircraft. The report repeated Burke's recommendation that a "long-range force level for fleet ballistic missile submarines [should be] forty by 1970."[58]

"The Navy of the 1970 Era" assumed likelihood of more frequent limited wars naturally necessitated a fleet capable of simultaneously asserting sea control and projecting power ashore. After detailing the size and importance of the ASW-focused "shield," it advocated for the "point of the spear"

to be six surface striking forces composed on the average of 14 ships each: two carriers, three guided-missile cruisers, and nine guided-missile frigates. The report stated that at least two of these six forces should be fully nuclear powered and that the force required 12 "modern, postwar attack carriers by 1970."[59] "The Navy of the 1970 Era" provided the next major set of guideposts for Navy force design and long-range shipbuilding. It also arrived in tandem with a three-year study on creating a nuclear-powered fleet which proposed all-nuclear task forces consisting of an attack carrier, two guided-missile cruisers, and three frigates.[60]

Despite these plans, the pace of shipbuilding slowed in the mid-to-late 1950s as the Navy cut back funding for new escort vessels to afford carriers. Eisenhower and Congress continued to tighten defense spending, placing the Navy in a bind even as Burke sent OPNAV personnel to Congress to testify about the aging fleet and its inadequacies to meet current needs. In 1959, Burke reported that "the rate of significant [readiness] failures in major combatant ships has tripled since 1955. In the [fiscal] year ending October 1958, 61% of ships inspected . . . were found unsatisfactory. Over 80% of the active fleet are World War II ships."[61] This report, in conjunction with data presented to Congress, proved persuasive to SECDEF Neil H. McElroy. At his recommendation, SECNAV Thomas S. Gates Jr. assembled the Blewett Committee to review the obsolescing fleet, especially destroyers. The committee recommended four options to McElroy, who approved a modernization scheme. To affect this plan, Burke freed up funds for a Fleet Rehabilitation and Modernization (FRAM) program beginning in November 1958, with a particular focus on the fleet's ASW destroyers. Congress funded FRAM from FY 1960 through FY 1963, which modernized equipment and extended hull lifespans for 255 World War II–era destroyers. However, FRAM siphoned resources from elsewhere in the fleet, especially the destroyer escorts.[62]

In tandem with FRAM, Burke also worked to incorporate newly developed technologies into the fleet. In April 1956, Burke authorized BuShips to develop the Naval Tactical Data System (NTDS), an advanced digital system to plot, coordinate, and track air battle intercepts in real-time. Researchers started testing NTDS at the Naval Electronics Laboratory in April 1959 and Burke's successor as CNO, Admiral George W. Anderson Jr., approved the NTDS for service-wide use in 1963.[63]Another aspect of the systemic technological change revolved around the switch from guns to missiles in Navy surface warships. Terrier, Talos, and Tartar successfully bridged the transition the valley of death between prototype and mass production, and

planners incorporated the weapon systems into new ship designs. Those designs favored all-missile escort ships that could protect task forces from aerial assaults and, depending on armament, engage other hostile forces with conventional or nuclear surface-to-surface munitions. In December 1959, the Navy commissioned *Dewey* (DLG-14) as its first all missile surface combatant, which was followed by several guided missile cruiser conversions.[64]

Despite his successes in modernizing the Navy, Burke was confronted by challenges to his operational authority as Eisenhower and Congress pursued further DOD reform, this came as a consequence of unresolved interservice debates over roles, missions, and budgets; differing concepts of nuclear strategy; and competing weapon development programs. Following Reorganization Plan No. 6 in 1953–54, Eisenhower wanted further restructuring to centralize authority within a DOD general staff, which Burke resisted throughout 1957–58 using OP-06 and help from Representatives Carl Vinson and Paul J. Kilday. He was able to slow the attempt, but not beat it. The 1958 reorganization, among other things, gave the SECDEF greater power and stripped the service chiefs of their direct authority over operational forces. Burke's long time in office and prestige shielded the CNO position from instantly losing power, but the Navy would lose considerable control over its long-range planning, R&D, budget, and force design.[65]

Admiral Burke's tenure as CNO was a dynamic inflection point that saw the Navy actively plan for the future and grow the capabilities and sophistication of its platforms and technology even as the fleet and CNO's operational authority shrank. At the start of his first term, the Navy had 15 attack carriers in commission, which increased to 16 in October 1955 with the commissioning of *Forrestal*. The supporting battle fleet consisted of 3 battleships, 9 antisubmarine warfare carriers, 17 cruisers, 249 destroyers, and 109 submarines. The first missile-armed surface vessel entered service in 1955 and the first nuclear-powered vessel, the prototype *Nautilus*, began a series of key exercises. In total, the Navy had about 1,030 ships in mid-1955. By the end of Burke's time, the fleet had shrunk to 819 ships. However, its composition and capabilities had also radically changed. In 1960, the first nuclear-powered, armed submarine was ready for deterrence patrols, and in 1961, the Navy commissioned the first nuclear-powered carrier and cruiser. To protect these new units, the Navy laid down 40 new guided missile escorts. Finally, new enabling technologies like digital computing worked their way into the fleet. In short, Burke's time as CNO was one of dramatic change for the Navy's forces.[66]

Navy Force Planning in the McNamara Reform Era, 1961–69

John F. Kennedy ran for President in 1960 on a platform criticizing Eisenhower's New Look. Concerned that the United States was entering a period of increasingly uncertain risk, he wanted to improve the effectiveness of the armed services without appreciably expanding the budget.[67] To lead this reappraisal, Kennedy selected Robert S. McNamara as Secretary of Defense. An adherent of statistical analysis-based management, McNamara had served in the Army Air Forces during World War II and had recently become president of Ford. He soon became the dominant voice among Kennedy's national security advisors and together they crafted a doctrine of "flexible response." Instead of relying on the threat of a nuclear conflict to deter the Soviets, flexible response emphasized tailoring conventional forces to graduated levels of escalation. The goal was a nuanced policy of deterrence that could counter aggression through the full spectrum of competition. Achieving this required rebuilding conventional warfare capability, which promised renewed investment in the Navy.[68]

However, McNamara also introduced fundamental defense budgeting and programming reforms that subordinated military force planning to civilian oversight of DOD. Using his "Whiz Kids" systems analysts, direct access to the President, and hardball bureaucratic tactics, McNamara centralized budget decision-making within OSD. He implemented systems analysis through the PPBS to shift the basis for force planning from policy to budgetary and programming management.[69] This diminished the influence of all of the services over force planning decisions. It also tended to limit long-range planning to the Five-Year Defense Plan (FYDP; later renamed Future Years Defense Program) horizon and similarly constrained research, development, and acquisition practices.[70]

McNamara saw a lack of management as the DOD's key problem. The PPBS process was thus intended to remove inefficiencies such as duplication of effort—including R&D project overlap—as well as improving problematic contracting and budgeting practices. The functional result was the centralization of power at the OSD level under the strictest controls. McNamara dominated PPBS decision-making by using data to ascertain what the services were doing and then forcing them to defend their requests using quantitative figures and reasoning. He controlled the process and often overruled the service chiefs. While the notion of budget ceilings had disap-

peared, McNamara solely determined force levels through methodologies like total obligation authority and cost-effectiveness studies.[71]

The services were forced to adopt this system, but integrating it was another matter. PPBS generated a tremendous amount of work for both the CNO and VNCO that could not be easily delegated. In response, CNOs added systems analysts to OPNAV to meet OSD and congressional requirements. Those analyses could be used to debate McNamara in his own language and systems analysis began dominating the planning process through control over program funding. Over time, it displaced the sway of policy planners, bureau personnel, and strategists over Navy force composition. In particular, OSD systems analysts controlled the new FYDP, which accounted for total DOD resources over five years. Force structure was assessed over an eight-year window. Each service's programming beyond the current FYDP was allocated to the next one. Use of the FYDP ensured McNamara's control over PPBS budgeting and force composition, forcing the service chiefs to "unequivocally and enthusiastically" support his final decisions.[72]

McNamara also introduced total package procurement (TPP) in 1964 to handle contracting as a sub-set of PPBS. The Navy had previously divided its acquisition contracts among yards and companies to ensure that each stayed in business and fostered competition while preserving shipbuilding capabilities. Under TPP and its sole-source clause, companies were forced to submit binding bids up front for an entire project—R&D as well as production—which locked acquisition to individual corporations. Up through World War II, the Navy often built prototypes in its own public shipyards, which helped define processes, manpower and material requirements, and costs as well as a comparative means to evaluate the work of commercial yards. Under McNamara's TPP regime, the Navy lost its organic shipbuilding capacity and only the lowest bidder was contracted to build entire ship classes regardless of experience. Further, TPP shifted much of the oversight over shipbuilding analysis and design from the Navy to OSD programmers. Along with the decline in ship procurement and changes in OPNAV and bureau organization, TPP gradually diminished the role of the Ship Characteristics Board (SCB), which would be disestablished in 1970.[73] As a result, TPP sparked a gradual reduction in the number and capabilities of Navy shipyards. It also created winner-takes-all outcomes where losing private bidders risked going out of business, which in turn sparked a gradual reduction in private yards as well. Despite a dearth of shipbuilding following World War II, the Navy had managed to support 11 public and 155 private shipyards. By the 1970s, the Navy's public shipyards stopped

building ships altogether and only nine private yards remained employed on Navy contracts.[74]

McNamara's reforms also had a major influence on naval aviation. Eisenhower's New Look had greatly shaped both Navy and Air Force aircraft inventories at the turn of the decade, with nearly all of them focused primarily or secondarily on bomber interception or tactical nuclear delivery rather than on high performance or multirole flexibility. In line with the Kennedy policy of flexible response, McNamara determined that the best means to affect cost savings was to kill several large programs rather than numerous smaller ones. The Navy thus lost the F6D Missileer and Typhon guided missile. Conversely, McNamara championed the Navy's F-4 Phantom as an excellent multirole platform and ordered the Air Force to adopt it.[75]

Admiral George W. Anderson Jr. (1961–63)

Polaris Missile Launch from USS *Andrew Jackson* (SSBN-619) viewed by President Kennedy on board the USS *Observation Island* (AG-154). (NHHC, L55-15.02.07)

As a key joint staff member for CJCS Radford from 1953 to 1957, Admiral George W. Anderson Jr. was no stranger to Washington, DC, or interservice politics. He was reluctant to accept the CNO position, having just gotten to London for a new assignment and looking forward to a less stressful position. He came into the position with the goal of working collegially with his fellow joint chiefs and McNamara. Miscommunications and missteps early in the administration, for example, the Bay of Pigs invasion, soured Kennedy toward the JCS. McNamara eventually persuaded Kennedy not to renew Anderson as CNO. Anderson used OP-93's long- and mid- range planning capabilities to support key development programs like Polaris and the homing Terrier missile, which became the Navy's Standard Missile-1 (SM-1).[76]

At Burke's recommendation, Kennedy selected Anderson as the next CNO, hoping that his joint staff experience would allow him to rise above perceived service parochialism. In that regard, Anderson was a good choice; however, McNamara's actions throughout his tenure would make his time as CNO the most frustrating and difficult of his naval career.[77] Anderson made great efforts to work with the other services and instructed his staff to be accommodating where possible. He also supported McNamara's argument to Congress that the aircraft carrier requested in the FY 1961 budget should be conventional. In return, the Navy received a slight bump in its initial funding and McNamara supported fully funding the Polaris program. However, the relationship quickly soured. McNamara intended to use Anderson and the Navy to keep Air Force Chief of Staff General Curtis E. LeMay in check, especially regarding LeMay's advocacy for the new B-70 supersonic strategic bomber program. Anderson rejected McNamara's efforts to foster a Navy-Air Force rivalry and aimed to work collegially. He refused to commit the Navy to McNamara's proposed Tactical Fighter Experimental (TFX) project, intended to field a joint fighter aircraft for the services in an attempt to save money through interchangeability.[78]

The program suffered numerous developmental challenges. Anderson managed to slow the project's implementation by various means. His analytical assessment of TFX before Congress challenged McNamara's reputation as an objective leader who relied on scientific methodology.[79] The TFX program became a defining debacle of McNamara's tenure. Codified as the F-111B in Navy service, the aircraft employed new cutting-edge technologies in the form of variable geometry wings, a highly advanced radar and fire control system, and afterburning turbofan engine that McNamara insisted gave it the capacity to operate in both interdiction and strike roles. The TFX's development was undercut by McNamara's complete adherence to systems analysis rather than seeking service input to determine operational requirements or conduct feasibility studies.[80] The centralization of authority into OSD and overreliance on analysis over traditional procurement metrics ensured that a design on paper was seen as sufficient cause for a full evaluation without the need for competing prototypes or fly-offs.[81]

Further, the Air Force and Navy struggled to agree on common requirements. It was predicated on Air Force specifications with Navy modifications, and Air Force leadership gave little credence to Navy concerns about its suitability for both carrier operations and fleet defense.[82] When the Navy informed McNamara that it was impossible to make the F-111B into a carrier fighter, he accused the service's leadership of intransigence. Problems

continued until November 1967 when the dilution of McNamara's authority due to the increasingly controversial Vietnam War allowed the Navy to cancel the F-111B.[83]

Conversely, McNamara allowed each branch to issue requirements for the F-4 Phantom's eventual successor. The Navy began development of the Naval Fighter Attack Experimental (VFAX) in October 1963.[84] Whereas the F-111B was intended as a missile-armed fleet defender, the VFAX was meant to act offensively against enemy aircraft and establish air superiority.[85] In October 1966, Grumman and Hughes submitted a feasibility study for an AIM-54 Phoenix–equipped VFAX that marked the start of the F-14 Tomcat program.[86]

Anderson had little time to pursue force planning. His attempt to adopt Burke's biannual procurement concept and get a nuclear-powered carrier in the FY 1963 budget failed. McNamara relented after Anderson left office and approved funding for a conventionally powered carrier in October 1963. In early 1963, McNamara directed the Navy "to prepare a comprehensive, quantitative study of nuclear power for surface ships" with the goal of increasing Navy efficiency. In April, Anderson and SECNAV Frederick H. Korth recommended that all surface ships over 8,000 tons should be nuclear-powered. McNamara at that time disagreed with the position and so commissioned a follow-on study. That study concluded in September 1963 that nuclear-powered task forces were operationally advantageous. However, McNamara disagreed with those studies, "being 'absolutely certain' that six oil-fired task forces were superior to five with nuclear power." After a visit to a nuclear production plant the following year, though, he revised his opinion and became supportive of nuclear propulsion.[87]

Admiral David L. McDonald (1963–67)

Anderson's clashes with McNamara became legendary within the Pentagon and McNamara, fed up with the situation, asked Kennedy to not renew Anderson's appointment. The President selected Admiral David L. McDonald, who had just assumed the role of Chief of Naval Forces, Europe, as the new CNO. McDonald's noted tact and diplomacy made him an ideal candidate, but he reluctantly accepted the appointment in August 1963.[88] McDonald stepped into an increasingly complex situation. The Navy had around 870 ships and 7,200 aircraft with 664,647 personnel in 1963—within reach of the goals espoused in "The Navy of the 1970 Era"—but Burke's goal of 12 modern carriers out of 15 faced a number of impediments. Amid

debates over nuclear-powered vessels, McNamara chose not to support appropriation for a carrier in FY 1963, but he eventually agreed to support one for FY 1964. McDonald quickly realized that fighting McNamara on the carrier issue was fruitless, despite congressional support. An advocate in the Senate told the CNO, "Admiral, here we are trying to get you to go for a loaf of bread and you're willing to sell out for a slice." McDonald responded, "Senator, we're awful hungry."[89]

Secretary of Defense Robert S. McNamara with Vice Admiral John J. Hyland, Commander, Seventh Fleet, and General Earle S. Wheeler, U.S. Army chief of staff, listen to debriefing of pilots aboard USS *Oriskany* (CVA-34) in the South China Sea on 12 October 1966. (NHHC, USN 1118318)

Following the Gulf of Tonkin incident in August 1964, the U.S. committed ground forces to Vietnam and deployed carriers to provide air support. These operations reminded political leaders of the value and utility of the Navy's force projection capabilities, which in turn generated support for more carriers. Further, design improvements made naval reactors cheaper and more effective, which increased the competitive advantage and feasibility of nuclear carriers. In February 1966, McNamara revised his projected requirement from 13 attack carriers in the 1970s to 15. To fund that, McDonald agreed to retire the nine remaining World War II–era *Essex* class ASW carriers and to allocate their ASW aircraft

to the fleet carriers. His proposal to acquire new nuclear carriers in FY 1967, 1969, and 1971 faced delays, but Congress eventually appropriated funding for the first *Nimitz*-class carriers.[90]

On 22 June 1968, Senator Henry M. Jackson of Washington and Director of Naval Reactors Vice Admiral Hyman Rickover admire steel plate commemorating keel-laying of USS *Nimitz* at Newport News Shipyard. (NHHC, NH 65641)

McNamara's continual efforts to consolidate and centralize control sounded the death knell of the Navy's 124-year-old bureau system. The bureau system had always created a situation whereby the Navy was effectively administrated by mutual consent, as each was an independent organization with its own appropriation lines and connections to Congress. While Burke had acted to reduce some of the bureaus' independence, McNamara went much farther. In 1963, the Navy's secretariat placed the bureaus under the direct supervision of the Chief of Naval Material and reassigned shore-based installations directly to the CNO. Three years later, the bureaus were formally consolidated into the system commands (SYSCOMS), which lacked the same level of independence and Congressional links. The abolition of the bureaus severed multiple links between the Navy and Congress and, in turn, the service's ability to lobby for its priorities.[91]

To keep pace with McNamara's institutional changes, McDonald reorganized OPNAV. He downgraded OP-93, which had lost relevance in the face

of McNamara's institutional centralization, and moved it out of the CNO's immediate office. In the spring of 1964, McDonald created OP-090 (Office of Navy Program Planning) to become home for the Navy's system analysts, entrusting it to Vice Admiral Horacio Rivero Jr., and shifted OP-93 under its auspices. He also relocated the Naval Warfare Group (NAVWAG) from OP-93 to OP-91 (Division of Naval Warfare Analyses), then reassigned the Institute of Naval Studies to the recently established Center for Naval Analyses (CNA). McDonald's reorganization was enabled by his good relations with the new SECNAV, Paul H. Nitze.[92]

The emphasis OPNAV placed on discrete long-range planning reached a low point at this time. Since April 1960, the Navy had created and used only one of OP-93's long-range requirements (LRR) studies: LRR-60 commissioned by Burke in 1959. In the mid-1960s, OP-93 produced a series of assessments that began to replace that study with potentially innovative designs predicated on future weapons and forces. Those efforts led McDonald to break off a part of OP-93 in 1967 and establish the Office of Strategic Offensive and Defensive Systems (OP-97) to directly look into long- and mid-term questions about strategic warfare. Although OP-93 was investigating force design, the rest of OPNAV was in organizational flux as the Navy replicated OSD's systems analysis emphasis—complete with all of its attendant problems. Such studies were now an essential commodity within the Navy as a necessary tool to compete with OSD's authority. While long-range planning could exist in such a world, it faced a perilous existence without clear and consistent support from on high, jockeying for attention with the systems analysts in OP-96.[93]

Under McDonald, Navy researchers evaluated the first generation of guided munitions systems for improvement. The limits of first-generation missiles raised the question of standardization to generate increased capability. Designers had specifically intended for the missiles to engage enemy aircraft. An advanced surface missile system (ASMS) assessment concluded that high-tech adversaries were more likely to use homing missiles, rather than planes. This generated a requirement for a new generation of missiles capable of intercepting other missiles. Ship-launched missiles capable of homing onto targets passively, especially radar stations, would also be of considerable use. This pushed research toward what would eventually become cruise missiles. Navy researchers modified Talos to operate through passive homing, and OSD authorized the implementation of ASMS in 1967, which spurred development of the Aegis air defense system starting in 1969.[94]

McDonald's tenure as CNO ended in mid-1967. He achieved the 15-carrier goal the Navy had sought since the late 1950s. By working with McNamara and Rickover, he had secured the transition from conventional-powered to nuclear-powered carriers although he was only able to secure limited number of improvements to escort ships. Strategic planning still existed under his watch even as the Navy's organizational structures experienced a roller coaster of change. The era of systems analysis had dawned, and the Navy had little choice but to adapt to McNamara's way of thinking. McDonald's plotted course even allowed him to select his own replacement.[95]

Admiral Thomas H. Moorer (1967–69)

President Lyndon B. Johnson elevated a former head of OP-93, Admiral Thomas H. Moorer, another career aviator, to CNO in August 1967. Moorer had to balance Navy support for operations in Vietnam with sustaining a forward-deployed global presence. He sought to maintain American maritime preeminence through consistent deployment of five carrier task groups. Moorer staunchly supported long-range planning and used an August 1969 OP-93 statement as the basis for the Navy's assessment of the future of U.S. naval forces.[96] That debate was of particular import as the fleet was aging while the Soviets had taken a serious interest in building a blue-water fleet. Finally, Moorer sustained guided munitions and sensors R&D with funding toward a newly created program for a Navy anti-ship missile (Harpoon), and to the Aegis program with attendant standard missile variations. Moorer's success as CNO led President Richard M. Nixon to appoint him as Chairman of the Joint Chiefs of Staff in 1970.[97]

When Moorer became CNO in August 1967, he faced challenges similar to those of his predecessor: he had to support the Vietnam conflict and adapt to an evolving Soviet threat. Vietnam consumed a considerable amount of the DOD's resources, so much so that, similarly to Korea, the Navy reactivated parts of its mothballed World War II fleet. This would be the last time the Navy could rely on reactivating World War II–era vessels to fulfill its needs for hulls, e.g. riverine warfare. With the U.S. occupied with Vietnam, the Soviets had modernized their naval forces, integrating nuclear-armed submarines and guided missile-equipped surface ships.

Moorer began a campaign to educate the government and the American people about the threat. In mid-1967, the Navy had 932 vessels; two years later, that dropped to 885, beginning a prolonged slump in fleet size that lasted until the 1980s. As Moorer explained to Congress in January 1969,

"58 per cent of the ships in [the present] fleet were at least twenty years old, while the comparable figure for the Soviet Navy was less than 1 per cent." The average age of the American fleet increased from 14 to 18 years between 1964 and 1968. Moorer did point out that as long as the United States sustained a large aircraft carrier force, then the naval balance of power was in its favor. McNamara continued to request a new carrier every other year to get the fleet to fifteen by 1975.[98]

Despite these statistics, McNamara limited Navy procurement to replacing weaponry and materiel used in the Vietnam conflict. Without new shipbuilding, Moorer was forced to rely on reactivated reserve ships to maintain a fleet rapidly facing block obsolescence. Reactivation costs were at least 10% of a new ship, which ballooned quickly depending on modernization requirements, and a slight modernization extended a ship's service life only five to seven years. To complicate matters, inflation hit the U.S. economy in 1969, causing the real purchasing power of the Navy's budget to decline. That trend continued into 1970, further shrinking the Navy's budget, ensuring that Moorer could not modernize the fleet in the face of an emergent Soviet naval threat.[99]

In April 1969, National Security Advisor Henry A. Kissinger requested an assessment of the Navy's needs on behalf of recently elected President Richard Nixon. Kissinger wanted a comparative analysis of American and NATO naval forces vis-à-vis their Soviet and Warsaw Pact adversaries to set Navy requirements for the 1970s. He directed that the study should conform to current NSC discussions. In response, Moorer tasked OP-93, among other parts of OPNAV, to respond. After intensive work, OP-93 released a Long-Range Objectives/Mid-Range Objectives (LRO/MRO) statement in August that formed the basis of the Navy's response to Kissinger's request. The 1969 study was the last of any note that OP-93 wrote, and "probably the best that the Long Range Objectives Group had produced."[100]

Moorer realized that with funding constrained, any new money would go to building new warships, not logistic support vessels. To confront this conundrum, Moorer ordered the Maritime Sea Transportation Service (MSTS) to conduct a joint study with the Maritime Administration to investigate if the U.S. Merchant Marine might be able to fulfill that role. In 1970, MSTS evolved into the Military Sealift Command and two years later the command embraced its first civilian-crewed Naval Fleet Auxiliary Force ship. The Merchant Marine continues to conduct all maritime logistical activity for the DOD.[101]

While warship construction languished, enough funding was available to ensure that missile research continued. The ASMS program, initiated as a follow-on to the "Three T's," reached key milestones in 1969. It began investigating counter-missile munitions. Navy and affiliated researchers upgraded the Standard Missile to a medium range version with an internal guidance system and a missile/radar data link. The project awarded a contract in 1969 for the Aegis Weapon System to use this missile. The ASMS project also selected a prime contractor for the radar components in 1969—the AN/SPY-1A and derivatives, which would be the core of the evolving Aegis system.[102]

Until 1967, the Navy viewed the strike mission as the purview of naval aviation. After the Egyptian Navy sank the Israeli destroyer INS *Eilat* using Soviet Styx anti-ship missiles during the Six-Day War, the Navy revived interest in ship-launched cruise missiles. McDonnell-Douglas started the Harpoon program in 1969 to utilize technology and experience derived from Talos, Tartar, and Terrier to deliver a 250-pound conventional warhead up to 40 nautical miles. While Harpoon faced opposition from the naval aviation community, the Navy adopted it in 1977, and the missiles became standard armament on surface combatants. This led to reconceptualizing the size of missile-armed ships from "weight-controlled" to "volume controlled." These developments foreshadowed a shift in Navy warfighting doctrine centered on guided munitions.[103]

Conclusion

In the early 1950s, Navy planners pursued a balanced, carrier-centric fleet with a substantial antisubmarine force in line with early postwar strategic thinking. The Truman administration continued shrinking fleet numbers until the outbreak of the Korean War. The conflict presented an opportunity to CNO Forrest Sherman to push to reactivate and modernize large numbers of ships. His successor, Admiral William Fechteler, managed to convince Congress of the need for 14 active fleet carriers.

After assuming the presidency, Dwight Eisenhower changed the planning paradigm to long-term investment and his New Look offset strategy favored nuclear weaponry and the Air Force. Receiving only a quarter of the DOD's budget, CNO Robert Carney sacrificed fleet escort funding to convince Congress to purchase new carriers. CNO Arleigh Burke followed suit, obtaining Congressional support for new fleet carriers and the Navy's part of the nuclear triad, Polaris. Long-range planners under Burke envi-

sioned the force composition and technological requirements of a potential 1970s-era Navy, looking to equip the fleet with guided munitions, nuclear propulsion, and new technologies to increase capabilities.

The Kennedy administration introduced "flexible response" and Secretary of Defense Robert McNamara took advantage of changes enacted under Eisenhower to ensure civilian control over DOD budgeting and programming. While McNamara supported new large carriers and nuclear submarines, he delayed the adoption of nuclear carriers and set the conditions to privatize American naval shipbuilding. His reforms reduced the authority of the CNO and the office holders achieved little throughout their tenure. CNO George Anderson waged and lost a bureaucratic war against him, but the fleet's numbers remained fairly consistent. CNO David McDonald carefully worked to preserve fleet numbers and to lay the foundation for McNamara to accept nuclear carriers. Finally, CNO Thomas Moorer continued the push for nuclear carriers as Vietnam consumed an increasing amount of Navy resources, which led to an inexorable decline in active ships as the last hulls from World War II would be used up in Vietnam and new construction languished.

THREE

From Lowest Ebb to Highest Tide, 1970–90

The period from 1970 to 1990 saw the Navy undergo significant changes as the World War II–era ships that had comprised the bulk of the postwar fleet finally succumbed to obsolescence and post–Vietnam budget cuts sparked intensive debates within OPNAV, DOD, and across multiple presidential administrations regarding the Navy's long-range planning, strategic forecasting, and force design. After a decade of budgetary retrenchment exacerbated by inflation, the early 1980s witnessed a renaissance of the Navy's sense of purpose, articulation of strategy, and access to monetary and political capital that resulted in the 600-ship Navy of the Maritime Strategy. However, this period saw the CNO's authority to affect force design and conduct meaningful long-range planning wane, and it was clear from the outset that the days of Ernest King and Arleigh Burke were behind the Navy. Inconsistent political and budgetary support, the consolidation of power into OSD and the JCS, the imposition of PPBS, and the shuttering of the Navy's organic shipbuilding capacity greatly curtailed the ability of the CNO to direct transformative change by 1970. However, each CNO worked within the confines of the office to effect change on both OPNAV's organization and the fleet's force design.

This period illustrates that Navy force design, acquisitions, and long-range planning were far from the sole prerogative of the CNO and OPNAV.

Instead, these became highly political issues whose success or failure were contingent upon the wishes of innumerable major and minor stakeholders including project managers, the DCNOs, the warfare communities, the CNO, the SECNAV, OSD/DOD, Congress, and individual presidential administrations. As such, until the Maritime Strategy, force design was defined by volatility as the priorities and values of CNOs, SECNAVs, and Presidents were often radically altered or reversed by their successors. The highest levels of continuity were often found at the level of project and program managers, whose terms could last 2–3 times longer than that of a CNO or presidential administration. This created friction between CNOs that wished to affect broad change in relation to their priorities for the whole Navy and program managers that sought every avenue to shepherd and protect their individual projects, such as occurred with Aegis.

Demand for the Navy to serve as the nation's rapid reaction force continued unabated in the face of a shrinking fleet, political and economic headwinds, and a rising Soviet naval threat. Between 1975 and 1984, Navy assets were involved in 58 international incidents, with aircraft carriers playing a part in 35 of them. In turn, this period saw a notable shift in both national security and Navy policy that reemphasized the role of conventional forces in the wake of the nuclear brinkmanship that defined many international incidents in the 1950s and 1960s.[1] While the budget fell from $22.4 billion to $21.7 billion from 1970 to 1971, it grew through the decade to total $47 billion by 1980. However, the real value of this increase was greatly eroded by the decade's persistent annual inflation. Overall, the Navy underwent a major contraction in the number of ships and aircraft in service. From 1970 to 1980, the number of active ships in the fleet dropped from 752 to 530 while the number of combat aircraft dropped from 3,457 to 2,689. In the same time frame, personnel declined from 731,777 to 525,096. However, the 1970s also saw the Navy introduce multiple influential ship classes including: *Nimitz*-class nuclear-powered aircraft carriers; *Spruance*-class destroyers; *Tarawa*-class amphibious assault ships; *Ohio*-class nuclear-powered ballistic missile submarines; *Los Angeles*-class nuclear-powered fast attack submarines; and *Oliver Hazard Perry*-class guided missile frigates.[2] In the field of aircraft, the Navy introduced the F-14 Tomcat, E-2C Hawkeye, S-3 Viking, and the EA-6B Prowler. Other weapons systems included the Mark 48 torpedo, Harpoon anti-ship missile, Paveway II guided bomb, RIM-7 Sea Sparrow, Tomahawk Land Attack Missile (TLAM), as well as Poseidon and Trident long-range ballistic missiles.[3]

The 1980 election of President Ronald Reagan in tandem with the aggressive doctrines developed by CNO Admiral Thomas B. Hayward ushered in the era of the Maritime Strategy. The Reagan administration increased defense spending as part of a strategy reversal from the 1970s by calling for a bolstered U.S. military to not just stop, but roll back a Warsaw Pact invasion of NATO. In 1981, defense spending accounted for $422 billion (FY 2009 dollars) or 5.1% of gross domestic product (GDP), which rose to $495 billion or 6 percent in 1983, and $539 billion in 1985, before gradually decreasing to $514 billion by 1990.[4] However, the concurrent appointment of John F. Lehman Jr. as Secretary of the Navy marked a sea change in OPNAV's independence. Wielding his legal authority as a cudgel, Lehman intruded on the CNO and OPNAV's purview to shape and direct the Navy's programming and acquisitions and brought those tasks within the secretariat. Lehman appended the 15-carrier minimum and overall goal of a 600-Ship Navy as the foundation of the Maritime Strategy. Relative to most postwar SECNAVs and CNOs, Lehman was a savvy and effective political operator who successfully sold the Maritime Strategy to the centers of power in OSD, the White House, and Congress on an iterative basis.

The Gramm-Rudman-Hollings Balanced Budget Act of 1985 and the Goldwater-Nichols Department of Defense Reorganization Act of 1986 were signed into law just as the Maritime Strategy achieved maturity and marked a permanent sea change in the CNO and Navy's ability to independently conduct force design and long-range planning. The Navy, particularly Secretary Lehman, fought bitterly against Goldwater-Nichols up to and beyond its passage into law as an over-centralization of authority into OSD and the JCS. However, Goldwater-Nichols codified the SECNAV as the Navy's sole acquisition authority and limited the CNO as the Navy's force provider. In turn, the SECNAV served as the subordinate interlocutor between OSD and the Navy. OPNAV's loss of programming and acquisition authority in tandem with the mandatory budget cuts imposed by sequestration ensured that it no longer held any control over Navy programming or acquisition.

A Frustrated Visionary: Admiral Elmo R. Zumwalt (1970–74)

No modern CNO entered the office with higher hopes to fundamentally change the Navy than Admiral Elmo "Bud" R. Zumwalt. Zumwalt became CNO in 1970 with the goal of radically changing the Navy's fleet composition, strategic outlook, and approach to long-range planning and force

design. However, by 1974, resistance to his reforms from both within and beyond the Navy ensured that scarcely any of his efforts were made permanent before his retirement. However, Zumwalt's ideas lived well beyond his tenure as CNO. His approaches to long-range planning and building balanced fleets in the face of resource scarcity were resurrected during the 1970s and 1980s.

Zumwalt graduated from the U.S. Naval Academy in 1942 and spent his career largely aboard destroyers. In 1961 he was selected to serve as a Special Assistant to Paul H. Nitze first as Assistant Secretary of Defense for International Security Affairs and later as Secretary of the Navy during which time he became intimately familiar with the development of Navy policy and the inner workings of the Navy Department. In 1965, Nitze and CNO McDonald appointed him the first head of OP-96 Systems Analysis Division with the express task of finding ways to replace the Navy's aging fleet. He oversaw the "Major Fleet Escort Study," which provided the intellectual impetus for the *Spruance*-class destroyers and follow-on studies that led to the Harpoon and Trident guided missile systems. He then took command of Naval Forces Vietnam where he led the Navy's riverine warfare effort.[5]

The Nixon administration came into office seeking radical changes to U.S. defense planning and policy. The 1969 Sino–Soviet split sparked by a border conflict convinced the Nixon administration that the long-standing "two-and-one-half" war strategic concept of simultaneous conflicts in Europe, Northeast/Southeast Asia, and the Caribbean was unrealistic. The administration instead articulated a more limited war concept focused on a major conflict in either Europe with the Soviet Union or in Asia against China with a smaller scale war elsewhere.[6] Compounding the challenge, Secretary of Defense Melvin R. Laird was also required to balance the administration's desire to conclude U.S. involvement in Vietnam, end the draft, and reduce defense spending in the face of vocal opposition from the service chiefs.[7] Laird was committed to maintaining sufficient military forces to provide a credible deterrence while supporting force planning as a means of assessing force and/or crisis response capabilities. He also worked to more directly incorporate the capabilities of reserve forces, allies, and partners to reduce costs.[8]

Zumwalt began his tenure at an acute crisis moment for the Navy, and he perceived the need for radical change. Hundreds of World War II–vintage ships had reached the end of their service lives and needed immediate replacement just as the Soviet Navy closed the qualitative and quantitative gap that had existed since 1945.[9] Egypt's 1967 sinking of the obsolescent

Israeli destroyer *Eilat* using Soviet–made cruise missiles sent a stark message that much of the U.S. fleet was vulnerable to newly developed threats despite FRAM efforts. Further, the demands placed on the Navy to provide constant air and gunfire support off Vietnam accelerated the degradation of the surface fleet.[10] The cost to maintain the Navy's aging and forward–deployed fleet in turn siphoned resources away from designing the next generation of ships and weapons needed to gain and maintain sea control.[11]

The Soviet Union took full advantage of the attritional commitments off Vietnam and applied the lessons learned during the Cuban Missile Crisis to directly challenge the U.S. Navy's numerical superiority and sea control dominance.[12] From 1966 to 1970, the U.S. Navy oversaw the construction of 88 units, while the Soviets launched 209 vessels. By 1971, the Soviet Navy achieved numerical superiority. Zumwalt estimated in July 1970 that the U.S. had a 55 percent chance of winning a major conventional war at sea, which he reduced further each successive year of his tenure.[13] Given the Nixon administration's budget cuts, Zumwalt believed that the only way to free up funds for new ships was to immediately retire World War II fleet and reinvest the savings into the large scale production of inexpensive surface combatants to rebalance the fleet's composition. He accepted that the price for improved Navy effectiveness in the 1980s was to undergo a severe reduction of capabilities in the early 1970s.[14]

To enact his sweeping changes, Zumwalt took advantage of a reconceptualization of the theories undergirding naval power. While the Navy succeeded in waging World War II in line with Mahanian naval doctrine, the rapid postwar ascendancy of nuclear weapons, guided missiles, and increasingly sophisticated electronics fostered an arms race that posed an existential challenge to Mahanian principles of naval strategy and seapower. Strategists and theorists both at the Naval War College and in academia instead emphasized the utility of peacetime sea power for policymakers. Notable among the Naval War College theorists were Rear Admiral Henry E. Eccles and Rear Admiral Joseph C. Wylie Jr. who worked to move sea power from a purely military and/or naval paradigm and re-conceptualize it as an inextricable lever of national power in both peace and war. Eccles notably issued one of the first calls for a discrete maritime strategy in the 1970s stating: "Maritime power is indispensable to the attainment and employment of purposeful 'great power.'" Seapower cannot be understood save as a component of maritime power, and thus, naval strategy cannot stand alone."[15]

Project 60 and Reorganizing OPNAV

Project 60 defined Zumwalt's tenure as CNO and the fundamental changes it entailed became his most lasting legacy on OPNAV's structure and force design. Its name derived from Zumwalt's goal to give SECNAV John H. Chafee and SECDEF Laird a comprehensive plan for Navy reform by his 60th day in office. Project 60 was an all-encompassing document that entailed a major restructuring of OPNAV in addition to laying out his vision to modernize the fleet and maintain a high quality, volunteer force. Zumwalt began work on the concept prior to his tour, assembling a team that included another former Nitze aide, Rear Admiral Worth H. Bagley, to draft it. However, Captain Stansfield Turner, Chafee's assistant, did the initial work due to Bagley's preexisting commitments.[16] Zumwalt gave Turner near carte blanche to write the Navy's strategy and told him that Project 60 was to lay out "what the shape of the Navy should be; its rationale, its definition, its purpose, and its composition for years to come."[17] Project 60 served as the guiding beacon for Zumwalt's term as CNO. Bagley later observed that "there wasn't one single policy paper I can remember in three-and-a-half years in which it wasn't perfectly clear from the Project 60 work the direction of decision that should be taken."[18]

Zumwalt kept the Project 60 effort small to safeguard it against the delays and outside manipulation it would face in the normal policy review process.[19] Rather than message it to OPNAV, Zumwalt directed Project 60 toward Laird and DOD as the final authority over Navy policy changes. It laid out four main missions for the Navy:

- Strategic nuclear deterrence
- Peacetime presence
- Sea control
- Projection of power ashore[20]

As surface warfare officers seeking to rebalance the fleet, Zumwalt and Turner both emphasized sea control as paramount and reoriented fleet requirements away from carrier escort and toward confronting the improved Soviet Navy. Attendant initiatives included the Sea Control Ship, Patrol Frigate/FFG, Captor, reinvigorated missile development, and the greater use of submarines in training exercises.[21] Zumwalt planned to pay for these efforts in large part with the large-scale retirement of obsolescing hulls.[22] He believed that OPNAV's subordination to the PPBS process and the centralization of authority within OSD had deprived it of a guiding purpose and denuded

its ability to plan independently.[23] One goal of Project 60 was to provide the Navy with a clear statement of concept to allow civilian policymakers to better understand the service's missions, purpose, and importance to national security.[24]

Zumwalt restructured OPNAV to improve its overall efficiency and provide dedicated planning support to enact fleet modernization and force design initiatives following years of mounting inefficiencies in personnel, expenses, and redundant work that had all ballooned in the wake of PPBS.[25] Zumwalt established an organizational review panel in OPNAV as well as the Naval Decision Center, a closed forum for the CNO, VCNO, and their staffs. He also created the CNO Executive Panel (CEP), a small advisory group of experts from inside and outside of the Navy that Zumwalt hoped to use as an outside support base for the service after his tenure. To support the CEP, Zumwalt established OP-00K for special projects. Assisted by the Ad Hoc Priority Analysis Group, OP-00K crafted clear statements of the Navy's missions, purpose, and vital importance to inform civilian policymakers.[26]

In March 1971, Zumwalt reorganized OPNAV along the "four forces concept" as first articulated in the 1966 Benson Report.[27] In so doing, Zumwalt reoriented OPNAV away from functional lines and toward the warfare and platform communities each under the control of a DCNO. OP-01 was under the DCNO for Manpower and Naval Reserve, OP-02 was under the DCNO for Submarines, OP-03 was under the DCNO for Surface, OP-04 was under the DCNO for Logistics, OP-05 was under the DCNO for Air, and OP-06 was under the DCNO for Plans and Policy.[28] Zumwalt also elevated the OP-090 Navy Program Planning director to be a principal member of the CNO's inner staff.[29] Historian Thomas C. Hone argued that this move was intended to placate the warfare communities by giving them permanent representation in OPNAV. As a consequence, the directorates effectively became the CNO's staff as OPNAV proved too large and unwieldy for Zumwalt to direct efficiently. In January 1971, he reaffirmed that the DCNOs would retain program management authority, informing them that he envisioned the directorates as a review mechanism to ensure the Navy's resources were correctly allocated to the most capable systems.[30]

Zumwalt appointed Turner to head the OP-96 Systems Analysis division in 1971. Under Turner, OP-96 supplemented the Project 60 paper with the annual "CNO Policy and Planning Guidance" (CPPG, now known as the CNO Navigation Plan or CNOG). The CPPG was a holistic document that summarized the program guidance from OSD, additions or modifications made by the CNO, and national/international trends that influenced stra-

tegic thinking. It ranked the Navy's program areas in order of priority and furnished the programmers with guidance as they prepared their contributions to the CNO's Program Analysis Memorandum (CPAM). In so doing, OP-96 developed a planning and programming process to give the CNO the ability to direct force structure development that mirrored the program objectives memoranda (POMs).[31] He combined OP-92 with DCNO, Naval Material for Programs and Financial Management, which linked the fiscal parts of OPNAV with NAVMAT.[32]

Long-Range Planning

Zumwalt was deeply committed to long-range planning and placed the effort under his direct supervision. He understood how far its importance had fallen over the preceding decade of OSD centralization, remarking that:

> There has been a steady diminution of the power of the Chiefs of Naval Operation over the years. As the Pentagon has become increasingly centralized, a by-product of this centralization has been a steady deterioration in any real payoff for long range planning in the Navy in a bureaucratic sense. This erosion has also driven the long range planning process to be useful only to the CNO in his personal capacity in dealing with a centralized Pentagon and with meetings with the JCS, the Secretary of the Navy, the President, and Congressional committees.[33]

Zumwalt found that the Navy's strategic planning was overly defensive and focused on acquiring a low number of high-end ships that it was consequently risk-averse in employing. He alleged that poorly managed competition between the warfare communities had fragmented Navy thinking and focused it on hardware rather than coherent strategy. Zumwalt believed that there was no bottom line to determine the Navy's ability to execute its missions, and identified the war plans and fleet problems of the 1930s as the last time such an effort was made.[34] This desire to force a shift in Navy thinking was reinforced by what he saw as overcentralization of authority within OSD and OPNAV's subordination to the PPBS process, which he believed had eroded the Navy's readiness and ability to plan for, fight, and win a general war. Zumwalt's organizational strategy sought to reassert OPNAV as the driver of strategic thinking by defining clear missions to better shepherd the Navy's priorities through the byzantine rigor of OSD control.[35]

By 1970, no element within OPNAV could have carried out the kind of planning Zumwalt envisioned. Following the McNamara reforms, Long-

Range Objectives Group (OP-93) became progressively irrelevant as it failed to integrate with the new planning procedures. Zumwalt disestablished it in September 1970. He put its functions into OP-96L, the Long-Range Planning (later Extended Planning) branch of the Systems Analysis division.[36] Zumwalt also established the Navy Net Assessment Group to use systems analysis techniques to gauge effectiveness in responding to the Soviets in multiple warfare and crisis scenarios.[37] A Long-Range Objectives statement was published in 1969, but the effort was officially discontinued in 1971 at Turner's behest, stating it had "become little more than a formality and provided the CNO with little information not available elsewhere."[38] Turner wanted OP-96L to return to the task of selecting and analyzing *specific* Navy problems and developing objectives to solve them in the future, with medium/long range studies only authorized when budgetary changes compelled a reassessment. Redesignated the Extended Planning Branch (OP-965) in late 1971, it lasted until 1978, progressively reduced in size and status until its disestablishment.[39]

OP-96 based its long-range planning method primarily on systems analysis studies that evaluated and justified maintenance of forces, procurement, and development of future weapons systems geared to quickly respond to OSD pressure. Discussions and studies of broader strategy and policy shifted to the OP-603 Strategic Concepts Branch within OP-06, the Office of the DCNO for Plans and Policy. However, OP-603's main task was near-term planning for Navy inputs to the JCS, so their work on strategic issues was limited. Long-range studies conducted by OP-965 focused on resource issues for Extended Planning Annexes and Program Objectives Memoranda (POM), looking at force affordability and manpower requirements for the decade beyond a FYDP. OP-965 also prepared the CNO's annual Policy and Planning Guidance that defined key issues for the POM, as well as the Preview CPAM that provided specific guidance to drive annual warfare area appraisals and other POM-development studies.[40]

Beginning in 1963, all of the principal warfare communities within OPNAV produced their own long-range development and force plans that served as inputs for both the POM and Extended Planning Annex.[41] Zumwalt also supervised an extensive classified study called Project 2000 that included a strategic forecast with a range of alternative futures for use by long-range force planners.[42] This three-volume, forward-looking study sought to identify the trends most likely to affect the Navy through the year 2000. Project 2000 offered a comprehensive long-range assessment of the effect of both available and anticipated technological opportunities and

provided predictive estimates on likely security threats. One of the study's fundamental conclusions was that the Navy of 2000 would be required to carry out the same broad functions of sea control and power projection as it did in the 1970s.[43] However, Project 2000 was neither put into effect nor revisited before CNO Holloway terminated it in 1977.[44]

Force Design

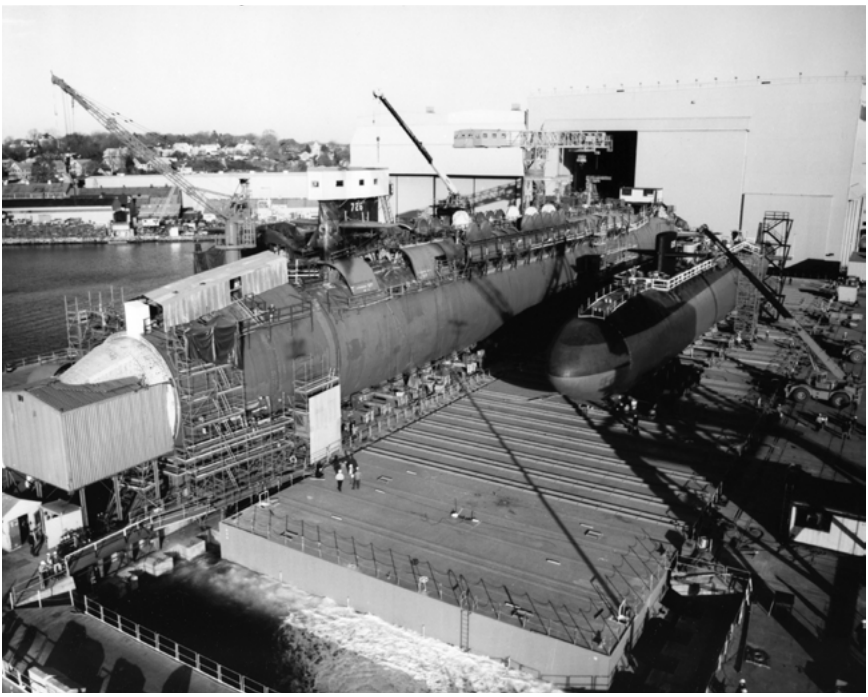
Zumwalt worked to reassert the importance of the surface warfare community and rebalance Navy force planning. His ultimate goal was a fundamental shift in the Navy's thinking from carrier-centric power projection to sea control focused on rejuvenating the surface fleet's numbers and capabilities.[45] Zumwalt had three priorities in modernizing the fleet. The first was his desire to begin the large-scale retirement of the fleet's remaining World War II-vintage vessels to free up funds for new ship construction. This was a delicate balancing act, as he had to reduce ship totals in a way that did not tempt the Soviet Union into provocative actions. Second, he wanted to balance the fleet by supplementing the small number of expensive high-performance ships with a large number of less expensive ones to allow for a global Navy presence. Third, he wanted to determine how to allocate resources so that the enormously expensive strategic forces did not starve the conventional fleet.[46]

Zumwalt first articulated the high-low balanced fleet concept in a 1962 USNI *Proceedings* article.[47] In 1967, as Director of OP-96, he conducted the Major Fleet Escort Study to determine requirements for escorts of various types in the mid-1970s. The study found that a nuclear destroyer cost 2.5 times more than a conventional destroyer and five times more than a frigate/destroyer escort and advocated that the Navy build a minimum of 242 conventionally propelled escorts as the most cost-effective option to improve capabilities. This study highlighted Zumwalt's fundamental argument in favor of a large number of small/austere ships compared to a small number of large/sophisticated ships. In 1972, former CNO Arleigh Burke endorsed this controversial stance, stating that "you need numbers."[48]

The Navy's reaction under CNO Moorer to the increased Soviet threat had been the development of the manpower intensive and technologically sophisticated *Spruance* destroyer and nuclear-powered *California* and *Virginia* cruiser classes for ASW and AAW, respectively. While both excelled at their assigned tasks, they suffered from severe cost overruns. The *Spruance* class ballooned in size, sophistication, and cost to unforeseen levels

with an enlarged crew requirement of 262 to 346 personnel. The price of the *California* class was double that of the *Spruance* class, with each ship costing around $200 million and requiring 603 crew due to intense reactor maintenance requirements. Complicating matters further, these costs were expected to become untenable once the Navy transitioned to a more expensive all-volunteer force. Ultimately, only two *California*- and four derivative *Virginia*-class cruisers were ever completed.[49] Unlike many of his predecessors, personnel costs were a serious consideration for Zumwalt as the end of the draft in 1973 forced a drastic manpower crunch on the Navy and imperiled its reliance on crew intensive high-end platforms. In 1970, the Navy had 731,777 personnel, which dropped to 556,528 by the end of Zumwalt's term in 1974 and bottomed out at 525,096 in 1980.[50]

Zumwalt was also compelled to support expensive improvements to the Navy's strategic assets. In line with the Nixon administration's push in 1971 to dramatically increase strategic system spending for FY 1973, development of the Rickover-championed and Trident missile-equipped *Ohio*-class ballistic missile submarine was approved in December 1972. He assented to the purchase of 30 *Spruance*-class destroyers at $100 million each to start modernizing and growing the fleet. However, even with the *Spruance* class, the Navy still only had 180 of the 250 escort vessels required to affect sea control and faced major budgetary hurdles in closing the gap. While Zumwalt had admired Nitze's push in the 1960s to use the *Knox*-class ASW frigate to round out the low end of the force mix, he believed that the project managers caused the program to bloat immensely, which earned them the sobriquet "McNamara's follies." Additionally, Zumwalt saw the acquisition of the first four *Nimitz*-class nuclear carriers and five nuclear missile frigates championed by Rickover as imperiling the low mix. Zumwalt used similar cost overruns and construction delays for the *Tarawa*-class LHAs as a pretext to reduce the total acquisition package from nine to five ships.[51] In line with the Nixon administration's push in 1971 to dramatically increase strategic system spending for FY 1973, development of the Trident missile-equipped *Ohio*-class ballistic missile submarine championed by Rickover was approved in December 1972, and the first contract issued in 1974.[52] More than twice the size of the 41 for Freedom fleet ballistic submarines they replaced, seven *Ohio* submarines were procured between FYs 1974 and 1979 with the initial procurement estimate of $517 million (in FY 1974 dollars) each.[53]



Trident submarine USS *Ohio* (SSBN-726) under construction. (NHHC, L44-19.08.01)

Beyond the mass retirement of aging ships, the other half of Zumwalt's Project 60 ship development plan was an ambitious effort to provide the Navy with a new generation of technologically innovative combat vessels to rapidly grow the fleet in a cost and personnel effective manner. Project 60 focused on four new ship classes oriented toward sea control that were inexpensive and used existing technologies. On the low end were the hydrofoil, patrol frigate, and sea control ships, while the surface effect ship transport was the high end of the mix.[54] In line with high-low, Zumwalt's sea control ship represented a radical shift away from highly expensive super carriers toward a higher number of smaller ships. Zumwalt initially envisioned it as an austere, 40,000-ton ship with an air wing dominated by helicopters, costing no more than $100 million (in FY 1973 dollars) each. While *Nimitz*-class carriers continued launching through the 1970s, the Navy sporadically revisited the lower-cost medium carrier idea until the 1980s.[55]

However, the only major shipbuilding program proposed in Project 60 that came to fruition was the relatively conventional patrol frigate. Zumwalt directly set the design parameters in October 1971 as costing no more than

$45.7 million each, with a crew of 185, and displacing no more than 3,400 tons. Off-the-shelf weapons and electronics were to be used to conserve space, weight, and costs. Zumwalt also insisted that contracts be structured to the Navy's advantage by preventing a block purchase until all problems were overcome with the initial ships. From the outset, the Patrol Frigate was designed as the low-end counterpart to the *Spruance* and *Knox* classes.[56] The program's tight fiscal management was a major modification to Navy ship procurement and represented Zumwalt's concerted effort to grow the fleet while reducing costs. Prior to the patrol frigate, the CNO issued a list of stated requirements to the Chief of Naval Material (CNM), who then enacted them. However, poor communication between the CNO and CNM defined this arrangement during the design and cost estimate phases. Zumwalt viewed this unstructured and inefficient arrangement as entirely at odds with his goal to "maximize mission effectiveness," and his control over the patrol frigate became a model for future shipbuilding programs.[57]

Interference from Congress over foreign-sourced components imperiled the patrol frigate's economies of scale and timeline with a funding cut from $436.5 million to $186 million and a reduction in the initial order from seven ships to three. Further attacks on the program were led by Rickover and his allies in the House Seapower Subcommittee to redirect resources to the nuclear fleet.[58] Ultimately, 42 ships were authorized over an eight-year period rather than the predicted six years, and the construction period ballooned from five to eleven years for the full production run. Production costs rose from $45.7 million to $68 million each.[59]

Despite this bumpy acquisition period, the *Oliver Hazard Perry*-class frigates performed largely as Zumwalt had envisioned and the class served for over thirty years. The modular design, off-the-shelf components, gas turbine engines, and low crewing requirements kept annual operating costs low. Compared to the $13 million per year needed to operate a *Spruance*-class destroyer, an *Oliver Hazard Perry*-class frigate cost a relatively inexpensive $7.25 million per year. The increased use of automation enabled the Navy to reduce crewing requirements to 208 personnel. Further, the Light Airborne Multipurpose System (LAMPS) III-equipped helicopters fielded by the frigates beginning in FY 1979 provided the fleet with much improved ASW capacity.[60] By 1977, three shipyards constructed the FFG-7s.[61]

Prior to becoming CNO, Zumwalt played a part in promulgating Long-Range Objectives Report 81 (LRO-81) in August 1969 that called for a radical shift in Navy aviation from power projection to sea control. LRO-81 called for large numbers of shipborne ASW helicopters to be deployed

across the fleet, the construction of 12 helicopter–carrying destroyers, and 15 helicopter escort aircraft carrier (CVHE) helicopter carriers to support amphibious operations, convoys, and underway replenishments. Zumwalt believed that the dynamic Soviet shipbuilding program demonstrated how to effectively deploy sea power without investing in very expensive carriers and their air wings. LRO-81 posited that the fleet's existing air defense capacity was adequate, and advocated for the adoption of high-performance multi-role aircraft with all-weather capability like the F-4 Phantom rather than acquiring a dedicated air superiority platform.[62]

Helicopters were a key aspect of Project 60, as Zumwalt saw them as a very low-cost force multiplier to boost the ASW and long-range detection capabilities of nearly every escort ship. The Navy pressed existing Kamen SH-2 Seasprites and Sikorsky SH-3 Sea Kings into immediate service, but Zumwalt approved development of a replacement to carry LAMPS to provide for better ASW capacity. He also adopted the Marine Corps' Sikorsky CH-53 Sea Stallion as a minesweeping platform to cut costs by retiring nearly all dedicated minesweeping ships, which he understood carried major risks by creating a two-year minesweeping gap.[63] Beyond helicopters, Zumwalt also championed the development of high-performance vertical take-off and landing (VTOL) aircraft to operate from the sea control ships, which was pursued with varying levels of enthusiasm until the program was ended in 1977.[64]

Despite his misgivings, Zumwalt as CNO understood the importance of fixed-wing carrier aviation even as it frequently threatened his efforts to find cost savings and modernize the surface fleet. One carrier innovation that he wholeheartedly endorsed was a proposal put forward by his eventual successor, Admiral James L. Holloway III, to eliminate the CVA and CVS (antisubmarine warfare aircraft carrier) distinctions and make all fleet carriers into dual-purpose ships with organic attack and ASW capacity. This immediately improved sea control capacity without denuding power projection, as the fleet had twice as many CVAs as CVSs, and it only cost $975,000 to modify each ship. Many in the aviation community resisted this change with the belief that overgeneralizing the carrier air wings would degrade specific mission capabilities, but Zumwalt defended the move by stating that twelve attack carriers were insufficient for the Navy's global mission.[65] In the face of these criticisms, Zumwalt ordered the Atlantic Fleet to conduct a successful proof of concept exercise by holding an air wing exchange between an attack group and an ASW group while their ships were at sea.[66]

The aircraft program that presented the largest financial cause for concern was the Grumman F-14A Tomcat. Proposed in 1966, the F-14 was the culmination of the Navy Fighter Experimental (VFX) program to create an AIM-54 Phoenix-armed air superiority fighter to succeed both the F-4 Phantom and the failed F-111B. The F-14 was a revolutionary aircraft that was the first U.S. fighter to be designed with a fully computer-controlled combat system connected to the Naval Tactical Data System (NTDS) fleet data system aboard ship and the E-2 Hawkeye tactical airborne early warning aircraft via data link. This breakthrough in technology solved the perennial issue of ship-based fighter direction by allowing ships and Hawkeyes to use their powerful radar to vector F-14s to an area and allow them to track up to 24 simultaneous targets. Even without this assistance, the F-14 itself could track and target eight targets simultaneously.[67] While the F-14 cost $14 million each, Zumwalt managed to find cost savings in the reduced number of F-14s needed to match the capabilities of the Navy's F-4 Phantom fleet. In March 1973, he informed Congress that the Navy had calculated that 13 carriers carrying 301 F-14s compared to 16 carriers carrying 903 F-4s created savings of $2.5 billion in procurement costs, $500 million in annual operating costs, and required 17,000 fewer sailors while being more combat effective. Beyond the F-14, Zumwalt found the Lockheed S-3 Viking supremely capable for ASW, but it was overly expensive at $13 million each. The expense caused Congress to question the feasibility of a full production run.[68]

Zumwalt also looked beyond the Navy to the joint level in an effort to reduce costs. He successfully incorporated Marine Corps aircraft within carrier air wings, but enjoyed less luck with the other branches. Navy planners fruitlessly examined if Army helicopters could be used on merchant ships and escorts for ASW with the assertion that they would be useless unless the Navy could deliver them to Europe. He also unsuccessfully worked to incorporate Air Force assets by looking into the feasibility of making its tactical air wings carrier-capable to enable optimal air power for crisis response.[69] However, the request for Air Force strategic bombers to deploy Harpoon missiles and sea mines bore fruit after his tenure with a joint training agreement between the two services signed in 1975.[70]

Zumwalt was very interested in disruptive technologies, particularly anti-ship missiles, as a critical means of improving the fleet's capabilities while mitigating the decreasing number of ships in service. He prioritized cruise missile development for surface escorts, aircraft, and submarines.[71] Upon Zumwalt taking office, Naval Air Systems Command (NAVAIR)

was in the midst of developing the air launched TLAM), which he ordered adapted to the surface fleet and submarine force. He created an office to find and develop technologies to support his goal of a larger and cheaper fleet.[72] This effort was predicated on what Zumwalt deemed the mistaken belief that carrier aviation rendered ship-launched cruise missiles as superfluous. While serving in OP-96, he championed the development of the Harpoon missile, but this was quashed at the time as a threat to aviation. As CNO, Zumwalt resurrected Harpoon's development.[73] This project was a rare case in which Zumwalt and Turner disagreed. Turner viewed this missile's development as an unnecessary diversion of resources from ASW and argued that tactical carrier aviation was sufficient to handle surface combat.[74] Zumwalt also pushed for the development of the Mark 60 Captor deep-water antisubmarine mine to generate further cost and manpower savings on the ASW front by creating minefields.[75]

One of Project 60's largest goals was to centralize all electronic warfare, shipborne communications, and command and control projects under one office rather than leave them parceled out to multiple project managers. Zumwalt championed continual improvements in electronic and acoustic

Artist's conception of an aircraft carrier version of the proposed high-length-to-beam surface effect ship type, February 1976. (NHHC, USN 1165638)

submarine detection to compensate for the ship and manpower shortfalls needed to modernize the fleet. He also encouraged the development of high-energy lasers.[76]

While Project 60 was highly ambitious in mission and scope, it did little in the immediate term to reverse the shrinking fleet that Zumwalt ardently preached against. He found that the cost savings derived from mass retirement of obsolete ships did not fully cover the higher costs inherent to the construction and operation of modern vessels.[77] From 1962 to 1972, the Navy had programmed building 42 ships annually, but the Nixon administration's cuts ensured that fewer than 12 ships were programmed annually between 1968–75.[78] This shortfall was compounded by reduced budgets. The FY 1972 budget was the first to implement the one-and-a-half war concept and showed a major drawdown from the pre-Vietnam force structure including the reduction of four Navy tactical air wings and two aircraft carriers for a total of thirteen flattops.[79] Consequently, over the course of Zumwalt's tenure, the fleet declined from 769 to 512 ships. While he estimated in July 1970 that the U.S. had a 55% chance of winning a major conventional war at sea, he reduced this to a 45% chance in 1971 and gave worse odds when conjecturing on 1972. In a March 1971 letter to SECNAV Chafee, he pessimistically stated that he would give U.S. forces no more than a 35% chance to beat the Soviets in FY 1973, which he reduced to 20 percent if the "tentative fiscal guidance" was not changed.[80]

Table 6. U.S. Navy Active Ship Force Levels, 1970–74

	1970	1971	1972	1973	1974
Carriers	19	19	17	16	14
Cruisers	31	30	27	29	28
Destroyers	155	152	132	139	119
Frigates	47	61	66	71	64
SSN	103	100	94	84	73
SSGN/SSBN	41	41	41	41	41
Command Ships	0	0	0	0	0
Mine Warfare	64	59	31	34	34
Patrol	15	17	16	14	14
Amphibious	97	95	77	65	65
Auxiliary	171	177	153	148	135
Total Active	743	751	654	641	587

Source: Hattendorf, ed., *U.S. Naval Strategy in the 1970s*, xiv.

Zumwalt understood that he had little direct power as CNO to influence the budget imposed by Congress and the Nixon administration. He testified before the Senate Appropriations Committee in March 1971 that he believed the Navy would lose if a war broke out in 1972 and had only a marginal capability to keep the sea lines of communications (SLOC) open.[81] In his memoirs, Zumwalt wrote that Laird reacted to this alarmist testimony with exasperation, saying "you have to at least say, 'or else we escalate to nuclear weapons.'"[82] By the end of 1973, Zumwalt's public clashes with the administration regarding force size and his use of Z-Grams to tackle contentious social issues greatly reduced his ability to drive reform. His words and actions were polarizing, and he lost Nixon's favor altogether before his tour ended in 1974.[83] Beyond official resistance, the rise of inflation and a poor economic growth in the 1970s prevented larger-scale implementation of Project 60's initiatives.

Far from being a failure, however, Project 60 laid the groundwork for the Navy to grow and modernize through the end of the 1970s. By the end of the decade, CNO Hayward believed that Project 60 was a misunderstood success that required additional study as he began crafting his own vision to reinvigorate the Navy. Some of its achievements include the mass introduction of ASW and minesweeping helicopters, the shepherding of the FFG program, the development of the *Ohio*-class ballistic missile submarine, the approval of the CV program, employment of nuclear attack submarines as carrier battle group escorts, major investments in Navy guided missile programs (including Trident, Harpoon, and Tomahawk), introduction of Marine Corps squadrons to carrier air wings, development of the Phalanx CIWS, and the development of the Captor sea mine.[84] Project 60 also stimulated improvement in neglected fields like communications, electronic warfare, command and control, and acoustic surveillance.[85] The only Project 60 initiatives that were outright failures were the Sea Control Ship and the Surface Effect Ship, while the VTOL aircraft development program continued until 1978 when it was discontinued in favor of the F/A-18 Hornet.[86]

In turn, Zumwalt's organizational changes to OPNAV remained in force until CNO Admiral Frank Kelso's reforms in the early 1990s. He empowered the DCNOs and warfare communities as separate organizations while also increasing the power of the directorates that reported to the VCNO. From a conceptual perspective, Zumwalt stimulated thinking about naval tactics, strategy, and operations. He elevated sea control, power projection, and peacetime presence as clear aspects of the Navy's mission and

advocated for the Navy with civilian policymakers in clear and understandable terminology.[87]

Holding the Line: Admiral James L. Holloway III (1974–78)

Admiral James Holloway succeeded Zumwalt as CNO in 1974. Holloway graduated from the U.S. Naval Academy in 1943 and served on destroyers during World War II. After the war, he transitioned to aviation and eventually served as commanding officer of *Enterprise* (CVN-65) during the Vietnam War, and DCNO for Air Warfare. In 1968, he established the Navy's nuclear-powered carrier program, and commanded Seventh Fleet during 1972's Operations Linebacker I and II.[88] Holloway was among a short list of nominees selected by Zumwalt to serve as VCNO in 1973 and to "pick up the loose ends" as his successor. While Zumwalt's first choice was Worth Bagley (deemed too controversial by Schlesinger due to his close association with Zumwalt), he approved of Holloway given his effectiveness as a fleet and operational commander and his outstanding staff work at the Pentagon.[89]

Holloway inherited a Navy that was still struggling to meet operational requirements, manage its reduced budget, and overcome dogged social and personnel issues. OPNAV's organization became increasingly byzantine and unwieldy during his tenure. The directorates increased in number and their authorities became muddied as they cut across warfare communities.[90] Further complicating matters, by the mid-1970s, project and program managers had splintered into alternate centers of power within OPNAV. Because platforms, programs, and projects often spanned multiple CNO tenures, experienced managers frequently circumvented CNOs altogether in favor of engaging directly with allies cultivated elsewhere in OPNAV, OSD, and Congress to secure the future of their programs. The most notable instance of this being the program manager for the Aegis Shipbuilding Project, who successfully worked directly with Congress to save his imperiled program. From 1955 to 1973, the various Chiefs of Naval Material created 22 special projects, and by 1976 the average lifespan of projects commissioned between 1955 and 1973 was six years compared to the average four-year term of a CNO.[91]

In 1979, Captain Victor Basiuk termed this conflict between program managers and the CNO as technology push and requirements pull. He stated that technology push usually won out because the Naval Material Command (NAVMAT) never fulfilled its intended role in overseeing pro-

curement and logistics. An Office of Management and Budget (OMB) study found that NAVMAT was incapable of effective planning or policy analysis, that project managers lacked authority to meet goals on their own, and that given the dysfunction line officers regarded positions at NAVMAT and the SYSCOMS as harmful to their careers.[92] In practice this ensured that there was substantial tension between CNOs working to manage the Navy's priorities and plans. At the same time, the CNOS had to diffuse demand signals while answering to OSD and Congress. DCNOs and program or platform managers were often focused on their fiefs to the exclusion (if not detriment) of the Navy as a whole with the same direct lines to OSD and Congress.

Holloway's most immediate crisis was maintaining shipbuilding and fleet modernization in the face of 15–20 percent inflation in the shipbuilding industry, which caused a fourfold increase in costs relative to the 1972 budget request.[93] By FY 1977, shipbuilding and conversion was 18.2% of the Navy's annual budget and 5.5% of the DOD's total allocations.[94] For instance, the cost of an *Ohio*-class submarine rose from $517 million in FY 1974 to $1.24 billion by FY 1980.[95]

Table 7. Cost Growth of Selected Ship Classes

	Baseline Estimate ($ Millions)	July 1976 Estimate ($ Millions)	Percent Growth (%)
***Oliver Hazard Perry* (FFG-7)**	3244.5	9014.8	178
***Spruance* (DD-963)**	2581.2	3810.8	48
***Tarawa* (LHA-1)**	5747.5	9690.8	69
***Nimitz* (CVN-68)**	4010.2	4653.2	16
***Virginia* (CGN 38)**	820.4	1251.7	53
All Classes	89,316.4	127,355.3	43

Source: Adapted from McCaul, *A Study of Ship Acquisition Cost Estimating in the Naval Sea Systems Command*, I–4.

By 1975, the fleet was expected to retire 4% of its inventory annually, and SECNAV J. William Middendorf stated that shipbuilding would have to triple in order to have 500 ships by 1980. While President Gerald R. Ford was committed to revitalizing the fleet, he faced resistance in Congress. In FY 1977, Congress failed to authorize a $1.7 billion allocation for new ships that Ford championed to "maintain maritime defense, deterrence, and freedom of the seas."[96] For their part, many in Congress believed that the Navy's plaintive and constant calls for additional funding in the face of constant cost growth stemmed from the service's own financial mismanagement and overly optimistic initial cost estimates. While Congress conceded that inflation was a key driver of cost growth, the dramatic differences between initial cost estimates and final platform budgets could not be ascribed entirely to it. Indeed, according to a 1977 NAVSEA report on ships acquisitions costs, Congress rebuked the Navy's shipbuilding management stating, "These kinds of cost aberrations, the inability to consistently cost predict, the state of affairs in the shipbuilding industry, etc., have led Congress to declare a 'crisis of naval shipbuilding.'" [97]

The completion of the shift from a Navy-directed ship acquisition strategy to the competitive model begun by Secretary McNamara marked the end of the Navy's direct role in ship construction, which placed the onus entirely on private industry.[98] Naval ship construction increased in complexity at this time to reflect the growing sophistication of the Navy's ships and the weapons systems they carried, particularly with the rise of the nuclear fleet. Yards that built naval vessels were required to employ a much larger number of highly skilled specialists than those that constructed civilian vessels, which caused the industry to bifurcate and silo. This increased technical sophistication forced shipyards to specialize in the construction of a single vessel type, and the overall number of yards involved in naval ship construction contracted. In 1960, there were 14 private shipyards building 83 naval vessels in tandem with construction work conducted at Navy-owned shipyards. By 1975, 90 percent of the Navy's shipbuilding, which comprised 62 of 66 ships, was concentrated in three yards owned by Litton, Electric Boat, and Newport News, with the last ship constructed at a Navy shipyard finished in 1967. The trend was reduced somewhat with a reduction in work orders for civilian ships in the 1970s in tandem with the large-scale purchase of the relatively unsophisticated *Oliver Hazard Perry*-class frigate, which raised the number of shipyards engaged in the construction of naval vessels to nine by 1977. However, Newport News, Electric Boat, and Ingalls alone dominated with 61 of the 88 ships under construction at

the time.[99] The industry employed 175 thousand people in 1977 in tandem with 67,500 public sector employees performing maintenance and conversion work at Navy yards.[100]

Inflation continued unabated into 1975, which put the Navy in the untenable position of contending with uncontrollable cost overruns far beyond the discrete scope of shipbuilding. NAVSEA commander Vice Admiral Robert C. Gooding was blunt in admitting that the Navy was ill-equipped to predict inflationary trends in the broader economy and their ripple effect on the shipbuilding and conversion budget:

> Where we missed the ball badly was in our estimate of future escalation . . . shipbuilding costs, judging by the BLS indexes between 1970 and 1975 went up, I believe, some 52%. Wheat went up three times. Petroleum went up 2.5 times. We did not foresee increases of that magnitude and again, I don't apologize for that because my crystal ball is as cloudy as anybody else's.[101]

Compounding matters, OSD balked at supporting appropriations for ship construction and criticized the quality of Navy ship and weapons designs.[102] The private shipbuilding sector was likewise bedeviled by rampant inflation, labor issues, and material shortages. The three major shipyards engaged in

Table 8. Navy Shipbuilding and Conversion as a Percentage of the Total Navy Budget

Fiscal Year	Dollar Amount ($)	Percent of Navy Budget (%)
1973	2.9 billion	12.8
1974	3.5 billion	14.4
1975	3.1 billion	12.2
1976	3.9 billion	13.6
1976 T *	0.5 billion	7.2
1977	6.3 billion	18.2

Source: Reprinted from McCaul, *A Study of Ship Acquisition Cost Estimating in the Naval Sea Systems Command*, I–3.
*In 1974, Congress passed H.R.7130 - Congressional Budget and Impoundment Control Act of 1974, which moved the start of a fiscal year from 1 July to 1 October, which took effect in FY 77. The line marked 1976 T was a budget supplemental to fund the period of 1 July–30 Sep 1976 that was not covered under the FY 76 appropriations.

overemployment to meet their contracts, but overall there was insufficient work to keep the remaining shipyards at full employment, which fostered labor instability. Exacerbating the issue, the Navy struggled to provide industry with realistic specifications and technical drawings. This ensured that industry suffered cost overruns totaling $2.7 billion by 1977 (Electric Boat had $544 million, while Ingalls had $1.08 billion) which the Navy alone could not settle.[103] Shipbuilding as a percentage of the Navy's overall budget grew progressively over the decade, rising from $2.9 billion, or 12.8% of the overall budget, in 1973 to $6.3 or 18.2% in 1977.[104]

Despite the political and economic pressures facing the contemporary fleet, Holloway and OPNAV were still engaged in long-range force level planning to determine how best to size up the future Navy. Studies were conducted for various force levels of 500, 600, 700, and 800 ships to provide both the Atlantic and Pacific fleets with balanced forces for the full spectrum of naval warfare.[105] OPNAV's studies found that a 500-ship Navy corresponded to retaining the fleet's size at 12 carriers and 40 SSBNs, while the 800-ship Navy corresponded to a JCS recommendation for FY 1984.[106]

The February 1976 request for a five-year $55 billion shipbuilding program saw the Navy at its lowest numbers since 1939, with only 477 ships in service. By comparison, the fleet was comprised of 976 ships a decade earlier at the height of the Vietnam War.[107] Both Holloway and the JCS found the Navy's 1975 force level entirely inadequate for the one-and-a-half war doctrine. Holloway focused on 600 ships as his force planning objective, and DOD issued a report to Congress articulating a need for an additional $90 billion in funding over the next 15 years to allow the Navy to forward-deploy and to maintain its flexibility to respond to global exigencies.[108] At this time, Holloway tried to strike a balance between sea control and power projection carrier assets by simultaneously advocating for 14 fleet carriers and 8 vertical and/or short take-off and landing (V/STOL) support ships, which were a larger development of Zumwalt's sea control ship.[109] However, the 600-ship number was a difficult goal to attain. In his 1977 CNO Report, Holloway stated that the Navy needed to commission 16–19 ships annually just to sustain the FY 1976 level of 476 ships, while 29–31 were needed for the Navy to reach 600 ships by the early 1990s.[110] Beyond OPNAV, Secretary of Defense Schlesinger also set a force design goal of 575 ships, which was amended up to 600 ships by his successor Donald H. Rumsfeld. The programmed FYDP set a goal of 588 ships by FY 1983 and 600 ships by 1985.[111]

Table 9. U.S. Navy Active Ship Force Levels, 1975–80

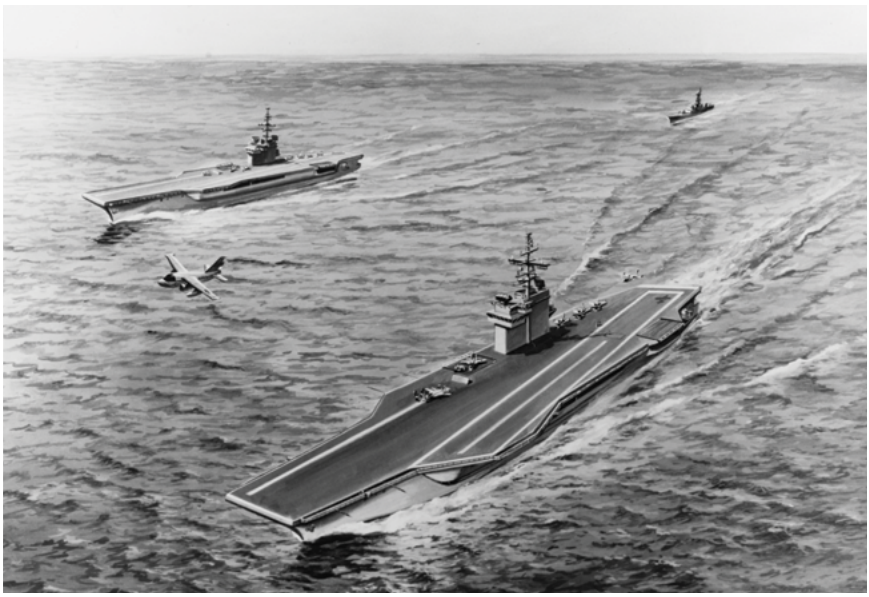
	1975	1976	1977	1978	1979	1980
Carriers	15	13	13	13	13	13
Cruisers	27	26	26	28	28	26
Destroyers	102	99	92	95	97	94
Frigates	64	64	64	65	65	71
SSN	75	74	77	81	80	82
SSGN/SSBN	41	41	41	41	41	40
Command Ships	0	0	0	0	0	0
Mine Warfare	34	25	25	25	25	25
Patrol	14	13	6	3	3	3
Amphibious	64	65	65	67	67	63
Auxiliary	123	116	114	113	114	110
Total Active	559	536	523	531	533	530

Source: Hattendorf, ed., *U.S. Naval Strategy in the 1970s*, xiv.

The FY 1978 budget proposal was the first that incorporated the goal of a 600-ship Navy by 1990. It proposed 25 new ships to be built that year as the first step in a five-year program to build 157 ships while also conducting a service life extension for the *Forrestal*-class. To that end, the administration proposed $6.5 billion for shipbuilding and conversion, a 12 percent increase over the prior year. However, the allocation of only an additional $600 million for cost growth and claims alarmed the shipbuilding industry, which sought at least $2 billion. The Congressional Budget Office (CBO) indicated concern that this discrepancy would imperil the entire five-year program. In its assessment of the Ford FY 1978 budget request, the CBO stated that it signaled the end of the high–low mix that Zumwalt had championed in favor of an overarching emphasis on the acquisition of expensive

new high-end ships. The FY 1978 budget called for the acquisition of two Aegis cruisers, a new class of Strike Cruiser, converting *Long Beach* into an Aegis escort ship, and development of a new class of Aegis destroyer. This budget was unique in that it not only did not propose a *Nimitz* carrier, but asked Congress to instead put funds authorized in FY 1977 toward the development of the CVV class of conventionally powered medium carriers as a less costly means of increasing the overall number of aircraft carriers.[112]

A major influence on FY 1978 budget was a National Security Council report on the future of Navy shipbuilding, which simultaneously justified and undermined the Navy's strategic priorities. The report called for 12 carriers, which was neither as many as the Navy desired, nor as few as some critics called for, but it critically predicated that number on the need to sustain a permanent peacetime forward presence rather than as an exigency to meet wartime requirements. However, it paradoxically posited that the Navy's wartime function was sea control, not power projection ashore, and stated outright that the carriers had no defined sea control role and "may have only a limited contribution to the Navy's primary task" in securing



Artist's conception of the medium-sized, conventionally powered aircraft carrier (CVV) proposed by the administration in 1978 for inclusion in the FY 1980 Navy Shipbuilding Program. This 62,500-ton ship would have had a length of 912 feet and an extreme width of 256 feet. It would have been capable of operating all then-present and planned types of carrier aircraft. (NHHC, NH 88035)

the SLOC. In further downplaying the importance of the fleet carriers, the NSC study called for two CVVs in lieu of acquiring a fourth *Nimitz-class carrier*(CVN -71) in the five-year shipbuilding plan.[113]

At the Navy's request, in 1975 Schlesinger investigated the possibility of making the CVV into a nuclear-powered medium aircraft carrier. This tentative program was dubbed the CVNX. Schlesinger issued requirements that the ship was not to exceed the FY 1970 cost of the *Nimitz* and incorporate new development in command and control, defensive systems, catapults, and elevators. However, studies concluded in January 1976, that the best means of maintaining a 13-carrier fleet was simply buying a fourth *Nimitz*-class carrier rather than undertaking a three-ship class of the medium nuclear carriers. Instead, the Ford administration revived the conventional CVV concept, which was designed to be simplistic and modular with lower manpower requirements, and capability to support light and/or medium attack aircraft.[114] The Ford administration saw the CVV as a further evolution of the Sea Control Ship and V/STOL Support Ship. Centered around a V/STOL air wing, the CVV was to be roughly half the size of a *Nimitz* carrier at 40–50,000 tons. While the CVV would possess catapults for launching, it was designed without arrestor gear, which made it unsuitable for most of the Navy's conventional fixed-wing aircraft.[115]

A Grumman E-2C "Hawkeye" AEW aircraft leads a group of other Grumman- aircraft in formation. At top is an F-14 Tomcat fighter. An A-6E Intruder attack plane is at *left*, and an EA-6B Prowler electronic warfare plane is at *right*. The teaming of the Hawkeye with the Tomcat was fundamental to Navy air defense in the 1970s and 1980s. (NARA, K-116900)

The Soviet naval threat continued to grow with improved conventional and tactical nuclear weapons. For Holloway, the issue of fleet modernization in the face of these challenges eclipsed any effort to continue Zumwalt's initiatives. While Holloway did not scrap Zumwalt's high–low mix outright, he emphasized survivability in a high-end fight. In practice, this resulted in a reassertion of the centrality of capable, but expensive, platforms like the *Ticonderoga, Spruance, Nimitz,* and *Los Angeles* classes even as he also oversaw the serial construction of the *Oliver Hazard Perry* class.[116] Holloway believed that only a fully integrated air defense system could enable the Navy to effect both sea control and power projection against the Warsaw Pact. The cornerstone of his force planning hinged on the rollout of Aegis in tandem with articulation of Outer Air Battle, which was a layered fleet air defense concept centered on the F-14 armed with the long-range AIM-54 Phoenix missile in tandem with E-2 Hawkeyes and shipborne Aegis. Outer Air Battle's goal was not only to defend carrier battlegroups against Soviet bombers and missiles, but also to proactively destroy those airborne assets and permanently remove them from the fight.[117]

However, Outer Air Battle was imperiled by cost and the immaturity of the technology it was based upon. Aegis remained in development, and OSD rejected the expensive nuclear cruiser Holloway wanted to mount it on. This proved an especially difficult challenge to overcome as Admiral Rickover had helped to push a bill through Congress requiring all major combat vessels for the strike forces to be nuclear-powered. In January 1975, Schlesinger decided against requesting funds for Aegis ship construction or conversion. In reaction, Holloway beseeched President Ford to intercede in support of a conventionally powered cruiser. Ford assured Congress that a conventionally powered Aegis ship was needed for the program to survive, and a waiver was granted to develop what became the *Ticonderoga* class.[118]

Beyond Aegis, Holloway also faced adversity in convincing the Ford administration and Schlesinger to support new combat aircraft programs. OSD analysts had convinced Schlesinger that the Navy and Air Force needed to move away from expensive high-performance aircraft like the F-14 and F-15 and focus on cheaper, lighter programs. His solution was to adopt a lightweight fighter for both services to supplement high performance aircraft. However, this was problematic as the aircraft were designed to Air Force specifications, which did not take into account carrier operations.[119] The matter came to a head in April 1975, when Holloway in tandem with Director of Navy Program Planning Vice Admiral Thomas B. Hayward and Naval Air Systems Command head Vice Admiral Kent L. Lee successfully

argued that the F-16 chosen by the Air Force was inadequate for the Navy's needs and were given approval to select what became the F/A-18 Hornet.[120]

The Carter Administration, Sea Plan 2000, and Sea Strike

The election of President James "Jimmy" E. Carter in 1976 placed renewed budgetary pressure on Holloway and the Navy. In February 1977, Carter signed off on Presidential Review Memorandum 10 (PRM-10) that directed a "comprehensive net assessment and military force posture review," and sparked a bitter divide between the administration and the Navy. PRM-10 stated that the Navy's primary mission was safeguarding the North Atlantic SLOC and recommended cutting the number of carriers from 13 to 10. SECDEF Dr. Harold Brown corroborated this opinion, by arguing that the carriers were obsolete in the face of land-based bombers with a standoff range of 1,500 nautical miles.[121] Brown's most pressing strategic concerns were the conventional balance of power in Europe, how to rapidly surge Army and Air Force assets to the continent, and how to leverage technological advances in weapons and electronics to offset the Soviet quantitative advantage. Like Carter, Brown believed that the Navy's primary role in national strategy was to secure the North Atlantic SLOC and escort convoys to reinforce NATO.[122]

By 1978, the fleet had shrunk to 464 active warships, which compelled the administration to take the drastic measure of articulating the "swing strategy" in which the Pacific Fleet would redeploy to the Atlantic Ocean in the event of war.[123] Secretary Brown set the Navy's ship totals at a variable range of 425–500, which reflected the administration's uncertainty about how the fleet was to be used. The high end reflected assessments that focused on a war with the Soviet Union, while the low end reflected assessments that the fleet should only maintain a deterrent edge over the Soviets and concentrate on peacekeeping operations.[124] To counter the administration's ambiguity, Holloway charged OP-06 with developing a statement of the Navy's strategy, which was published as Naval Warfare Publication No. 1 "Strategic Concept of the Navy." In May 1977, Carter announced that he would ask Congress for 160 new ships over five years, however, within a year he had reduced that total by half on the advice of OSD. Carter also called for an organizational review of DOD under the purview of OMB. The Navy viewed this review as an existential threat.[125]

Given concerns about the highly adverse operating environment the fleet carriers would face in European waters, neither Brown nor Carter conceived

of offensive carrier operations as playing a major role in either deterring or contesting a Warsaw Pact invasion.[126] Carter viewed the *Nimitz* class as inordinately expensive and he immediately cancelled funding for a carrier that had been included in the FY 1979 budget. Brown informed Holloway that no new nuclear carriers would be authorized, and any future ones would be smaller and conventionally powered. Holloway disagreed strenuously and articulated his opposition to the administration's decision before the Senate Appropriations Committee. Subsequently, Congress overrode Carter's veto of the defense budget and approved funding for a *Nimitz* carrier in FY 1979 followed by another in FY 1980.[127] In countering Congress and the CNO, the Carter administration endorsed the Ford administration's CVV concept in lieu of additional *Nimitz* carriers, justifying them as a one-to-one replacement for the similarly sized *Midway* class.[128] To further bolster the CVV as a substitute for the fleet carriers, Carter scrapped their exclusively V/STOL air wings and ordered that they be fitted with arrestor gear to operated conventional aircraft.[129] The Carter administration and Congress also tried to cut costs in 1977 by curtailing aviation programs. The F/A-18 program was saved after the head of the Navy Fighter Weapons School praised its effectiveness in testimony before Congress and the subsequent fusion of the separate F-18 and A-18 platforms into one airframe.[130]

In September 1977, Holloway made the decision to restructure the fleet away from being organized by individual ship types to being structured on battle groups and battle forces.[131] He envisioned a battle group of being capable of conducting offensive operations at sea against the full spectrum of maritime threats. It was composed of a carrier, two cruisers, four surface escorts, and one or two submarines operating in mutual support. Using this mutually supportive task force design, Holloway envisioned the Navy's purpose as clearing the way for the other service branches to get ashore and take the offensive while the carrier air wings provided air superiority and power projection ashore. Holloway also changed the rules so that unrestricted line officers could command aircraft carriers, not just those that had aviator credentials. Holloway later called this the most significant contribution he made to the Navy during his tenure as CNO.[132]

Coinciding with Holloway's restructuring of the fleet, he promulgated *Strategic Concepts of the U.S. Navy* in May 1978. Much like Project 60, *Strategic Concepts of the U.S. Navy* was a document geared at both internal and external audiences to socialize the Navy's role in national security. Divided into two parts—Generation of Naval Force Requirements and Planning, Employment, and Readiness Doctrine for Naval Operating Forces—the

Strategic Concepts of the U.S. Navy was intended to overtly tie Navy strategy to national interests and objectives.[133] It was meant to serve as a primer to foster a common understanding of the preconditions needed to generate naval force requirements both within the Navy and beyond to DOD, policymakers and the public. In this document, Holloway advocated striking a balance between meeting contemporary requirements and looking to future needs by noting that improvements to force structure can only occur in a 3- to 5-year span, while modernization requires a decade or more to fully affect research, development, procurement, and construction.[134] Holloway reaffirmed sea control and power projection as the Navy's two basic functions, and reiterated Zumwalt's assertion that sea control was the precondition to the Navy's ability to both enact offensive power projection and logistical support for the other services. Significantly, historian Peter Swartz notes that Holloway intentionally classified sea control and power projection as functions, believing that they had been mischaracterized by Zumwalt as missions when they were in fact the core tenets of the Navy. Instead, Holloway conceived of missions as connected to warfare areas such as ASW.[135]

Beginning in July 1977, SECNAV W. Graham Claytor and Holloway actively countered the administration's SLOC strategy by commissioning a study at the Naval War College's Center for Advanced Research entitled *Sea Plan 2000: Naval Force Planning Study*. This long-range study was conducted using an ad hoc approach that drew upon personnel from OP-965, OP-603, OP-03, CNA and Headquarters Marine Corps (HQMC), as there remained no organization within the Navy specifically charged with long-range planning. *Sea Plan 2000* plotted the same course as Project 60 by making the case for why the U.S. needed a Navy. It explained how the Navy contributed to U.S. interests, the connection between naval missions and national security objectives, and what performance metrics policymakers could expect.[136] The study examined a time horizon from 1978 to the 1990s that predicted the persistence of an unpredictable and volatile international environment and recommended embracing a long-term plan for the Navy's purpose and direction before embarking on force design and shipbuilding details.[137]

Dovetailing with Outer Air Battle, *Sea Plan 2000* was predicated on the Navy's aggressive use of new technology to neutralize Soviet bomber forces before they could fully engage the fleet.[138] The study postulated that analysis to plan for a conflict with the Warsaw Pact could be improved by integrating the results of war-gaming and recent operations. *Sea Plan 2000* examined the availability of Air Force, Army, Coast Guard, and allied air/

naval assets to support Navy operations.[139] The study recommended a fleet structure predicated by ship and aircraft types, numbers, and configurations and proposed a much more aggressive use of Navy forces that included a force structure considerably larger than what the administration had planned.[140] *Sea Plan 2000* countered the administration's naval policy by postulating that taking offensive action against the Soviet Navy would alleviate pressure on the North Atlantic SLOC and put the USSR on the back foot.[141]

Sea Plan 2000 stated that the rise of both Soviet and Third World naval capabilities ensured that the Navy would be constrained in carrying out its wartime mission. It called for a balanced and flexible fleet composition to allow for a wide range of operations, but emphasized offensive systems to sustain a conventional posture against the Soviet Union while offering the President far greater flexibility in crisis response. The planners postulated that the maturation of Project 60 initiatives including CIWS and improved LAMPS, in tandem with Aegis gave the surface fleet increasingly higher survivability.[142] These developments caused planners to become more vocal about aggressively using the aircraft carriers to shape the course of a NATO-Soviet War.[143]

While *Sea Plan 2000* was well received within the Navy, it was met with intense skepticism beyond OPNAV. In 1979, the Government Accountability Office (GAO) published a highly critical assessment. It found *Sea Plan 2000* predicated on unrealistic assessments of Soviet threat potential compared to intelligence reports, and that none of the Navy's force level options were grounded in realistic funding estimates. The OMB's director of national security and international affairs also rebuked the Navy for setting unrealistic goals and priorities. DOD countered by arguing that the GAO's assessment was inherently flawed, as only PPBS could be relied upon to offer an accurate understanding of force planning.[144] Ultimately, *Sea Plan 2000* was a planning exercise designed to sway policymakers rather than a true strategic forecast, and it was never directly applied to programming. However, its intensive methodology answered the existential question of the Navy's utility and helped alleviate pressure from the Carter administration. Further, *Sea Plan 2000* provided some of the intellectual underpinnings for the 600-ship Navy of the 1980s.[145]

In 1977, Holloway also commissioned OP-965 to undertake the Alternative Battle Group Concepts Study (ABGCS). The objective was to examine a wide range of future Navy force structure alternatives at the turn of the twenty-first century with each scenario incorporating identical life cycle cost ceilings to show the comparative value of platforms and systems rel-

ative to the Navy's finite resources. ABCGS employed numerous strategic forecasting methods including scenario forecasting, analytical war-gaming, campaign analysis to craft its recommendations Unlike Sea Plan 2000, ABGCS remained classified and was not disseminated, as it examined multiple force structure alternatives that were a direct threat to the aviation community and the *Nimitz* class that the Navy was stridently trying to convince Congress and the Carter administration to fund. Instead, the recommendations made in the ABGCS echoed those of Zumwalt in calling for alternative force mixes that included small V/STOL carriers and surface effect ships. The ABGCS effort continued into CNO Hayward's tenure. In 1982, the study broadened by looking at additional potential future war conditions, notably nuclear war at sea and the naval forces needed to win in that scenario. Multiple papers and briefings were spun off from the research effort before it ended in spring 1983.[146]

Efforts to counter the Carter administration's naval strategy also manifested beyond OPNAV. Commander, U.S. Pacific Fleet (CINCPACFLT) Admiral Hayward was disturbed that war planning within both Seventh Fleet and the Pacific Fleet was highly limited, overtly defensive, and failed to take into account a confrontation with the Soviet Navy.[147] Hayward was a vocal opponent of the Swing Strategy, as rendering the Pacific Fleet a strategic non-entity. He argued that the Pacific Fleet would be of greater strategic use by attacking Soviet assets in the Pacific to prevent their deployment against NATO and encourage fear in Moscow of a Chinese incursion.[148] Dubbed Sea Strike, his plan transformed the Pacific Fleet into an offensive weapon. Sea Strike was widely briefed and discussed in Navy circles concurrently with Sea Plan 2000 in 1977–78 and became a conceptual root for the Maritime Strategy once Hayward became CNO.[149] In essence, Hayward took Holloway's concept for the carrier battle group and scaled it up to multi-carrier operations.[150] Additionally, Commander, U.S. Atlantic Fleet (CINCLANTFLT) Admiral Isaac C. Kidd Jr. (a mentor to future CNO Admiral Frank B. Kelso, II) argued for aggressive forward-deployed NATO operations in the Arctic Circle off the Kola Peninsula.[151]

Sparking the Naval Renaissance: Admiral Thomas B. Hayward (1978–82)

Admiral Hayward succeeded Admiral Holloway as CNO in July 1978. Hayward enlisted in the Navy during World War II as part of the V-5 aviation cadet program and graduated from the U.S. Naval Academy in 1947.

A career aviator, he served on carriers as well as in shore billets as a flight trainer and test pilot. Hayward commanded *America* (CV-66) and Carrier Air Wing Ten during the Vietnam War and then Seventh Fleet prior to serving as CINCPACFLT. Shore assignments included serving director of program appraisal within the Navy Secretariat in 1971 and director of Navy program planning within OPNAV from 1973 to 1975. He also served on the delegation to negotiate the 1972 Incidents at Sea Agreement with the Soviet Union.[152]

Developing Sea Strike had convinced Hayward that the Navy needed to be revitalized tactically, operationally, and strategically. He echoed Zumwalt in saying that the Navy required a unifying concept around which to plan and program beyond the PPBS process.[153] Hayward advocated a unified Navy effort to support an operational concept and aggressive strategy. Hayward believed that the Navy was overly focused on budget and force structure, which opened it to outside criticism from "academics and others to say the Navy has no strategy."[154] His immediate priorities upon becoming CNO reflected many of the concerns that had been raised in Project 60. He wanted OPNAV to concentrate on articulating the best argument for the Navy's global mission and craft a new maritime strategy. Hayward fundamentally rejected any notion that the Navy's primary role in a war was defensive, and believed it should take an offensive posture with forward deployments. Hayward took a holistic approach to thinking about the Navy's challenges and capabilities and tied operational readiness and capabilities explicitly to recruitment and retention. Hayward believed it was imperative to foster critical thinking in the Navy's officer corps. To that end, he established the Chief of Naval Operations Strategic Studies Group (SSG) at the Naval War College, which was composed of established personally selected officers that were given freedom to choose a curriculum and study complex challenges.[155]

Despite his ambitious goals, Hayward acknowledged the reality of working within the confines of the Carter administration's budget. In testifying before the House Armed Services Subcommittee on Sea Power and Strategic and Critical Materials in February 1979, he conceded that the gap in ship totals between the United States and Soviet Union was unlikely to be remedied in the foreseeable future. He instead promoted maintaining the comparative advantages inherent to the Navy's superior technology, greater strike capabilities, and at sea sustainability in tandem with integrating the capabilities of the other service branches and allied assets. He warned Congress that neither the U.S. nor the Soviets could quickly make

up lost personnel, ships, or planes once war broke out, and the Navy would have to embrace calculated risk in inflicting attrition on Soviet forces while mitigating its own. Hayward declared outright that U.S. dominance of the seas was a matter of survival. On the other hand, he stated that the Soviets did not need to affect sea control, but doing so would vastly improve their strategic advantage.[156] In short, Hayward believed that by 1979 the Navy lacked the numerical resiliency to sustain a protracted general war upon which victory hinged, while the Soviets could wage and sustain one at their discretion.

Hayward determined that 12 large aircraft carriers were the absolute minimum needed for the U.S. to accomplish its global missions and stated that the operational burden on the flattops would only grow once the 1975 shipbuilding program ran its course and fleet numbers again declined. However, he repudiated Zumwalt's high-low concept by arguing that quantity could not be traded for quality in the Navy's ship and force design, and stated that a large fleet composed of inferior ships risked catastrophe if they proved incapable of handling threats. In a direct rebuke of Zumwalt's emphasis on low-end combatants, Hayward argued that it was a fallacious trap to believe that the Navy's future force posture should "rely on many more ships, much cheaper and smaller and less capable."[157]

Instead, Hayward argued for greater use of allied naval forces to boost capabilities, adding increased standoff capability in weapons systems, and the continual incorporation of highly advanced systems into the fleet. He argued against the development of radical platforms and systems, as Zumwalt had, and instead believed that those resources should be placed in areas that offered a readily apparent payoff. He singled out conventional carrier aviation as offering a far greater and safer return than Zumwalt's VTOL experiments.[158] Like Zumwalt, he identified mine warfare as a critical, but neglected, mission.[159]

Hayward believed only a new Maritime Strategy could enact real change. Starting in May 1979, he met with senior admirals to explore how best to counter Soviet threats with an active Navy response that included amphibious assaults against the Warsaw Pact's flanks and an aggressive air campaign to neutralize the Soviet submarine bases in the White Sea. For Hayward, the key concern was to accomplish these goals without resorting to nuclear weapons. However, it would not be until 1982 and the arrival of a new administration and SECNAV that the idea would come to fruition.[160]

Reorganizing OPNAV and Long-Range Planning

Hayward began to reshape OPNAV in the fall of 1978 to provide the Navy with the needed administrative foundation to enact his strategic ambitions. He eliminated the sponsorship of concepts like sea control or power projection within the directorates to preclude them from being appropriated by a single community or platform. In June 1979, Captain Victor Basiuk analyzed how OPNAV determined which R&D and acquisitions projects were prioritized. He described OPNAV as divided in two, with one side organized around platform sponsors and the other around program planning. The platform sponsors oversaw platforms and weapons systems from R&D through retirement, and exercised influence through the Sponsor Program Proposals that detailed required descriptions needed for funding. In practice, this method allowed for a highly fragmented OPNAV to focus priorities, money, and manpower on programs. However, it ensured that only incremental technological improvements occurred, as sponsors often tried to undermine new weapons systems and prevent competition. On the other hand, OP-06, which was tasked with strategic issues, had very little power to influence the development and promulgation of tactical or strategic doctrines. The CNO had the ability to override vetoes cast by the DCNOs (as Hayward did with Tomahawk), but this was the exception to the rule given the CNO's immense number of responsibilities and OPNAV's decentralization. Basiuk determined that the PPBS process was the single most important means by which the will of the CNO was projected into shaping priorities and superseding the informal network of alliances in OPNAV, the systems commands, and NAVMAT.[161] However, in practice, the CNO had little control over ship construction, as a single platform's development could stretch across several CNO tenures.[162]

Hayward looked to fix these discrepancies by shifting OPNAV's focus away from being overly focused on platform and weapons and toward combined missions to facilitate operational and strategic objectives. This required a de-emphasis of the Programming Directorate under OP-090 in favor of the mission-oriented OP-095, which was rechristened the Directorate of Naval Warfare. Hayward assigned OP-095 the task of developing the CNO POM to guide the DCNOs' annual contributions for the Navy's portion of the FYPD. OP-095 was charged with executing the CNO's plans for force planning, fleet readiness, modernization, and strike warfare. The goal of this move was to grant the CNO greater control over the programming process into one over which the CNO had direct control and oriented around real

warfare concerns thereby cutting across the platform gridlock. In short, Hayward wanted to give the CNO the power to initiate and review programs.[163]

Hayward was a major proponent of long-range planning from the outset and looked to Admiral Zumwalt and Project 60 for inspiration.[164] Hayward believed that too much of the Navy's leadership was preoccupied with the budget fights between Navy and OSD that plagued Holloway's tenure. He well understood the PPBS process (and its constraints) following his service as OP-90 Director and sought to liberate strategy from the annual programming fight to provide the Navy with the capacity to conduct meaningful long range planning commensurate to sustain the U.S. as a maritime power. [165] He selected Captain William A. Cockell Jr. as his executive assistant, who had served as director of Zumwalt's CEP. One of Hayward's principal goals was to divorce strategic thinking from the far narrower time horizons inherent to the POM and FYDP. To that end, Hayward and Cockell drafted a classified memo for the Navy's flag officers entitled "CNO Strategic Concepts." This memo became the foundation for how Hayward communicated strategy with the Navy's flag officers and his briefings to the JCS, CEP, and Congress.[166] Like Burke and Zumwalt, in 1978 Hayward reestablished a discrete planning office within the CNO's immediate staff as OP-00X (Long-Range Planning Group).[167] OP-00X was assigned the task of looking for critical technologies that could dramatically affect the force structure and power of the Navy in the twenty-first century. He also echoed Zumwalt in how he used the SSG to simultaneously develop the next generation of officers and hone Navy strategy through war-games that would shape what eventually became the Maritime Strategy.[168]

The Maritime Balance Study was completed in April 1979 and proved highly influential for Hayward's conception of long-range planning and strategic outlooks that were unconstrained by PPBS. The study was grounded in part on the apparent need to counter the increasingly ill-balanced U.S.-Soviet maritime equation and concerns about the Navy's ability to meet its wartime commitments at the national policy, Navy policy, and operational levels within the Navy. The Maritime Balance Study was conceived as an experimental effort to test the application of the strategic planning methods of business to naval planning, and long-range competition as a means to "better manage" the Soviets. It was also charged with developing a broad strategy that examined maritime competition from a long-term perspective, identifying resulting key issues, and pointing out subjects that require execution or further study.[169] One of the study's main conclusions was that the Navy needed to recommit itself to long range planning, with the CNO,

VCNO, and fleet commanders all taking part in that process. It also argued for organizational changes needed to revitalize the strategic thinking organs within OPNAV.[170]

The Maritime Balance Study found that the Navy had elevated PPBS into a strategy in its own right, and that the Navy needed a means for establishing strategic planning that looked beyond the time horizon of personnel rotation and replacement. [171] It stated that a measure of strategic planning was critical for assisting Navy planners in formulating a holistic set of goals, policies, and action plans for the Navy, but that the methodology on its own was incapable of selecting for the CNO "an ideal sort of Navy." It emphasized that the lack of a coherent national maritime strategy deprived the full spectrum of government actors of an understood Navy mission. In turn, the lack of clearly defined missions ensured that the Navy in turn lacked clear objectives and was unable to properly identify priorities and tradeoffs between its mission-specific communities.[172] The study called for a small and bureaucratically unconstrained long range strategic planning group to allow for the examination of strategic alternatives that were not bound to PPBS. This group would develop plans and programs to allow the Navy to react quickly in the event of resource fluctuations, particularly in the event that the service received a major increase in funding, to ensure that the Navy "knows what to do with the funds" to rapidly improve capabilities. In a return to Zumwalt's ethos, the group was to dedicate itself to identifying and applying low-end assets and technologies (including those developed by allies) to accomplish missions typically given to high-end assets.[173]

The Maritime Strategy and the Empowered Secretariat

Ronald W. Reagan's 1980 presidential campaign is uncommon in U.S. political history for incorporating naval concerns overtly into its platform. Reagan stridently criticized Carter's defense policies and embraced a naval strategy predicated on the 600-ship Navy first promulgated during the Ford administration as well as a return to aggressive rhetoric toward the Soviet Union. Sea Plan 2000 also served as a foundational aspect of Reagan's nascent naval policy.[174] He believed that the U.S. and Soviet Union had achieved nuclear parity, but that the U.S. and its NATO allies held the conventional military advantage at sea. Reagan worked to exploit this perceived naval advantage as the best means of countering what he saw as the Soviet Union's conventional advantage on the European continent.[175] The Reagan campaign gathered teams of Congressional and Pentagon experts

to prepare a detailed defense budget and budget supplemental to be sent to Congress immediately upon inauguration, which included building the 600-ship Navy with 15 carrier battle groups.[176] Despite his castigation of the Carter administration's defense policies on the campaign trail, Reagan was able to build off of increased defense spending begun late in Carter's term. By 1979 Carter was committed to a military buildup in the wake of the Iranian Revolution, Soviet invasion of Afghanistan, and Warsaw Pact deployment of SS-20 ballistic missiles. This effort included a larger fleet, the deployment of Trident guided missile submarines, and increased prepositioning of ships in remote locations. Upon coming into office, the Reagan administration conceded that Carter's defense spending was adequate, and Reagan's campaign promise to best Carter's defense spending by 5% effectively gave the DOD a 10% funding increase. While both Ford and Carter had determined that 580 to 600 ships were ideal, by 1980, the fleet remained at 530 ships. However, Carter's 1979 defense budget engendered an increase for the Navy from $41.7 billion in 1979 to $47 billion in 1980. Thus, the Reagan administration was well-placed to build on the foundation that the Carter administration had started in growing the fleet.[177]

Shortly after the election, Reagan's transition team began working with CNO Hayward on requirements to rebuild and reassert of U.S. naval power, as well as the development of a strategy to achieve naval superiority.[178] Hayward was excited by Reagan's election and dedication to rebuilding the Navy without relying on nuclear deterrence as the defense policy backstop. However, Hayward also discovered that Reagan's choice for Secretary of the Navy had a much different conception of the position's role compared to his direct predecessors.[179] Reagan appointed John F. Lehman, who would prove to be the most active, dynamic, and controversial occupant of that office since James Forrestal. Lehman was an aviator in the Navy Reserve who also served on the NSC during the Nixon and Ford administrations as a protégé of Henry Kissinger. He worked closely with Admiral Holloway and served as an adviser on issues including the Strategic Arms Limitation Treaty (SALT), aircraft carriers, and naval aviation.[180] While serving with the Arms Control and Disarmament Agency, Lehman helped to craft the initial strategy for 600 ships, and he was selected by SECNAV Claytor to serve on the committee for Sea Plan 2000. [181]

In his own words, Lehman was fixated "on strategy and policy, not on engineering and facilities management, aircraft development, ship design, and contract law."[182] However, upon securing his position as SECNAV, he confronted what he saw as numerous faults within the bureaucratic man-

agement of the DOD and the Navy that manifested clearly in its inefficient procurement. While Lehman acknowledged that he could not unilaterally fix the DOD, he was determined to wield the legal authority invested in the SECNAV to take full control of the service, including OPNAV. SECDEF Caspar W. Weinberger urged each of the service secretaries to centralize control and executive policy direction while decentralizing policy execution, which sanctioned Lehman's consolidation of authority. This administrative shift elevated the role of the service secretaries in day-to-day management and overall decision making. Weinberger also made the secretaries permanent members of the reformed Defense Resources Board (DRB), which granted them with far greater influence over the annual PPBS process. While Weinberger kept the final authority for himself, his decision to elevate the DRB ensured that Lehman came into office with far more power and influence than his predecessors.[183]

Lehman wholeheartedly approved of Hayward's Maritime Strategy and conceived of his role as centered on drumming up popular and political support for it beyond the Navy's uniformed leadership. Following his initial brief in November 1982, Lehman congratulated Vice Admiral Arthur S. Moreau Jr., DCNO of OP-60, for having "given us a handbook that can be used in our deliberations with [OSD], with Congress, with OMB, and the joint arena."[184] Although the 600-ship Navy was not originally connected to the Maritime Strategy, Lehman worked to bond them and built a base of political support for the effort as a fundamental aspect of the national security strategy. A contemporary report from Representative Charles Bennett (D–Florida), Chairman of the House Subcommittee on Seapower and Strategic and Critical Materials to Representative Les Aspin (D–Wisconsin) stated that: "The Subcommittee finds that the [Maritime Strategy] is, in fact, a proper naval component to national level military strategy, and that the 600-ship Navy, as currently described, is a reasonable and balanced approach to meeting the force structure requirements of that strategy."[185]

Lehman understood that OPNAV's primary function was to produce the Navy's POM, which he worked to gain leverage over through the creation of the Navy Program Strategy Board that he chaired. This violation of the prerogative of the CNO and OPNAV was largely tolerated, because the aggressive SECNAV was dedicated to providing the Navy with the resources needed to develop the 600-ship fleet. As an aviator, Lehman advocated for the *Nimitz* class as the focal point around which Navy force planning should revolve. While working during the Ford administration, he wrote a tract that advocated for carriers and their air wings, *Aircraft Carriers: The Real*

Choices. During the super carrier-averse Carter administration, he consistently lobbied Congress to support the *Nimitz* class.[186] Conversely, Lehman opposed the CVV, contending that large carriers were far more economical to operate, generated larger sorties, experienced fewer accidents, and possessed greater survivability than groups of smaller carriers. The Navy's Sea-Based Air Platform Study of 1978 corroborated Lehman's arguments in favor of large nuclear carriers by showing that the 30-year cost of a CVN was barely more than a CVV. These studies ensured that the *Nimitz* class would continue to have pride of place in force planning as Lehman consolidated control over the Maritime Strategy.[187]

As SECNAV, he appointed ex-submariner George Sawyer as Assistant Secretary for Shipbuilding and Logistics, who likewise believed in the critical need for carriers. Sawyer came into the office with the belief that the Navy could renegotiate its acquisition contract such that it could potentially purchase two aircraft carriers simultaneously for the first time since 1945. The idea was received warmly by Undersecretary of Defense Frank C. Carlucci as an imaginative approach to the annual budget cycle. Carlucci posited that the Navy could be granted additional funds in FY 1983 for the two *Nimitz* carriers. In return, the funds used to start procurement for the second carrier would be taken from the FY 1984 budget. By the end of 1981, the Navy had secured funding to build three *Nimitz*-class carriers and undertake service life extensions through 2000 for World War II–vintage carriers *Coral Sea* and *Midway*.[188] The cost savings generated by simultaneously procuring CVN 72 and CVN 73 was the final blow to the long-suffering CVV concept.[189]

By the fall of 1982, planning for the Maritime Strategy was in full swing, and Hayward directed OP-095, OP-603, and the newly established OP-96N (Net Assessment Office) to put a framework in place to ensure that the programmers effectively used the 15% budget increase in FY 1983. These offices quickly sketched the preliminary outline for the Maritime Strategy, which was not cleared with either the Army or the Air Force before being presented to the Navy's leadership, as OPNAV had just begun to program the POM. They articulated a strategy to field 15 carrier battle groups and aggressively deploy them off Norway to threaten the Soviet Navy in its home waters. The strategy was enthusiastically received by Hayward as providing the right structure to guide the POM.[190]

Fundamentally, the Maritime Strategy was a three-phase plan to defeat the Soviet Navy and support NATO ground forces. Phase one was deterrence/transition to a war footing in which U.S. and Allied forces took for-

ward positions. Phase two was predicated on seizing offensive initiative and pushing Warsaw Pact forces back as far as possible. Phase three was securing air superiority and launching offensive strikes into the Soviet Union itself. It supported a global wartime effort based on the CINCs' war plans and force requirements, and was based on the extant 14 carrier force, of which only 11 could be of immediate use in the first weeks. The Maritime Strategy emphasized the input of Allied forces and supported the NATO doctrine of forward defense. It also secured SLOCs and kept the oil supply lines to the Middle East open.[191]

The Maritime Strategy was intended to deter both conventional and nuclear war, bolster diplomatic initiatives, and reassure allies of U.S. fidelity.[192] Despite being drafted largely by the Navy, the Maritime Strategy was never intended to be a service-only plan, rather, it was envisioned to be the naval component of the national military strategy. Deploying the Marine Corps on the flanks of a Soviet invasion was a feature, as was the use of the Coast Guard for ASW and patrolling Maritime Defense Zones. Continuing from Zumwalt's efforts in the 1970s, Air Force assets including AWACs, strategic airlift, aerial refueling, and Harpoon-armed B-52 bombers featured heavily in the Maritime Strategy, and multiple inter-service agreements were signed to that effect. However, the Army (and the Air Force to a lesser extent) viewed the Maritime Strategy as a "budgetary ploy" and resisted Navy overtures as a threat to AirLand Battle.[193] Despite opposition from the other service branches, President Reagan readily accepted the Maritime Strategy, which he often termed as one of "maritime supremacy." Conceptually, he touted it as a complete rejection of the defensive-minded sea control mission that Zumwalt had first championed and the Carter administration had enshrined.[194]

Lehman advocated stridently, persistently, and publicly for the 15-carrier, 600-ship, Maritime Strategy.[195] Writing in a 1985 *Proceedings* essay, Lehman stated that the total of 600 ships was intentional and derived from analyses of the global commitments of the Navy's numbered fleets and the need to support 15 carriers. Lehman and the Navy conceptualized the 600-ship Navy as being comprised of 15 carrier battle groups, four battleship surface action groups centered on the twice recommissioned *Iowa*-class, 100 nuclear attack submarines, an "adequate" number of ballistic missile submarines, and sealift capacity for a Marine Corps amphibious assault. However, unlike Zumwalt, who viewed a balanced surface fleet as entirely necessary for the Navy to practice effective sea control (particularly ASW), Lehman stated that allied militaries had the capabilities to take on a "sig-

nificant portion" of the Navy's ASW needs, and argued that allied support allowed the U.S. to limit the fleet growth at just 600 ships.[196] He curtailed the *Oliver Hazard Perry* production run at FFG 61 due to size and capability limitations, and instead put the money into the production of the Aegis combat ships. Despite Aegis being a major concern for Holloway, the Carter administration had only approved four *Ticonderoga*-class cruisers. Lehman increased that to 23 ships in light of increasingly sophisticated Soviet aerial threats.[197] Despite ASW's relegation to secondary importance, technological improvements to LAMPS and the introduction of the SH-60 helicopter with datalinks to shipboard systems still gave the fleet much improved ASW capabilities.[198]

Concept painting of DDGX, which was adopted in 1981 and designated as the DDG-51 class in 1982 before ultimately becoming the *Arleigh Burke*-class destroyer. The *Arleigh Burke*-class was intended as the lower-end complement to the *Ticonderoga*-class Aegis cruiser for fleet air defense. (NHHC, NH 93048-KN)

As the purported lower end complement to the *Ticonderoga*-class, the first *Arleigh Burke*–class Aegis destroyers were approved for production in the FY 1985 budget, with the goal of producing four to five annually by FY 1989. The *Burke* class was designed by Naval Sea Systems Command (NAVSEA) in the early 1980s as a successor to the *Spruance* class that incorporated vertical launch system (VLS) missile cells from the outset and was predicated on survivability, reliability, speed, and future growth potential. By March 1982, Hayward defined the ship's design specifications with the goal of keeping the destroyer's cost at 75% that of a *Ticonderoga*.[199] For Lehman, the issue then was how to keep costs down and convince Congress to fund the ship when it was already skeptical of Aegis' return on investment compared to the more conventional *Spruance*-derived *Kidd*-class AAW destroyer. This was accomplished by a concerted and coordinated effort between Lehman and Hayward to convince Congress that *Arleigh Burke was* in every way superior to the *Kidd*.[200]

The surface fleet also received a boost in offensive firepower with the maturation of the BGM-109 Tomahawk missile that Zumwalt had championed. This made every surface combatant an offensive weapons platform capable of striking targets deep within the Soviet Union. While the aviation community still viewed guided missiles as competition, Lehman allayed concerns by pointing out that the Navy could only afford 15 of the 22 carriers that the JCS articulated in its war plans. In January 1983, Second Fleet commander Vice Admiral Mustin determined that missile-armed surface vessels could fill the carrier gap, as a strike of 100 Tomahawk missiles was the equivalent of a single carrier alpha strike. He argued that improvements in missile technology ensured that Aegis vessels could substitute for carrier-based fighters in defending a task force, while a Tomahawk armed vessel (particularly with VLS cells) had the potential to act as a proxy carrier in the strike role. That the *Arleigh Burke* was designed with both systems ensured that the wide gap between power projection and sea control capabilities that bedeviled Zumwalt began to close.[201]

The drive for high-end equipment extended to aircraft as well. As an aviator, Lehman had a personal stake in both performance and crew survivability. He believed that the cost-saving ethos that had driven the F/A-18 development to replace the A-7 had sacrificed its performance as an all-weather subsonic attack platform in favor of high-speed maneuverability as a fighter. To rectify the matter, he ordered the incorporation of new technologies into its radar and flight controls to improve all-weather/nighttime performance and commissioned the development of improved guided air-

to-ground munitions such as laser-guidance systems for preexisting Navy stocks of iron bombs.[202] The exception to this rule was the A-6. As an A-6 bombardier/navigator, Lehman believed that the Navy was best served in upgrading the venerable Intruder to maintain its heavy attack fleet instead of developing a new aircraft. He met resistance from Deputy Secretary of Defense William H. Taft, IV, who wanted the Navy to procure an all-weather, day/night bomber that incorporated stealth technology. Lehman and Taft agreed on a compromise. Lehman received OSD support for an upgraded A-6 in return for the Navy developing the A-12 stealth bomber. By the summer of 1986, two aviation concerns developed separate designs, but both were awarded contracts to move into the "demonstration and validation" phase of development. However, the A-12 would ultimately become a major acquisition failure that would be litigated in federal courts until 2014.[203]

Lehman understood that the Maritime Strategy and 600-ship Navy were fundamentally political issues that required more than just the support of the administration, OSD, and Navy. He used the secretariat to launch a coordinated effort in Congress to ensure that the plan had broad public support and continually received needed funding. Lehman and his subordinates in the Office of Legislative Affairs mounted a campaign of persistent and lockstep messaging (namely that the 600-ship Maritime Strategy was the Navy's *only* coherent strategy) in which no messaging deviations were tolerated whatsoever. Each November, they conducted presentations before Congressional appropriations and authorization committees with a ranked list of the eight programs most important to the CNO and SECNAV. They then tracked changes in support for Navy programs throughout the year and dispatched vetted and closely monitored program managers and OPNAV officers to testify in support of programs. Any program manager that diverged was never again permitted to stand before Congress.[204]

Lehman's ostensible goal was to break what he described as the "Washington Syndrome" that he believed pervaded OPNAV. He understood that the key to dominating the bureaucracy was to gain and keep the initiative on ideas and action. Despite publicly deriding bureaucrats, Lehman was himself a consummate bureaucrat and cannily manipulated the bureaucratic process to his will. To that end, he surrounded himself with deputies that parroted his mentality and used the Navy Comptroller to control funds and punish officers that mismanaged them. His strategy to accomplish this was to fully integrate the staffs of the CNO and Marine Corps Commandant with SECNAV and the civilians at the Navy Department. In so doing he created what was described by Captain Donald Stoufer, a member of his

staff, as an "atmosphere of antagonism, fear, loathing, [and] hate."[205] Many within the officer corps mistrusted Lehman as brash and unethical, but his success in championing the Navy with both the administration and Congress ensured that few openly resisted him.[206]

Lehman and Hayward developed a complicated relationship in the final two years of the CNO's tour. Hayward disliked Lehman's use of the authority of his office as a legal cudgel to subvert the CNO's authority and empower the secretariat to manipulate OPNAV as never before. Lehman's preferred method was a combination of threats and micro-management of the Navy Department's affairs, and he refused to accept that there was a distinction between the CNO's obligation to determine the Navy's requirements and his obligation as SECNAV to find the means to provide for them. However, they often agreed on programmatic issues, and Hayward enjoyed going before Congress with Lehman. One notable accomplishment that they managed to complete together was the forced retirement of the 78-year-old Admiral Rickover in January 1982, which concluded with a dramatic confrontation between all parties before President Reagan in the Oval Office.[207]

The Maritime Strategy's High Water Mark: Admiral James Watkins (1982–86)

Admiral James D. Watkins succeeded Admiral Hayward as CNO in 1982. A 1949 graduate of the U.S. Naval Academy, Watkins was a submariner who joined the nuclear Navy under the auspices of Admiral Rickover with whom he had a lasting positive relationship. Watkins transitioned to the surface fleet to serve as the Executive Officer of the *Long Beach* (CGN-9) during the Vietnam War. He has been described as a brilliant and disciplined thinker, who served as Chief of Naval Personnel, Commander of Sixth Fleet, VCNO, and CINCPACFLT before being selected to succeed Hayward in 1982.[208]

Watkins began his term with a Project 60-esque examination of the Navy to produce a strategy for his tenure within 90 days. Where Hayward and Zumwalt turned to long range planning for answers to the Navy's challenges, Watkins focused on readiness to confront the present Soviet threat. To man the 600-ship Navy, Watkins continued work started by Hayward to better integrate the U.S. Naval Reserve into the fleet. He also worked to improve the officer training pipeline in tandem with reinvigorating the Naval War College, by emphasizing tactical thinking in a wide spectrum of strategic applications. As part of his readiness initiative, he emphasized the need for social and moral leadership and integrity at all levels of the

Navy. He was a vocal supporter of the Reagan administration's War on Drugs and believed that there was a direct connection between personal excellence and national security.[209]

Despite inheriting the financial largesse that came with the Reagan administration's Maritime Strategy, Watkins stressed the need to "find imaginative ways to reduce the ever-growing cost of doing business."[210] He divided this effort into two categories: cost discipline and cost technology. Cost discipline required weapons system configuration control, independent cost estimates, competitive contracts, and tough negotiating. Cost technology was a mentality that emphasized cost as a key aspect in both design and operation considerations and provided for the inclusion of spare parts and weapons in the design process. For Watkins, it was far more important to apply this methodology to secure components that worked with perfect reliability when needed rather than quest after the leading edge of technological development. [211]

While Admiral Hayward began the Maritime Strategy, it matured under Admiral Watkins' oversight. Watkins was a devoted proponent of it and referred to it as the Navy's "bedrock of planning, programming and operations." Writing in 1985, Watkins stated that the Navy's single-minded emphasis on the Maritime Strategy had rationalized and disciplined the service's approach to PPBS in a way that would have been unimaginable five years earlier. A formal presentation of the Maritime Strategy began the annual program development cycle. It provided the scaffolding for all budget proposals and served as the bedrock for subsequent warfare appraisals that identified critical requirements to implement the strategy in terms of the warfare areas. This programmatic discipline allowed for the consolidation of electronic warfare into a single office with a master plan, it articulated the glaring need for an ASW strategy, and illustrated the importance of space-based systems for the Navy.[212] The latter led to the establishment of the Naval Space Command.[213]

However, Watkins feared that the Navy was incapable of meeting its ambitious scope in the immediate term. An OP-90 presentation early in his tenure optimistically called for a surge of 11 carriers to the North Atlantic to meet a Soviet invasion. However, the DCNO for Aviation interrupted to state that perhaps only six carriers could realistically surge given the need to transfer aircraft, ordnance, and even tractors between those ships returning from deployment and those sortieing. Watkins found this assessment sobering and stated that no new weapons system would be purchased until the Navy possessed both the readiness and logistics capabilities needed to

confront a Warsaw Pact invasion at full strength. He ordered that all program proposals must directly support the Maritime Strategy. Further, he directed that the Maritime Strategy be worked into the Naval War College's war-games, as well as provide the foundation for annual fleet exercises to work out shortcomings in real time.[214]

Lehman and Watkins agreed on much when it came to the 600-ship Navy and the Maritime Strategy. They agreed that it should be used as a means to bolster the Reagan administration's aggressive diplomatic negotiations with the Soviets, and used the fleet exercises to back up the implied threat. Watkins' efforts to cut costs and reduce waste in acquisitions and logistics resonated with Lehman. In turn, Watkins was far more willing than Hayward to entertain Lehman's attempts to subordinate OPNAV to his will if it came in the guise of improving efficiency. By 1983, Lehman openly questioned the purpose and ability of multiple OPNAV organs to provide new ideas to the CNO, including the long-range planning offices.[215]

Internal resistance to the 600-ship strategy was fomented by OP-06 and OP-965, which saw it as unsustainable without an unprecedented and sustained 8% annual budgetary growth. Lehman brooked absolutely no dissent when it came to the 600-ship goal, and disagreed with their findings, believing that the 3% growth laid out in *Sea Plan 2000* was sufficient. In response, he worked to reduce the influence of the analysts and argued that DOD needed better "tools of empirical analysis." He believed that over-reliance on PPBS as a decision-making process was dangerous for a Navy officer corps already disposed toward an engineering mindset, and that the absolute focus on systems analysis severed the Navy from traditional strategic thinking. Despite objections from within OPNAV, Lehman and Watkins abolished OP-96 and the OP-965 Extended Planning and OP-96N Net Assessment branches in 1983. OP-96's staff were reassigned to OP-91 Program Appraisal, which was similar to OP-96/965, but did not produce products that went beyond the Navy. [216] Most of OP-965's long range planning work in progress was canceled, but some projects like the "Alternative Battle Group Concepts Study" were passed to OP-00K. The only key long range planning functions remaining in OP-915 were dedicated to analyzing resources and force structure for the Extended Planning Annex term of 10 years beyond the FYDP. Watkins instead tasked OP-915 with writing the CNO's annual posture statement and the Navy's positions in the Defense Guidance development process.[217]

The downfall of the Navy's systems analysis shops gave OP-06 the primary authority to craft the 1984 iteration of the Maritime Strategy. It

subsequently drafted and briefed all five versions of the strategy produced through the end of the 1980s. OP-06 also became the primary OPNAV interlocutor with the Joint Staff and JCS. Historian Steven T. Wills states that OP-06 performed exceptionally in crafting the latter-day iterations of the Maritime Strategy, but that Lehman's complete divestment from analysis likely created an imbalance in strategic thinking that impeded the Navy's ability to draft a successor strategy after 1989.[218]

In May 1983, Watkins embarked on additional changes to long-range planning. He altered Hayward's long range planning shop, OP-00X, from a discrete organization into part of OP-00K supporting the CEP. After Hayward's departure, OP-00X rapidly lost its long-range planning function and instead was tasked by the CNO with short-term, high-priority tasks. Watkins also altered OP-00K's charter to advise the CNO "on a wide range of scientific, political-military, and strategic matters." This was ostensibly done to reduce duplication of effort, encourage mutual support, and provide a single office that dealt with short-, mid-, and long-range planning issues.[219] However, this consolidation ended the Alternative Battle Groups Concepts Study that had started in 1977. While it had encouraged Navy planners to look at alternative force structures in long-term timeframes, it was ultimately deemed as looking too far into the twenty-first century to be applicable to the decision-making process.[220] Watkins believed that OP-095's (Director of Naval Warfare) increased influence had rendered OP-090 redundant, and its functions were dispersed across OPNAV.[221] They worked together closely in refining the Maritime Strategy, which became a part of the Navy's FY 1985 POM process in October 1983. Together, they successfully briefed Weinberger and Congress on the Maritime Strategy in early 1984.[222]

Lehman also took a direct hand in Watkins' OPNAV reorganization. He transferred control of CNA from OP-090 to the Assistant Secretary for Research, Engineering, and Systems with the explicit goal of bringing strategic analysis directly under his control. While he wished to cut OPNAV out of shaping the Maritime Strategy as much as possible, starting in 1985, Lehman did allow Watkins and OP-00K to sponsor annual strategic planning conferences with senior flag officers. On the other hand, Lehman had sponsored his own Strategy Board retreats since Hayward's departure, and used them to corner Watkins when the CNO was bereft of staff support. Lehman stated that these retreats broke down the institutional barriers between the Navy, Marine Corps, and the Navy Department's civilian leadership. Historian Thomas C. Hone argued that in reality Lehman really broke down

those barriers because they were the key source of influence for the CNO and kept outsiders like Lehman from infringing on the CNO's agenda.[223]

Lehman consolidated his hold over acquisitions on the one hand by disestablishing the Naval Material Command and on the other by compelling SYSCOMs to report directly to the SECNAV on a parallel line to the CNO. Further, he used the legal authority granted him by Title 10 of the U.S. Code to impose competition and fixed price contracts in development and acquisition.[224]Further streamlining acquisitions was the February 1982 establishment of the Ship Characteristics and Improvement Board (SCIB) as a sub-panel of the CNO's Executive Board (CEB).[225]The SCIB provided the CNO with coordination, planning, and programming/budgeting support for ship acquisition and improvement needed to undertake the 600-ship Navy's shipbuilding effort and worked with both Navy (OPNAV and Secretariat) and external (OSD, OMB, and Congress) stakeholders.[226]

By applying a formal review process, the SCIB slowed ship acquisition, but ensured that ship designs all met basic requirements, as several programs that the SCIB initially reviewed completely lacked operational requirements.[227] Lehman was so taken with the SCIB's effectiveness that he told Watkins to submit a plan to create an Air Characteristics and Improvement Board. Lehman wanted to make the process of developing the Navy's aircraft more responsive to civilian control and exert greater authority in

The battleship USS *Iowa* (BB-61) and the aircraft carrier USS *Midway* (CV- 41) are surrounded by other ships of Battle Group Alpha while underway in formation, 1 December 1987. (NARA, 6475790)

cutting costs. This effort manifested itself most clearly in Lehman's antipathy toward the F/A-18 Hornet program, which he saw as both underperforming and overly expensive. However, Lehman ultimately kept the Hornet due to its reliability and McDonnell-Douglas's willingness to cut costs.[228]

Getting to 600 ships required a combination of accelerated ship construction (particularly the carriers) and the retention of older hulls.[229] The battle force's growth from 480 to 521 ships between January 1980 and January 1985 was predicated in large part on inheriting roughly 100 ships authorized during the 1970s in tandem with an "unusually low" number of ship retirements for aging vessels.[230] Indeed, ship retirement rates between 1981 and 1984 averaged only 10 per year, compared to the 21.4 rate of ships that were retired annually from 1975 to 1980.[231] The Reagan administration's 600-ship plan called for the construction of 133 new ships at an estimated cost of $80 billion. During Watkins' and Lehman's tenure, the Navy oversaw the commissioning of the first *Ohio*-class ballistic missile submarines in 1981, a redesign of the *Los Angeles*-class attack submarines to incorporate twelve TLAM-capable VLS cells, the acceleration of the remaining seven *Nimitz* class carriers, the approval of 25 Aegis cruisers and destroyers, and

Table 10. U.S. Navy Active Ship Force Levels, 1980–1989

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Battleships	-	-	-	1	2	2	3	3	3	4
Carriers	13	12	13	13	13	13	14	14	14	14
Cruisers	26	27	27	28	29	30	32	36	38	40
Destroyers	94	91	89	71	69	69	69	69	69	68
Frigates	71	78	86	95	103	110	113	115	107	100
Surface Warships	191	196	202	195	203	211	217	223	217	212
SSNs	82	87	96	98	98	100	101	102	100	99
SSGN/SSBN	40	34	33	34	35	37	39	37	37	36
Command Ships	3	4	4	4	4	4	4	4	4	4
Mine Warfare	25	25	25	21	21	21	21	22	22	23
Patrol	3	1	4	6	6	6	6	6	6	6
Amphibs	63	61	61	59	57	58	58	59	59	61
Auxiliary	110	101	117	103	120	121	123	127	114	137
Total	530	520	555	533	557	571	583	594	573	592

Source: Hattendorf and Swartz, *U.S. Naval Strategy in the 1980s*, 12.

the return to service of the *Iowa*-class battleships modernized to utilize Harpoon, TLAM, and AGM-88 high-speed anti-radiation missile (HARM) systems.[232] Further, it required a major influx in personnel, and the Navy grew by nearly 13% from 536,509 personnel in 1980 to 605,802 by 1989.[233]

In 1985, Lehman went before Congress to tout the Navy enlarging its shipbuilding base from 9 to 21 yards to facilitate the 600-ship buildup.[234] However, this would mark the last major expansion in the Navy's ship building capacity. Despite its support for the 600-ship Maritime Strategy goal, the Reagan administration's termination of funding for Titles V, VI, and XI of the Merchant Marine Act ushered in a major contraction of the U.S. shipbuilding industry. Employment dropped by over 30% and the number of active shipyards nationwide fell by 40% as orders for merchant shipbuilding evaporated. Thus, any shipyards not involved with Navy contracts were bereft of business, and multiple shipbuilders folded, including General Dynamics, Bethlehem Steel, and Sun Shipbuilding.[235]

The CBO criticized the conceptual efficacy and fiscal viability of a 600-ship force structure, and in 1983 cautioned Congress that 600-ships was prohibitively expensive.[236] In April 1985, CBO reiterated its opposition by stating that the costs of funding and maintaining the 600-ship Navy were

(*Left to right*) Chief of Naval Operations Admiral James D. Watkins, Secretary of the Navy John F. Lehman, Jr., and President Ronald Reagan stand as the national anthem is played during the recommissioning ceremony for the battleship USS *New Jersey* (BB-62), 28 December 1982. (NARA, 6372207)

practically unsustainable, as it required at least a 7% average annual growth rate for the Navy's budget that would balloon allocations from $71.5 billion in 1980 to $100.3 billion in 1985. The CBO estimated that continued growth at that rate would result in the Navy's budget doubling from 1980 to 1994.[237]

The initial effort for a 600-ship battle force did not represent a calculated force design so much as it did a desire to simply meet that specific numerical value by the most expedient means. The CBO stated that this first push did not meet the administration's naval goals, and that even higher levels of shipbuilding were needed to achieve the specific force structure and modernization goals required for the Maritime Strategy. Only with this second shipbuilding initiative would the Navy be able to meet Lehman's vision of fielding 15 carrier battle groups, 100 attack submarines, and a 50% increase in amphibious lift capacity. Further, this second phase would allow the Navy to retire the aging surface combatants that were retained to pad numbers and replace them with fully modern escort vessels. This would require an estimated 5% annual growth in the shipbuilding and conversion budget well into the mid-1990s.[238] Lehman took umbrage with the CBO's assessment that the nation could not afford the 600-ship Navy. He argued in *Proceedings* that the fleet was fully funded through 1986, when procurement was set to stabilize at twenty ships per year. He contended that twenty ships would require only 3% annual budget growth for the Navy given the economy of scale. He stated that a "zero-growth budget" would make it impossible to maintain 600 ships, and would ultimately lead to a return to the late 1970s with more expensive procurement due to the loss of competitive bidding and higher production costs that would come with reduced acquisitions.[239] The CBO estimated that the surface escort and submarine fleets would reach rough parity between older and modern ship classes by 1989.[240] The complete modernization of the fleet was expected to cost the Navy far more than initial push to 600 ships, as the newer ships were more expensive to build and maintain. The need to grow and modernize the Carrier Air Wings (each air wing was comprised of 80–90 aircraft) was also a monumental endeavor, and one that was not expected to be completed by 1992.[241]

The Goldwater-Nichols Department of Defense Reorganization Act

In 1986, just as the Maritime Strategy was reaching maturity, the OPNAV and Lehman were hit with an outside restriction that permanently altered the Navy's ability to conduct meaningful long-range planning and force

design. The Goldwater-Nichols Department of Defense Reorganization Act (Goldwater-Nichols). The Goldwater-Nichols Act stemmed from nearly twenty years of Congressional consternation about DOD's ability to effectively conduct joint operations and meet crises. The performance of the DOD in Vietnam, Lebanon, and Grenada, as well as its ineffective performance in carrying out limited operations during the *SS Mayaguez* incident and Operation Eagle Claw in Iran were all singled out. Admiral Holloway led a postmortem on the failure of Operation Eagle Claw that identified endemic DOD shortcomings. These included a lack of joint training, integrated intelligence, integrated communications, and planning limited to each service branch that had compelled the JCS to build a joint task force from whole cloth. These failures caused Senators Sam Nunn and Barry Goldwater to view legislation as the only way of compelling DOD to conduct effective joint operations.[242]

The movement to pass what would become Goldwater-Nichols was expanded to include DOD acquisition. The Reagan administration's defense spending sparked the largest peacetime deficits in U.S. history to that point, and allegations of corruption, fraud, and waste in defense acquisition were widespread. In July 1985, President Reagan appointed a Blue Ribbon Commission that produced the Packard Commission Report. This report identified serious inefficiencies, delays, and cost growth in Pentagon acquisitions that it attributed to unclear lines of authority and pervasive instability. Shortly thereafter, a two-year FBI investigation known as "Ill Wind" into corruption in government acquisition programs resulted in 250 subpoenas for evidence from numerous DOD officials, a dozen defense-industry firms, and more than 50 consultants. A GAO report on weapon system acquisition reinforced the investigation's findings and offered specific recommendations to enact reforms.[243] These cascading scandals allowed Congress to force the President's hand into signing the Balanced Budget and Emergency Deficit Control Act in 1985, which compelled the administration to implement $23 billion in budget cuts that fell most heavily on DOD.[244]

In 1985, Congress approved the Gramm-Rudman-Hollings Balanced Budget and Emergency Deficit Control Act. That legislation was designed to compel Congress to curb deficit spending by imposing ceilings on discretionary expenditures. If Congress approved a budget that broke through the overall ceiling, then automatic across-the-board spending reductions known as sequestration would be imposed on Executive Branch agencies by the Comptroller General. Sequestration was a direct threat to the budget constancy that was fundamental to successfully carrying out the 600-ship

Navy. The subsequent pressure to reduce defense spending proved to be a major challenge during Admiral Carlisle Trost's tenure as CNO.[245]

In 1986, the Goldwater-Nichols Act was signed with the goal of re-balancing civil-military affairs to strengthen civilian leadership and oversight. Among its key provisions was changing the chain of command so that the Chairman of the Joint Chiefs of Staff was now the principal advisor to civilian leadership. This removed the CNO from their role as the chief advisor to the President on naval issues. It also ended the operational control of service chiefs and instead obligated them to carry out their Title 10 obligation as force providers to organize, train, and equip military forces for use by unified commanders. Responsibility for acquisition was vested in the hands of the service secretaries, and the CNO was removed entirely from the process as Goldwater-Nichols codified the SECNAV as the Navy's sole acquisition authority. Indeed, the Navy Secretariat now had sole responsibility for acquisition, auditing, comptroller/financial management, information management, and public affairs. Prior to the passage of Goldwater-Nichols, the SECNAV served in principle as the Navy's acquisition executive through the Assistant Secretary for Shipbuilding and Logistics with the support of the CNO and OPNAV.[246]

The law also compelled all officers to serve in a joint duty assignment for promotion to flag rank, which had long been viewed as an undesirable billet in the Navy.[247] Historian Steven Wills argued that Goldwater-Nichols' joint duty assignment requirement caused Navy staff officers to avoid OPNAV as disadvantageous to their careers. Further, the frequent changes to OPNAV's organizational structure disrupted the integrity of the Navy's strategy community, which fared worse than the Army or Air Force with their permanent strategy shops. Goldwater-Nichols effectively ended the appeal of working as an OPNAV strategist, and dispersed the Maritime Strategy cohort of strategists to staff assignments in Joint regional and functional commands as well as the Joint Staff.[248]

Despite the fact that Goldwater-Nichols affirmed many of the powers that Lehman had already merged into the secretariat, he publicly and consistently opposed the law at every stage. He believed that it consolidated far too much authority into the Secretary of Defense and CJCS while weakening the authority of both the SECNAV and the CNO to access and advise the President. In particular, Lehman opposed the provision that redefined the SECNAV as the interlocutor between the Navy and OSD, with firmly delineated powers and authorities directly subordinate to SECDEF. Instead, he charted the same course as Arleigh Burke in stating that the president

was best served and protected from poor military advice by separated and coequal service branches with a loose linkage at the JCS. Lehman continued to fight against Goldwater-Nichols after President Reagan signed it into law, which lost him favor with the administration. A Deputy Undersecretary of the Navy went so far as to publicly call the law unconstitutional and an attack on civilian control of the military, which undercut Lehman's credibility with Reagan, Weinberger, and Congress.[249]

The End of the Maritime Strategy: Admiral Carlisle A.H. Trost (1986–90)

Admiral Carlisle A.H. Trost succeeded Admiral Watkins as CNO in 1986. Trost graduated first in his class from the U.S. Naval Academy in 1953 and served on a destroyer before transitioning to submarines. He was the recipient of an Olmsted Scholarship to study at the University of Freiburg in Germany, and his staff assignments included serving as naval aide to the SECNAV, Assistant Chief of Naval Personnel, and Director Navy Program Planning. His operational experience included service as Deputy Commander in Chief, Pacific Fleet; Commander, Seventh Fleet; and Commander in Chief, Atlantic Fleet.[250]

Like Watkins and Hayward, Trost was a devotee of the Maritime Strategy. In a departure from his predecessors, Trost centered his defense of it in terms of a capabilities-based force structure rather than arguing for it from a conceptual perspective.[251] He maintained that the 600-ship Navy, strategic homeporting, continual ASW R&D, and improved logistics and acquisition management were critical to deterring the Soviet Union. He was joined in this belief by CJCS Admiral William J. Crowe, who in January 1987 warned the Senate Budget Committee against allowing the Soviet Union to regain maritime superiority. To do so would limit force projection, jeopardize U.S. foreign policy, and imperil international trade.[252] However, Trost was also cognizant that Congress had grown leery of the cost to build and maintain 600 ships. For instance, by 1988, purchasing a single carrier and its air wing required $9 billion and $500 million in annual spending to operate. In an effort to curtail congressional scrutiny, Trost urged Navy strategists to "take the naval strategy indoors; we have had a full run of public debate."[253]

Trost came into office at a moment of intense change within the Navy and the wider world. While the Maritime Strategy reached maturity, his

tenure saw the CNO's authority curtailed to previously unknown levels. The Navy faced rough and unknown seas as Goldwater-Nichols was signed into law, and the budding détente that grew between Reagan and Soviet Premier Mikhail Gorbachev called into question the need for such a powerful and expensive fleet. At a June 1986 CEP meeting at the end of his tenure, Watkins had stated his belief that the 1980s had ushered in a U.S. naval renaissance, but expressed concern that it continually faced budgetary pressure from Congress to cut spending. At the meeting, Trost stated that his mission was to protect the gains the Navy had made since 1981. However, as of 1 October 1986, the CNO was no longer the principal naval advisor to the President. Rather, outside of the JCS, the office of the CNO was now strictly subordinated to and the executor of the SECNAV's will. Trost was wary of Lehman's authoritarian approach to OPNAV after having led OP-90 under Watkins, but he agreed with Lehman's concerns that Goldwater-Nichols centralized too much authority in the JCS. However, unlike Lehman, Trost's resistance to the bill stopped upon its signature into law.[254]

Trost began his tour as every CNO since Zumwalt had, with six DCNO billets under his command. The passage of Goldwater-Nichols three months later reduced that number to five and limited OPNAV to only three Assistant CNOs. However, Trost used this limitation to his advantage. He reduced the power of DCNOs with a major reshuffling by creating a new DCNO for Naval Warfare (OP-07) and Program Planning (OP-08). His stated goal was to create tension between the DCNOs and force each of them to develop programs that maximized their personal baronies. He believed that forcing interaction and reconciliation between OP-07, which had ideas and conducted holistic capabilities assessments, but no financial resources, and the barons would give OP-07's assessments greater weight during the POM. [255]

By early 1988, OPNAV no longer had a centralized long range planning office, but VCNO Admiral Huntington Hardisty instructed OP-07 to integrate the individual master plans into a mutually compatible, supportive, and fiscally realistic omnibus long-range plan. OP-08 was then tasked with reviewing the plans for programmatic consistency and compatibility with fiscal projections. However, OP-07's true power lay in its role as a gatekeeper that controlled access to Trost. In theory, this forced the DCNOs to build sound arguments to ensure that only those found viable made it to the CNO. In practice, the DCNOs often went around OP-07 by working directly with OP-08 on the POM.[256]

After six years at the helm, Lehman had shaped the Navy to his will, which was magnified after Goldwater-Nichols formally centralized author-

ity in the secretariat. In March 1986, Lehman's instructions on the FY 1988 POM illustrated how much OPNAV's authority had shrunk. Trost was informed that all planning and program guidance would be provided to him by Lehman and his staff. In contrast, the CNO and Commandant of the Marine Corps were responsible for following the guidance of the secretary, coordinating the planning phase of their work with one another and with the Joint Chiefs of Staff, preparing the detailed POM for the Navy Department, developing budget estimates for Congress based upon the POM numbers, and then implementing Congressionally approved budgets.[257] OPNAV no longer played a meaningful or proactive role in Navy programming or acquisition.

This was reinforced in January 1987, when Lehman updated the instructions for the Program Management Proposal (PMP) system to control R&D and administer modifications to ships, aircraft, missiles, weapons, systems, combat vehicles, and combat equipment during and after production. PMP was to govern the process by which new acquisition programs were managed and existing systems were modified to highlight monetary consequences of changes to a system's performance characteristics from its baseline statement of cost, schedule, and performance. In short, it was intended to ensure that an OPNAV sponsor or the systems command responsible could realistically fund proposed changes or upgrades. The Office of Program Appraisal (OPA) oversaw PMP, while the Assistant Secretary of the Navy for Shipbuilding and Logistics and the Assistant Secretary for Research, Engineering and Systems were empowered to review PMPs and make recommendations. The head of OPA met with Lehman monthly so he could review the PMPs himself. The January 1987 instruction institutionalized PMP as the replacement for the processes formerly used by the Naval Material Command. It complemented Lehman's 1985 instruction giving the assistant secretaries for shipbuilding and logistics and for research, engineering, and systems the authority to monitor and rate the performance of Navy material managers.[258]

Lehman announced his resignation in February 1987, which went into effect in April 1987.[259] His departure came at a critical juncture for the Navy, as the Goldwater-Nichols Act severed OPNAV from all operational control and sequestration imperiled the Maritime Strategy's 600-ship Navy. In 1987, Congress failed to control deficit spending in line with the Gramm-Rudman-Hollings Act, which sparked automatic sequestration. Lehman's successor, Secretary James H. Webb Jr. informed all Navy commands in November 1987 that they would be compelled to contend with an unspecified level of sequestration in both FY 1988 and FY 1989 that was only likely

to increase in scope. Webb's primary concern was to keep the Navy's force structure intact, but the task proved impossible.[260] Indeed, the forced early retirement of sixteen ASW frigates to cut costs was a major component of Webb's early resignation.[261] He resigned in February 1988 to be followed by Secretary William L. Ball III, who in turn resigned in May 1989 to be replaced by Secretary H. Lawrence Garrett III.[262]

Trost provided the Navy with organizational constancy at this time. He adhered to the Maritime Strategy in the face of sequestration, but it became increasingly untenable without the generous budgets that came before 1985. Trost and OPNAV turned to analysis to chart a sound budgetary course and show policymakers that the Navy was capable of adapting to change. Using the success of Aegis as a benchmark, the Navy embraced functional analysis that began with a higher-level function and then dug down into the supporting sub-functions and ancillary functions. The result was a very large and detailed flow chart that displayed critical flows of information and energy as well as crucial interdependencies among subsystems. The ultimate goal of this method was to extrapolate the functional analysis inherent in Aegis and apply it to improve the organization of carrier battle groups and ultimately OPNAV, where it was intended to force platform sponsors to critically examine the optimal way of supporting the fleet's missions as part of OP-07's purview.[263]

Trost oversaw the production of the 1988 and 1989 iterations of the Maritime Strategy, which tried to account for management of regional instabilities while still planning for the threat of a war with the USSR.[264] Despite Trost's best efforts, world events caught up with it and the 600-ship Navy. Against the backdrop of his efforts to preserve the Maritime Strategy, the Cold War began a rapid descent toward its conclusion. Nearly ten years of grueling counter insurgency in Afghanistan, the Chernobyl disaster, the Intermediate Range Nuclear Forces Treaty, and Premier Gorbachev's domestic reforms coalesced to mitigate the Soviet threat by the end of the decade. Further, the Reagan administration's controversial actions in Latin America stoked Congressional skepticism of U.S. military adventurism. While isolated crisis moments continued to occur (such as the collision between a Soviet frigate and the *Yorktown* in 1988), the eruption of armed ethnic conflict within many of the constituent Soviet Republics encouraged a rapid conclusion.[265] By 1989, the Berlin Wall fell, and with it the threat of a Soviet invasion of NATO following the December 1989 Malta Summit. In the absence of the Soviet Union as the pacing threat, the Navy fell back on the maintenance of its force structure as a substitute for a real strategy.

Trost's successor, CNO Frank Kelso, declared in June 1990 to the Senate Armed Services Committee that "a military strategy needs a specific enemy" and that "the issues before us today seem ones of naval policy rather than strategy."[266] With the Soviet collapse, the Maritime Strategy lost its opponent and purpose, and the Navy faced an existential and budgetary reckoning at the dawn of the 1990s.

Conclusion

Until the Maritime Strategy, Navy force design was defined by volatility as the priorities and values of CNOs, Navy Secretaries, and Presidents were often radically altered or reversed by their successors. As such, the highest levels of continuity were often found at the level of project and program managers, whose terms could last 2-3 times longer than that of a CNO or presidential administration. This created friction between CNOs that wished to affect broad change in relation to their priorities for the whole Navy and program managers that sought every avenue to shepherd their individual projects.

The end of the Vietnam War saw the Navy starved for money while facing the block obsolescence of the World War II fleet. While Zumwalt faced immense fiscal constraints, he was given administrative freedom by President Nixon and OSD to reconstitute the fleet to meet the future needs of the 1980s and beyond. In so doing, Zumwalt embarked on an ambitious effort to fundamentally redefine the Navy's missions, remake the fleet into a balanced force, and usher in a new generation of cutting-edge technological advances to enhance the Navy's combat effectiveness by an order of magnitude. Project 60's goals were revolutionary in embracing a balanced Navy of high-low platforms, incorporating disruptive technologies as force multipliers, and centered on the surface fleet's sea control mission rather than maintaining the uncritical centrality of carrier-centric power projection. Relative to his postwar peers, Zumwalt's Project 60 most closely adheres to what the contemporary Navy would identify as an intentional force design predicated on capabilities rather than shackled to platforms.

However, few of his ideas came to fruition as he lost his political backing and faced internal resistance to change. Negligible cost savings from ship retirements in tandem with rising inflation ensured that from 1970 to 1974, the fleet shrank from 769 to 512 ships. Zumwalt's successors repudiated his force design goals and re-emphasized the aircraft carrier as the capital ship around which Navy planning took place. Further, they scrapped the

balanced fleet dictate in favor of exclusively embracing the more capable/survivable high-end ships over lower cost escorts. The overall size of the Navy hinged on how many carrier battle groups an administration either desired and/or could afford, which became the foundation of the Maritime Strategy's 600-ship Navy.

By 1976, the fleet was at its lowest size since 1939, and the Ford administration articulated a plan to build the Navy to 600 ships by 1990. However, the Carter administration reversed course, and by 1978 the fleet had shrunk to 464 active warships. This compelled the Carter administration to develop a defensive mindset, which the Navy vocally opposed. Inflation in the 1970s devalued shipbuilding budgets within a few years of their passage, and imperiled the Navy's ability to meet its operational requirements. The shipbuilding industry contracted greatly during this period and never recovered.

While the Navy of the 1970s faced intense policy instability, financial headwinds, material shortcomings and a loss of competitive advantage against the Soviet Navy, the decade was a vital period for Navy strategy making and force planning. In the face of these challenges, Navy leaders embarked on an ambitious series of strategies and force planning initiatives to articulate how an aging, shrinking, and resource-constrained fleet could best meet its contemporary global commitments while planning for future challenges and capabilities. While largely unsuccessful in their own time, the work undertaken in the 1970s laid the foundation for the Navy to successfully communicate its national security importance to policymakers, grow the fleet, and meet the aggressive global requirements of the 1980s Maritime Strategy.

The Reagan administration embraced the 600-ship Navy as a political priority, and married it to Hayward's forward-deployed Maritime Strategy. SECNAV Lehman intrinsically understood the political levers that drove Navy policy and used every available political avenue to subordinate the CNO/OPNAV to his will, sway Congress, and focus the Navy on the Maritime Strategy. While the Maritime Strategy was not a force design initiative in the same vein as Project 60, it was a wildly successful policy and operational blueprint that provided the Navy with the necessary intellectual and institutional framework to enact a complete shift in its strategic and operational posture to offensively take the fight directly to the Soviet Navy, communicate effectively with policymakers and the general public, and oversee major growth in the fleet's size and capabilities. The fleet peaked at 594 ships

in 1987 paradoxically just as the Navy faced the end of the Cold War and Congress increasingly called into question the utility of funding 600 ships.

However, widespread inefficiencies and corruption in defense acquisition sparked the 1985 passage of the Gramm-Rudman-Hollings Balanced Budget Act that imposed indiscriminate sequestration on the Navy, while the 1986 Goldwater-Nichols Department of Defense Reorganization Act permanently removed the CNO from conducting force design and long-range planning, with those tasks centralized into the Chairman of the JCS, OSD, and SECNAV. OPNAV no longer held any control over Navy programming or acquisition, and it entered the 1990s without a peer competitor strategy. With the Soviet collapse, the Maritime Strategy lost its opponent and purpose, and the Navy faced an existential and budgetary reckoning at the dawn of the 1990s.

FOUR

Becalmed at the "End of History," 1990–2010

The collapse of the Soviet Union in 1991 and the end of the Cold War definitively terminated the Navy's Lehman-era quest for a 600-ship fleet and undermined the basis for the Maritime Strategy. It also marked the beginning of a decade fraught with misfortune for a Navy already struggling to come to grips with the effects of the Goldwater-Nichols Act of 1986 and sequestration. Between 1991 and 2000, these events distracted the service—led by Admirals Frank B. Kelso II, Jeremy M. Boorda, and Jay L. Johnson—from almost everything except efforts to repair its tarnished public reputation. While the 1990s did feature a variety of attempts to craft an enduring Navy vision, each proposal was either quickly eclipsed by events or purely intended to remind the public that the Navy was important and relevant. The majority of these documents were, as a result, quickly forgotten. Instead, programmatic considerations once again became paramount as the budget dramatically contracted from $211 billion in FY 1991 to $158 billion (in FY 2023 dollars) ten years later.[1] Long-range planning by OPNAV was therefore purely a political exercise between 1990 and 2000 and had little to do with actual force design. This could be clearly seen in the nature of the Navy's shift from threat-based (i.e., geared towards fighting the Soviet Union) to capabilities-based planning and procurement.

The period of precipitous decline appeared as though it might have reached its end following the terrorist attacks of 2000–2001 and the com-

mencement of the Global War on Terrorism. While the bombing of *Cole* (DDG-67) forced a serious reconsideration of the threats that the Navy might face, the commencement of operations in Afghanistan (2001) and Iraq (2003) additionally underlined the potential usefulness of a force designed to operate in the littorals, a fact that Chief of Naval Operations Admiral Vernon E. Clark fully embraced.[2] But no sooner had the DDG-1000 and Littoral Combat Ship (LCS) programs been officially configured for this role then the insurgency crisis in both major operations caused another significant trajectory change in American foreign policy in 2005. The Navy's response—the "1000-Ship Navy" concept and the *Cooperative Strategy for 21st Century Seapower* under Admirals Michael G. Mullen and Gary Roughead—were its first substantive capstone documents of the post–Cold War period. Yet even they were unable to alter the new paradigm of force design, which had entirely become the product of OSD and the year-by-year decisions of the programmers for the POM process, who now resided in OPNAV N81 (Assessment Division). All of these factors together meant that while the Navy's budget had rebounded to $223 billion by FY 2011, most of the net gain was absorbed by the ongoing conflicts in Iraq and Afghanistan.[3]

Overall, force design between 1990 and 2010 was mostly a matter of how best to preserve the budget rather than true long-term planning. The Navy continued to see the carrier as a hedge against uncertainty, seeking (after nuclear deterrence) to preserve as many as possible and worry about other ships and capabilities with whatever portion of the budget was left afterwards. This was ultimately all that could be done in an era that saw the Navy shrink from 546 active battle force ships, 583,000 personnel, and a goal of 15 carriers to 285, 331,000, and 12, respectively.[4]

Doing More with Less: 1990–2000

Admiral Frank B. Kelso II (1990–94)

The transition from the 1980s to the 1990s played host to a rapid series of events that radically changed the strategic and budgetary outlook for the United States military, and particularly for the Navy. Domestically, a thawing of relations between the United States and the Soviet Union and sequestration late in the Reagan administration's tenure were accompanied by the passage of the Goldwater-Nichols Act in 1986. This act, which represented the final step in a long-running struggle for strategic and operational force control between the individual service branches and OSD, firmly vested

those powers in the SECDEF's hands and relegated the service chiefs to a purely advisory role. In theory, OPNAV was no longer allowed to develop an independent strategy for the Navy after 1986.[5]

While the apparent end of this power struggle and the centralization of acquisition and planning authority within OSD was significant in and of itself, Goldwater-Nichols additionally impacted OPNAV's ability to conduct force planning by deliberately empowering the individual regional joint combatant commands (COCOMs). In granting the COCOMs a direct line to OSD that bypassed the Chief of Naval Operations (CNO), the act ensured that future planning would be based on a compilation of individual, regional assessments rather than a global perspective. This change was accompanied by the stated intent by OSD to move from threat-based to capabilities-based planning, doubling down on the regional approach. Finally, formal oversight of shipbuilding was returned to the Secretary of the Navy. While by appearances this left the CNO only the narrowly defined tasks of manning, training, and equipping the sea service, the requirement to plan for the Navy's future needs remained with OPNAV. Hence while the COCOMs were now nominally independent of the CNO's influence, their requests still had to pass through OPNAV for coordination.[6]

While Goldwater-Nichols did not produce immediate change on its own, there was little the Navy could do to avoid its effects in the long term thanks to the end of the Cold War, the resulting public desire for a "peace dividend" in the form of a major reduction of the defense budget, and the high profile that Navy expansion had assumed under the Reagan administration. These events combined with the 1989 selection of General Colin Powell as chairman of the Joint Chiefs of Staff—an officer with both the will and the wits to ensure the services followed through on the recent congressional mandate—to guarantee that the further centralization of power in the DOD at the level of the OSD would, in fact, take place.[7]

In this turbulent environment, Frank B. Kelso II was selected to become the next Chief of Naval Operations in mid-1990. A 1956 graduate of the U.S. Naval Academy, he was a career submariner before his promotion to flag rank in 1980. Kelso served as Director, Strategic Submarine Division in OPNAV, and as Director of the Office of Program Appraisal for SECNAV. He was knowledgeable of the goings on in Washington throughout the previous decade and was sensitive to the new limitations that had been placed on the Navy's ability to develop its own strategy and long-range plans.[8]

As CNO, Kelso initiated the most significant structural changes to OPNAV since the early 1970s to conform to the new post–Goldwater-Nichols

"joint" environment. In 1992, all OPNAV designations were changed from "OP" to "N" codes and reorganized to match the Joint Staff format. OP-07 was disestablished and the so-called "warfare barons" (OP-02, OP-03, and OP-05) were reduced from three to two stars and placed under the new programmer hub, the DCNO for Resources, Requirements, and Assessments (N8). Significantly, N8 was also granted a new Liaison Division (N83), intended to improve fleet-wide input into OPNAV programmatic decisions, while OP-06 was merged into the new N3/N5 (Plans, Policy, and Operations) and lost flag officer billets—a sign of the renewed ascendancy of programmers over strategists. Finally, doctrine development was spun off from the old OP-07 into the Naval Doctrine Command (NAVDOCCOM) in early 1993. This organization was Kelso's attempt to meet joint requirements by reforming Navy doctrine and operational practices at OPNAV's highest possible level. NAVDOCCOM would fail to meet its lofty goal of creating a multi-volume compendium of joint-naval language and doctrine before its own disestablishment in 1998. However, its publication of Naval Doctrine Publication (NDP)-1 in early 1994 was nevertheless a significant step in aiding the naval officer corps' understanding of the principles of war followed by the rest of the Joint Force.[9] All of these changes additionally effectively eliminated the Navy's pre–Goldwater-Nichols planning apparatus.

While these changes were substantial, the rapid pace of events in the early 1990s conspired to limit the time and attention Admiral Kelso was able to commit to them, or indeed any sort of long-term planning. In August 1990, only a few weeks after Kelso had become CNO, CJCS General Colin Powell released his "Base Force" plan to meet public and congressional demands for a peace dividend. A strong believer in the necessity of substantial standing forces to meet unexpected threats and maintain peace abroad, Powell's plan nevertheless advocated general cuts amounting to approximately 25% of the Navy's 546-ship fleet and a reduction from the goal of 15 active carriers to 12.[10] This latter change was a monumental shift—the first time that the target number of carriers would drop below 15 since the Korean War. Within two years the "Bottom-Up Review," a similar plan created by Secretary of Defense Les Aspin, would go even further by advocating for the elimination of a full third of the Navy's forces.[11]

OPNAV's initial response to the demand for a peace dividend came in the form of its first vision statement of the decade, written not by OP-06, but primarily by Captain Dan Murphy, who was serving as Kelso's executive assistant, and Vice Admiral Paul David Miller, the head of OP-07. Published in the Naval Institute's *Proceedings* in April 1991 and titled "The

Way Ahead," this document was effectively a public statement of the Navy's need to refocus from opposing a single (Soviet) enemy to concentrating on forward presence. The document argued that this could be done effectively with fewer ships, but only if the service altered its deployment patterns, battlegroup compositions, amphibious reaction forces, and major operating bases. "The Way Ahead" was, essentially, a statement of OPNAV's willingness to downsize as long as there was a well-defined mission and a plan to do so. Unfortunately, its publication in the April issue of *Proceedings* meant it arrived two months after Desert Storm had fundamentally problematized the public perception of the Navy's role in the post–Cold War world.[12]

On 2 August 1990, Iraqi forces had invaded and occupied Kuwait, prompting Operation Desert Shield in response. But, while the ensuing buildup of coalition forces in Saudi Arabia took place gradually over the next six months, the actual aerial and ground phases of the conflict, Operation Desert Storm, were extremely rapid. In fact, the ground phase of the operation in particular was so overwhelmingly quick and effective—famously lasting only about 100 hours after its commencement early on 24 February 1991—that analysts, military, and congressional leaders alike became convinced that a complete transformation of warfare had taken place. Dubbed a

A BGM-109 Tomahawk land attack missile (TLAM) is fired toward an Iraqi target from the battleship USS *Missouri* (BB-63) at the start of Operation Desert Storm, 17 January 1991. (NARA, DN-SN-91-09313)

"revolution in military affairs," the belief was that superior technology in the form of smart weapons, satellite reconnaissance, and the close integration of the post–Goldwater-Nichols United States military had effectively reduced the substantial power of the Soviet-armed Iraqi military to insignificance.[13]

Yet the Navy did not benefit from the public relations boon that victory granted to the rest of the U.S. military in 1991. Desert Storm had primarily been an air and ground conflict, and one that had proven to be fairly fertile ground for the Army and Air Force to simply adapt and employ their late-Cold War strategy and doctrine. The Navy had no such luck, as the Maritime Strategy was geared solely towards combat with the Soviet Union, and Iraq had no remotely comparable naval forces. To make matters worse, there was significant and public friction between the operation's overall commander, General Norman Schwarzkopf Jr., and his naval counterparts. While the Army, Air Force, and Marines had appeared to act as an efficient, effective, integrated whole, the Navy had for all intents and purposes appeared to the public to sit in the Arabian Gulf and do very little to help.[14]

Desert Storm was therefore instead a public relations mess for the Navy at a time that the service was already struggling to find its post–Cold War strategic, structural, and budgetary footing. It also cast "The Way Ahead" immediately into irrelevancy. While OP-06 had not been involved in that particular document, it had not collectively been sitting on its hands. In September 1992, its last official product, ". . . From the Sea: Preparing the Naval Service for the 21st Century" was initially distributed in part as a response to the environment created by Desert Storm.

While ". . . From the Sea" had initially been drafted by the Naval Force Capabilities Planning Effort led by Brigadier General Thomas L. Wilkerson, Marine Corps, the document had been revised by Vice Admiral Leighton W. Smith, who was then OP-06. With the experience of Desert Storm in mind, ". . . From the Sea" asserted that the primary mission of the Navy had transformed into support of the Joint Force ashore from littoral areas. Rather than sea control or ASW, the fleet's purpose was strike and power projection, utilizing advanced new smart weapons like the TLAM that had first entered service in 1991. While this did not have any *direct* influence over the Navy's budget and planning process, it underscored the belief that the Navy's most potent asset remained its aircraft carriers and their battle groups, which were uniquely able to act far from friendly bases without prolonged buildup periods like Desert Shield.[15]

As a mission statement, ". . . From the Sea" was generally successful in explaining where the Navy fit into the post–Cold War defense puzzle,

and was not immediately discarded like many of the other documents of the 1990s for that reason. Yet this "success" bought Admiral Kelso little breathing room thanks to three further events that eventually culminated in the early termination of his time as CNO.

In early 1990, a series of delays and cost overruns had begun plaguing the Navy's A-12 Avenger II program, a long-range, carrier-based stealth attack aircraft intended to replace the A-6 Intruder. While many of these problems had begun in the previous decade, they had only come to light under the increased scrutiny of procurement programs by Congress and the OSD with the end of the Cold War. When SECDEF Richard B. Cheney ultimately canceled the A-12 in January 1991 following accusations of borderline corruption, the program's expensive failure after eight years saddled Kelso and the Navy with an aircraft capability gap and considerable bad publicity before Desert Storm even entered the picture.[16]

Unfortunately, matters would only get substantially worse later that same year. In April 1989, *Iowa* (BB-61) suffered an explosion in its Number Two gun turret that killed 47 sailors. The Navy's initial investigation, which had been initiated under CNO Trost, had determined that a disgruntled sailor had sabotaged the turret's center gun. However, dissatisfaction with the Navy's investigation on the part of the victims' families and members of Congress eventually led to the opening of a GAO investigation of the accident in late 1989. This investigation, which released its report blaming misused equipment in May of 1990, prompted Kelso, in one of his earliest actions as CNO, to order a second Navy investigation. When published in July 1991, the resulting report only further clouded the picture and heavily undermined public faith in Navy leadership. [17]

Even worse was yet to come. In September 1991, a number of Navy personnel were sexually harassed and assaulted at the Tailhook Association's annual symposium in Las Vegas. The presence of numerous senior flag officers at this event—including Admiral Kelso himself—as well as the perfunctory and misleading nature of the Navy's internal investigation into the matter destroyed what remained of the service's public reputation and resulted in a prolonged investigation of the entire debacle at the OSD level. That scandal and the cancellation of the A-12's program posed a significant threat to naval aviation. Compounded by the tempestuous reaction to the Navy's actions in the recent Operation Desert Storm, the public lost faith in the service and junior officers grew distrusting of Navy leadership for nearly a decade. Together, these distractions ensured that the service would

be too busy fighting for its political and budgetary life to worry about any sort of long-range planning.[18]

When CNO Kelso resigned his post early and retired from the Navy at the end of April 1994, he had stood watch over the stunning coalition victory in Desert Storm and the collapse of the Soviet Union. But that same period had been nothing short of disastrous for the Navy, which had endured numerous major controversies and contracted from 546 ships, 583,000 personnel, and a goal of 15 carriers in 1990 to 388 ships, 469,000 personnel, and a cap at 12 carriers in 1994.[19] The two major capstone documents of Kelso's time, "The Way Ahead" (OP-07) and ". . . From the Sea" (OP-06), were the first stage of the Navy's quest to find its place in the post–Cold War Joint Force. Yet these documents were primarily aimed at improving the Navy's public profile and ability to recruit and retain personnel, as well as the service's position in the intense budgetary battles that were then ongoing. As a result, these efforts stood in stark contrast to the more concrete plan that was the Maritime Strategy of the 1980s. They served virtually no role whatsoever in actual force planning, which was at the mercy of post–Cold War budget contractions (from $211 billion in FY 1991 to $153 billion in FY 1994) and carryover procurement programs.[20] In this role, these documents were to be the first of many in the post–Cold War era.

Admiral Jeremy M. Boorda (1994–96)

Following Admiral Kelso's resignation and retirement, Admiral Jeremy M. Boorda was appointed the 25th Chief of Naval Operations on 23 April 1994. Boorda was the first "mustang" CNO, having originally joined the Navy as an enlisted sailor in 1956. After receiving his officer's commission in mid-1962, he had joined the surface warfare community and eventually commanded a number of minesweepers and destroyers. While ashore, Boorda had worked principally in manpower, including multiple tours with the Bureau of Personnel and Office of the Secretary of the Navy.[21]

CNO Boorda inherited a service in deep crisis. The Navy's reputation had been shredded by numerous scandals, the budget continued to diminish, and the Navy had no clear direction or long-range plan. This was admittedly in part due to the fact that the Clinton administration itself struggled to find a foreign policy footing that the American public would definitively support in the post–Cold War era. Nevertheless, OPNAV's reorganization under Admiral Kelso, the precipitous drop in the size of the officer corps, and the cascade of events between 1990 and 1994 had ensured that the

Navy as a whole was largely limited to reacting to events rather than proactive planning of any kind. Boorda was, as a result, not in a strong position to address the Navy's deficiencies in long-range planning; the CNO was instead committed to steadying the ship as best he could and thereby restoring public confidence in the Navy.

The reconfigured long-range planning organizations within OPNAV shared this objective and remained dedicated to proving to the public that the Navy was both needed and on the right track rather than replacing the Maritime Strategy directly. In November 1994, OPNAV's next effort in this campaign was published under the title "Forward . . . From the Sea." A product of the residual influence of OP-06 now found in N3/N5, this document was written by Rear Admiral Philip Dur (N51) and the members of N513 (Strategy and Concepts Branch). As the name might suggest, "Forward . . . From the Sea" was written as an update to ". . . From the Sea," taking into account the ideas of Les Aspin's "Bottom-Up Review" and the Clinton administration's 1994 "National Security Strategy of Enlargement and Engagement" that had come along in the interim. Like its predecessor, "Forward . . . From the Sea" advocated forward presence and power projection ashore with the ultimate objective of supporting budgetary requests needed to develop more specialized forces for this role (that could better utilize TLAM, for example).

Though not mentioned in this document, Boorda himself believed that his "arsenal ship" concept was the perfect embodiment of this approach to naval power projection in the post–Cold War era of constrained budgets and limited manpower. With the TLAM having just shown its potential to hit heavily defended targets without risking a pilot during Desert Storm, the Navy's ability to project power into areas too dangerous for manned aircraft was limited by how many VLS cells it could bring into range (as these weapons cannot be reloaded at sea). Essentially a hull carrying hundreds of TLAM-capable VLS cells and a minimal crew, the arsenal ship was intended as a cost-effective solution to this dilemma. But it was never a serious part of any long-term plan outside the CNO's office. An initial design and contracting phase for such a vessel was undertaken midway through Boorda's brief tenure but was unable to generate much support in or beyond OPNAV due in large part to its unorthodox design and the program was ultimately terminated in 1998. Neither it nor "Forward . . . From the Sea" ultimately had any real impact on the yearly programmatic decisions being made within N81 and at the OSD level, particularly as the defense budget continued to shrink.[22]

Other than "Forward . . . From the Sea," there were no further major vision statement initiatives during CNO Boorda's brief tenure.[23] The admiral's attempts to restore the reputation of the Navy ended abruptly with his tragic death on 16 May 1996, deepening the crisis of leadership that had begun earlier in the decade.

Admiral Jay L. Johnson (1996–2000)

Vice Chief of Naval Operations Jay L. Johnson took over as interim CNO when Boorda died, and was confirmed as the next official Chief of Naval Operations in August 1996. A naval aviator who was a champion of the F/A-18E/F Super Hornet (A-12's emergency replacement program), Johnson had additionally worked in BuPers and was a former member of the CNO's Strategic Studies Group (SSG). Yet no matter what his background might have been, circumstances demanded that the new CNO spend the majority of his time and energy repairing the shattered reputation of the Navy.[24] Famously, he declared that he would "conn" the Navy by the four stars of operational primacy, leadership, teamwork, and pride.[25]

Yet while CNO Johnson was largely distracted with repairing the Navy's reputation, the rest of DOD continued reshaping the way things were done in the post–Cold War world. In early 1996, the Joint Chiefs promulgated *Joint Vision 2010*, which represented another fundamental shift. With this document, the CJCS went from providing strategic guidance and submitting alternative recommendations to the SECDEF for the services' program choice and budget proposals to governing the services' visions and resource decisions directly. In short, the CJCS had moved to further consolidate power over strategy and force planning above the level of the service chiefs.[26]

Additionally, the FY 1997 National Defense Authorization Act mandated a new study, titled the "Quadrennial Defense Review" (QDR), which was to be conducted every four years. Focused primarily on identifying the military's strategic objectives and doctrine, the QDR nevertheless served as an important evaluation of the military by the SECDEF and CJCS, aiding the top-level determination of how the overall budget would be distributed and, as a result, what the overall force structure would look like. In other words, the combination of *Joint Vision 2010* and the institution of the QDR were intended to be the tools by which major force structure decisions were annually made by the CJCS and Secretary of Defense in the post–Goldwater-Nichols world, leaving the CNO and OPNAV room only to work within the guidelines they were given. This state of affairs would not prove to be

permanent; the QDR would first change to simply defining a number of ships for the battle force in 2010 before being replaced entirely by the National Defense Strategy in 2018. Nevertheless, it was a highly influential process in terms of joint force architecture in 1997 and 2001 through its endorsement of network-centric warfare. It was also a clear sign of the way the winds of change were blowing in the 1990s.[27]

Despite these changes and challenges, the remaining strategy-oriented organizations within OPNAV continued their work to help reinvigorate the Navy and its reputation by developing new vision statements. In November 1997, the CNO Executive Panel (N00K) published the optimistically titled "Anytime, Anywhere" in *Proceedings*. Like its immediate predecessors, this document defined the Navy's mission as supporting the Joint Force ashore through the Navy's complete control of the seas. In the absence of a peer competitor, the Navy and Marines were not only able to be highly mobile—much more so than land- or air-based forces—but they were also able to have, "an impact so disproportionate to [their] numbers as to make [them] decisive in peace and war."[28] While somewhat different in wording and direct focus, "Anytime, Anywhere" followed CNO Johnson's lead in staying focused on stabilizing the Navy, hence its similarity to the documents published previously in the 1990s. Thus, while receiving considerable public attention and potentially being useful in an overall budget debate in Congress, this vision statement did not have any more to do with force design than ". . . From the Sea" or its successor.

This state of affairs did not escape those involved in creating the various capstone documents of the 1990s. At the end of CNO Johnson's tenure in April of 2000, N51 (Strategy and Policy—the converted home of the old strategic planning center previously in OP-06) issued "Navy Strategic Planning Guidance" Aware of the Navy's increasing dependence upon the yearly POM process for actual force structure and design decisions, the writers of this document essentially sought to standardize the Navy's approach to strategy. To do so, "Long-Range Planning Guidance" advocated ongoing and cyclical reviews of Navy strategy so as to keep it in line with changes in world affairs and at the joint level. Additionally—and most significantly—the document argued that any future strategy must be linked to the PPBS and the recurring QDRs initiated in 1997. It was only through these reforms that Navy strategy could address both public relations and force design in the post–Cold War world.[29]

While demonstrative of the sensitivity of the strategy community to the dramatic trials and travails that the Navy had undergone throughout

the previous decade, "Long-Range Planning Guidance" would not result in any substantive reforms. There were a number of reasons for this, not the least of which was the fact that soon after its publication CNO Johnson's tenure ended and a new CNO arrived who possessed a strong programming background. But perhaps more importantly, a combination of the continued budget crunch into 2001 and the beginning of the Global War on Terrorism in September of that year reoriented attention in the DOD from future capabilities to the immediate problems of the present.

The Global War on Terrorism, 2000–2005

Admiral Vernon E. Clark (2000–2005)

The Navy in 2000 consisted of 317 battle force ships, 378,000 personnel, and a budget of $150 billion—a far cry from the significantly larger force Kelso had assumed charge of a decade earlier.[30] Two aircraft carrier classes (*Midway* and *Forrestal*), as well as six classes of cruisers, three types of destroyers, seven nuclear submarine classes, and the *Knox*-class frigates had all been retired in the previous decade as they aged out or were scrapped early to preserve funding for newer ships. Soon to follow were the remainder of the *Spruance*-class destroyers and *Oliver Hazard Perry*-class frigates as Cold War–era antisubmarine capabilities were fully discarded. What remained was a much more homogenous force which would characterize the fleet through 2010 and beyond. U.S. surface forces in particular consisted primarily of three carrier classes (*Kitty Hawk*-, *Enterprise*-, and *Nimitz*-), the *Ticonderoga*-class guided missile cruisers, and the *Arleigh Burke*–class guided missile destroyers that, ideally, would all be easier to support on a constrained budget.[31]

Yet while the service continued to shrink, its fortunes began to rebound in the new millennium thanks to the accelerating rate of procurement programs that had been initiated as far back as the final years of the Cold War. Many programs had been canceled as part of the general budget crunch of the early 1990s, and of those that survived, significant downsizing had often been all that saved them. Only three *Seawolf*-class SSNs had ultimately been produced, for example. The primary exceptions to this were the aforementioned multi-mission capable, Aegis-equipped *Arleigh Burke*-class destroyers, TLAM, and VLS, which had gradually joined the fleet beginning in 1991.[32] Two new *Nimitz*-class carriers, *John C. Stennis* (CVN-74) and *Harry S. Truman* (CVN-75), had also been completed while another, *Ronald Reagan*

(CVN-76), was laid down in 1998 and one more was planned.[33] Finally, the F/A-18E/F development program was nearly complete and would become operational in 2001. Thus, while the size of the fleet had decreased, its reduced core structure of 12 aircraft carrier battle groups had managed to grow younger and more technologically sophisticated. This was not thanks to a long-term fleet design process but rather to year-by-year fiscal decisions that rode entirely upon what could be saved from the budgetary axe within the basic outlines provided by OSD and the JCS.[34]

Despite these circumstances, a handful of significant new development programs had been initiated on the back burner. Studies of a successor to the *Nimitz*-class carriers better oriented towards supporting forces ashore, the CVN-21 program, were ongoing throughout the 1990s. Funds would be available and designs finalized enough to actually order the first of the *Gerald R. Ford* class (CVN-78) in the early 2000s. Likewise, the SC-21 (Surface Combatant for the 21st Century) program, nominally initiated in 1994, had evolved by 2000 to include a number of different design studies in advanced stages of development.[35] This included a new land attack destroyer (DD-21) and an air-defense cruiser intended to replace the *Ticonderoga*s (CG-21). Unfortunately, these programs were still years from providing any tangible benefit to the fleet.

Complicating this limited procurement process was the gradual consolidation of the remaining private military shipyards in the United States, which reached its climax between 1997 and 2002. During that five-year period, the remaining six independent yards that were relied upon for all major Navy building programs were evenly consolidated under General Dynamics and Northrop Grumman on their own initiative and without objections from the DOD. The result was a much-reduced degree of competition for Navy contracts and a virtual guarantee that the capacity of these two companies to build large surface combatants would remain limited for the indefinite future.[36]

CNO Johnson was succeeded by Admiral Vernon E. Clark in July 2000. The new CNO was not a U.S. Naval Academy graduate but instead held a master of business administration from the University of Arkansas. He joined the Navy through OCS in 1968 and thereafter became a surface warfare officer (SWO) who had spent a considerable amount of time at sea commanding destroyers. While ashore, Clark had worked primarily in OPNAV: as a flag officer he had served as the assistant director of the Systems Analysis Division; as DCNO for Surface Warfare; and as an administrative aide to VCNO. Well-versed in the budgetary and public affairs struggles

that the Navy had endured throughout the 1990s, the new CNO seemed like a perfect choice to make the 2000s a much more positive decade for the service. That said, like his predecessors, CNO Clark's priorities were not directed toward long-range planning or, for that matter, procurement. However, while his initial efforts would likewise be dedicated to repairing the Navy's reputation, his tenure would ultimately be defined by a search for the optimal organization of a diminished fleet and a quest for peak fleet readiness, specifically missions that would have significant effects on the Navy's future force structure. This was because events would, once again, rapidly overtake any initial intentions the new CNO might have had.[37]

Throughout his lengthy tenure, Clark made numerous changes to nearly every existing office in OPNAV, several of which are significant to this study. In 2001, Clark created Fleet Forces Command (FFC) to centralize the allocation of units to COCOMs and established cells specifically intended to deal with the upcoming QDRs. The 2001 QDR cell in particular underwent rapid changes first to the role of the "Navy Operations Group," and finally in 2002, under Plans, Policies, and Operations (N3/N5), became known as "Deep Blue." This organization was a multi-role think tank that reported directly to the CNO on doctrinal, operational, and strategic questions. Clark also created the Strategic Actions Group (N00Z) in 2002, which largely took over the duties of writing policy papers from N00K. Finally, the CNO "double-hatted" the N81 as Special Assistant for Assessments (N00X) in 2003. All of this together enhanced the position of programmers within OPNAV but also resulted in the nominal dedication of five different organizations to "strategy."[38] That said, many of the changes in OPNAV also reflected the new ideas and policies that had come into favor at the OSD level that kept these organizations from effectively gaining their feet in the planning process.

When the George W. Bush administration took over in early 2001, it did so with the stated mission of what it termed defense "transformation." Essentially, this meant streamlining DOD activities and, in doing so, cutting costs in overhead while creating a much more flexible and adaptable force—doubling down on planning around capabilities rather than particular threats.[39] Incoming SECDEF Donald Rumsfeld in particular believed that the Pentagon's systems and bureaucratic processes were the largest obstacles to beneficial change, and that this could be corrected by adopting examples from the business world. As encapsulated by Rumsfeld's 10 September 2001 speech, this was all essentially a managerial reform of the DOD, ranging from making changes to the PPBS system and streamlining the acquisitions process to reducing the size of headquarters staffs and

consolidating healthcare. Naturally, this also involved changes to the few procurement programs that the Navy already had in progress.

Soon after Clark became CNO, the Navy was informed that OSD would not continue to support the SC-21 program without a small combatant capable of fulfilling the 2001 QDR's directive to improve the sea service's ability to deal with anti-access/area denial (A2/AD) threats. Although Clark himself was not inherently opposed to procuring ships smaller than the *Arleigh Burke*-class destroyers then under construction, the Navy at large was highly divided on the subject (and had as recently as the 1997 QDR decided to divest itself of all such ships). Clark's November 2001 solution was to comply by replacing SC-21 with the CG(X), DD(X), and LCS programs in an attempt to field more vessels with less funding. With this plan, the fleet was eventually expected to expand to a 375-ship battle force built on a networked and distributed combat power model. While CG(X) would provide air defense and DD(X) would serve as the primary surface combatant, the small and affordable LCS would, in turn, perform missions close to shore where it was unwise to risk large high-value units.[40] In essence, Clark attempted to make the best of the force architecture directive that Rumsfeld's OSD handed him by agreeing to advocate for a numerous, inexpensive, and small surface combatant. Unfortunately, while the LCS program—with OSD's favor—rapidly proceeded, DD(X) encountered delays and cutbacks while CG(X) was eventually canceled outright in 2010.[41] None of these decisions were part of any comprehensive long-term plan or force design on the part of OPNAV, but merely a quick reaction on Clark's part to OSD directives.

The 11 September 2001 terrorist attacks radically changed OSD's outlook and OPNAV's focus. The attacks on 9/11 were not the first major attacks on the United States of the new millennium. *Cole* had been attacked and nearly sunk by al-Qaeda in Aden harbor on 12 October 2000. But the *Cole* bombing had only drawn attention to deficiencies in refueling security, as well as some limited tactical and operational implications of operating in unstable areas like the Arabian Gulf. The attacks on 9/11 triggered a much broader response on the part of the Bush administration, beginning first with the invasion of Afghanistan in October 2001 and then the invasion of Iraq in March 2003. While this did not result in Rumsfeld's plans to reform the DOD being abandoned wholesale, the significant increase in the defense budget that followed 9/11 and persisted afterwards reduced the budgetary pressure motivating many of the SECDEF's proposed changes. This greatly eased tensions between OSD and OPNAV in the short term.[42]

Additionally, the initial invasion of land-locked Afghanistan in particular—a state geographically located far from established Army and Air Force bases—relied heavily upon carrier aviation. CNO Clark recognized that this would be the case early in the planning process and committed to backing the invasions of both Afghanistan and Iraq (which presented similar access complications due to reluctant regional allies) with the maximum effort the Navy was able to apply. In doing so, Clark simultaneously reinvigorated the Navy's reputation as a critical component of the U.S.'s ability to project power abroad and underlined the necessity of continuing the service's extant development programs to support the projection of power ashore. This mission now demanded a focus on combat with relatively low-tech, non-state actors rather than more traditional mission sets. The immediate result was an acceleration of the new LCS program intended for that "low-end" fight in shallow waters and, finally, the awarding of contracts for CVN-78, which heavily emphasized sortie generation to the same end.[43]

This type of thinking is clear within the primary capstone document of Clark's tenure: "Sea Power 21: Projecting Decisive Joint Capabilities," authored by N00Z and first published as a series of articles beginning in the October 2002 issue of *Proceedings*. At its heart, this document was a continuation of ". . . From the Sea" in the sense that it also leveraged the promise of transformative technology to argue that U.S. naval forces were global and decisive. But it strictly emphasized standoff precision strike warfare and high-end weapons systems as an effective (and potentially standalone) means to fight regional powers. "Sea Power 21" did not emphasize forward presence in support of political or economic missions; it emphasized that the Navy's purpose was power projection in support of U.S. interests abroad. Thus, everything rode on the preparedness and effectiveness of the combat fleet, particularly the carriers.[44]

As had been the case with the Vietnam War, Clark's full-bore support of U.S. military activity in Afghanistan and Iraq came at a significant cost to the fleet as both operations dragged on much longer than anticipated. To keep adequate forces deployed, the deployment cycle itself had to be heavily modified, a fact that had contributed to the creation of FFC.[45] The operational tempo this created rapidly wore out the Navy's ships, shortening their expected service lives and shrinking the fleet much more rapidly than the limited procurement programs discussed above were able to replenish it. As a result, at the end of Clark's time as CNO in 2005, the battle force had contracted to 282 ships and 362,000 personnel—and that loss of 35

(primarily ASW) ships did little to demonstrate how much wear had been endured by those that remained.[46]

While Clark himself was not particularly interested in long-term planning beyond his attempts to invigorate the Navy's strategic thinking, it is curious to note that Congress seemingly had other ideas. The FY 2003 National Defense Authorization Act introduced a requirement for OSD to annually submit a 30-year shipbuilding plan, something that the sea service itself was neither prepared nor particularly enthusiastic about doing. As there was no actual long-term force structure planning ongoing anywhere at that point in time, the information that was submitted through 2010 was little more than a vague extrapolation of yearly expected service-life plans, one that has never, thus far, managed to bear out reality even five years later. Instead, actual force design throughout this period continued instead to be a product of OSD directives and the POM process, the year-by-year programmatic decisions being made in N81.[47]

The Insurgency Crisis, 2005–10

Admiral Michael G. Mullen (2005–2007)

As the insurgency in Iraq intensified through 2005, it gradually became apparent to the Bush administration, the DOD, and the general public that not only had the Global War on Terrorism proven much more complex than expected, but that the United States might lose the war in Iraq. This led to nothing less than a significant rethinking of U.S. global military strategy and a reassessment of the same regional missions to which the services had so recently fully committed. The result, as exhibited in the March 2005 National Defense Strategy, was a pivot to a "systemic and collective" understanding of U.S. security interests as involving all of its allies and partners. As the guardian of an international system that benefitted its members, the United States was charged with maintaining international peace and prosperity but could not do so fully alone.[48]

Admiral Michael G. Mullen succeeded Clark as CNO on 22 July 2005. He inherited a Navy that was experiencing an operations tempo reminiscent of the Vietnam War, which was rapidly wearing out ships and personnel. A graduate of the U.S. Naval Academy class of 1968 and holder of a master's degree in operations research from the Naval Postgraduate School, Mullen was the first true post–Goldwater-Nichols programmatic CNO. A SWO who had spent the early portion of his career aboard destroyers, Mullen

had variously served ashore with BuPers (Director, Surface Officer Distribution), OPNAV (Director of Surface Warfare, DCNO for Resources, Requirements, and Assessments/N8, and as the 32nd VCNO), and OSD (Office of the Director, Operational Test and Evaluation). He therefore came to the head of OPNAV with OSD and N8 programmatic experience evaluating the ships and development programs that now characterized the Navy.[49]

When Mullen became CNO, his most immediate tasks were to get a handle on the recurring fleet readiness problem stemming from the shrinking battle fleet's high operational tempo and to get control of spiraling shipbuilding costs.[50] Without doing so, there was little that the Navy could do to move beyond living hand-to-mouth on yearly budgetary decisions for force design and battle force size. This was a delicate balancing act, and one that would prove frustratingly difficult. Unexpected increases in readiness costs could upset the Navy's attempts to build new ships, and unexpected needs were fairly common as the Navy continued to support the Global War on Terrorism throughout Mullen's tenure. On the other hand, spiraling shipbuilding costs could cause the current battle force to continue to shrink faster than it could be replenished. While the concept of interchangeable mission modules had seemed to hold out the promise of reduc-

PCU *Virginia* (SSN-774) returns to the General Dynamics Electric Boat shipyard after its "alpha" sea trials, 30 July 2004. The submarine would be commissioned on 23 October 2004. (U.S. Navy/General Dynamics Electric Boat)

tions in costs for the LCS program, this would eventually turn out not to be the case. For its part, the high-end DD(X) program—now known as the *Zumwalt* class or DDG-1000 program—would only have two hulls funded by the end of Mullen's tenure, with a grand total of three eventually being built in favor of instead procuring more *Arleigh Burke*–class destroyers. While this 2008–2009 decision was ultimately made after Mullen had left the post of CNO, it accurately reflects the precarious state of Navy procurement while he was in office.[51]

Complicating Mullen's attempts to deal with readiness issues was the increasing power of Fleet Forces Command in this role. Though only recently created by CNO Clark, FFC had a similar mission to OPNAV's mandate to train, equip, and organize the fleet, although geared specifically toward the COCOMS. FFC had therefore become something of a counterweight to the CNO for Navy programming as early as 2005, a fact that was exacerbated by public disagreements between Mullen and FFC's Admiral John B. Nathman over the Navy's role in national strategy.[52] This had in effect increased the common perception that OPNAV also existed merely to support the COCOMs and their own requests in the post–Goldwater-Nichols Navy. In order to preserve his control over the fleet and give his balancing act with procurement its best chance of success, Mullen elected to embrace strategic planning to a degree not seen since the end of the Cold War. In leaning into OPNAV's additional mandate to plan for the future, the CNO hoped to re-broaden the basis upon which yearly programmatic decisions were being made in N81 and elsewhere beyond the limited scope of the individual needs of the COCOMs. While this would not ultimately result in a true, long-range force design process, it would succeed in this broadening goal. By popularizing discussion of the Navy's overarching needs, as well as in reaffirming the CNO's position of authority, OPNAV's work under Mullen was a clear step down the path towards realigning the Navy's strategic horizon back towards large systemic challenges.[53]

Despite what his programmatic background might suggest, Mullen was not unaware of the activities of OPNAV's strategy shops prior to his becoming CNO. Having been familiarized with the ideas of N3/N5 Vice Admiral John G. Morgan Jr. as early as 2004, Mullen directed him to develop a strategic plan able to influence the programming process in July of 2005. The initial result of this work was "The 1,000-Ship Navy: Global Maritime Network," which essentially embraced the new outlook expressed by the 2005 National Defense Strategy. Published in the November 2005 issue of *Proceedings*, it argued that the essence of the global "system"—of which the

United States was guardian—was global trade, the vast majority of which moved by sea. Maritime security of that system was thus an international problem, and as more than just the United States benefitted from its function, it required an international solution. This, Morgan argued, should take the form of a voluntary organization of a network of navies, coast guards, and other maritime and commercial forces working together with whatever they have available at whatever they can do best.[54] This was a "come as you are" concept that Mullen believed could help the Navy cover its low-end requirements by relying more on allies while it also continued to embrace "Sea Power 21" for itself.[55]

The formal addition of low-intensity systemic protection tasks to the Navy's mission was not a decision that all flag officers agreed with, as some believed that it created a potentially dangerous budgetary distraction from the traditional task of blue-water power projection. In part as a response to the divide within the Navy's ranks on the subject, Mullen initiated the development of a new capstone document in June 2006. This was the most comprehensive and widespread effort of this type since the end of the Cold War, in part because Mullen recognized the need for input from the fleet so as to achieve consensus in the style of Project 60. After over a year and three phases of development, the result was "A Cooperative Strategy for 21st Century Seapower" (CS-21).[56]

Signed and distributed by Mullen's successor as CNO in October 2007, CS-21 argued that U.S. national interests should be viewed through the lens of the United States' place in the international economic system. As globalization had dramatically increased since the end of the Cold War, the United States' security and prosperity had accordingly become coupled to that of the rest of the international community. Thus, U.S. interests were best served by fostering a peaceful rules-based global system underpinned by networks of trade, finance, and information. The Navy, as the world's only global naval force, carried the primary responsibility for protecting that system, both as a constabulary force and in high-intensity conflict with regional powers. Forward deployment was a critical component of this concept, as was a continued reliance on aircraft carrier battle groups that could meet both high- and low- end requirements of such a mission set.[57]

Considerable time and effort was expended on achieving a consensus document with CS-21 and it represents a significant achievement for that reason. However, it nevertheless could not become a definitive influence on the POM (and by extension, the instigator for a longer-term force design process) as long as the conflicts in Iraq and Afghanistan continued to be

a drain on Navy resources. An additional complication was the fact that Mullen served only two years as CNO—he was the fourth admiral selected to become Chairman of the Joint Chiefs of Staff in mid-2007, dropping the capstone project in the lap of his successor. Nevertheless, Mullen's time as CNO was the first concerted attempt to institute a broader, more structured procurement planning process beyond yearly budgetary concerns since the end of the Cold War; an effort that curiously did not include an explicit force goal.[58]

Admiral Gary Roughead (2007–11)

Following Mullen's promotion to CJCS, effective 1 October 2007, Admiral Gary Roughead was selected to replace him as CNO. Another SWO and 1973 graduate of the U.S. Naval Academy, Roughead had a somewhat unusual history ashore as the Navy's chief of legislative affairs, the commander of Fleet Forces Command, and the commandant of his alma mater. Aware of the problems Mullen had been grappling with as well as the continuing rapid pace of technological change, Roughead primarily focused on controlling shipbuilding costs and creating an organization within the Navy to handle the emerging field of cyber warfare.[59]

Nevertheless, one of Roughead's first actions as CNO was to sign his predecessor's capstone document. Although he had some of his own ideas regarding the priority order of the missions that "A Cooperative Strategy" espoused.—evidence suggests Roughead tended to emphasize high-intensity, high-end combat first—he nevertheless stuck to the document and believed in its arguments throughout his tenure.[60] That said, the limitations on its employment persisted as the drain represented by the operations in Afghanistan and Iraq continued.

This situation was significantly complicated both by the Iraq troop surge of 2007 and the 2008 financial crisis. While the former drained an increasingly significant portion of the defense budget and largely negated many of the gains since 2001, the latter caused the Navy's budget to begin contracting once again by FY 2012.[61] Combined with delays and cost overruns in the LCS and *Zumwalt* programs, there was little that OPNAV or the CNO could do other than fall back upon preserving what they could with the funds available, beginning primarily with the 12-carrier goal and working down from there.[62] Such an environment was far from conducive to any kind of force design, even with the OSD-directed development of "Air-Sea Battle," a short-lived doctrine intended to serve just such a purpose, in 2009.

Conclusion

The end of CNO Roughead's tenure had much in common with the beginning of CNO Kelso's 20 years earlier: contracting budgets and an uncertain future post–Goldwater-Nichols meant that there was effectively no long-term procurement or force design plan. Instead, such decisions were either effectively made for the service at the OSD level or relied upon the short-term year-over-year POM process within N81. In living and dying on the uncertain yearly budget, OPNAV concentrated (after deterrence) on funding the desired number of carriers first (now reduced from 15 to 12), and structured the rest of the fleet around them based on what was left over. The largest casualties of these decisions were expensive new procurement programs like *Seawolf* and *Zumwalt* and the Navy's antisubmarine forces, which were largely seen as unneeded in the immediate aftermath of the Cold War's end. Further, and as demonstrated by the failure of Boorda's arsenal ship concept, CNOs themselves now clearly lacked the ability to decisively shape individual new procurement programs as Zumwalt had briefly managed to do with the *Oliver Hazard Perry*-class frigates two decades earlier. Ultimately, while Mullen and Roughead had experienced some success in

The future guided-missile destroyer USS *Zumwalt* (DDG-1000) transits the Atlantic Ocean during acceptance trials, 21 April 2016. (U.S. Navy, 160421-N-YE579-005)

stabilizing the decline of the battle force, it had contracted from 546 active ships and 583,000 personnel in 1990 to 285 and 331,000 in 2010.[63]

Yet it was clear that times were now changing again. The Navy, never completely unaware of the disconnection of procurement from long-term requirements, was not only very aware of the problem but had made its first concerted attempt to act upon it with CNO Mullen's "A Cooperative Strategy for 21st Century Seapower" project. Additionally, the direction by OSD at the end of CNO Roughead's tenure to begin working on "Air-Sea Battle" with an eye towards China signaled the potential return of threat-centric planning and organization, a discussion that was soon to become mainstream.

Note: See Appendix A for a breakdown of the Navy's budgets, strategies, and force structure in tabular format.

FIVE

Navigating Fiscal Shoals Without Charts, 2011–19

The decade between the end of Admiral Gary Roughead's tenure as Chief of Naval Operations (CNO) and the beginning of Admiral Michael M. Gilday's featured a continuation of many of the same trends that have defined the U.S. Navy since the end of the Cold War. Specifically, the years under Admirals Jonathan W. Greenert (2011–15) and John M. Richardson (2015–2019) featured serious volatility in the overall defense budget, ongoing operations in Iraq and Afghanistan with a resulting heavy toll on deployed naval forces, and a persistent struggle to craft an enduring long-range plan for the Navy. Although increasing attention had been levied upon this last task particularly under Admirals Roughead and Michael G. Mullen, force planning and design since 2011 remained the product of OSD and the year-by-year decisions of the programmers for the POM process in OPNAV's N8, and particularly N81 (Assessment Division).

Yet the same time, the years from 2011 to 2019 were clearly another transitional period. The Obama administration started a strategic "pivot" towards the Asia-Pacific region in response to rising Chinese military power. By the end of the decade, this shift would clearly begin motivating a return from capabilities-based to threat-based defense planning. But these changes also took place in an increasingly polarized political environment. As the yearly federal budget and debt limit gradually became the front line

between the major political parties, sequestration, and stopgap continuing resolutions (CRs) that froze spending at previous levels combined with the threat of government shutdowns to vastly complicate defense planning.[1] As then-Vice Chairman of the Joint Chiefs of Staff Admiral James A. Winnefeld Jr. put it, "we don't know how much money we're going to have. We don't know when we will know how much money we're going to have. And we don't know what the rules are going to be when we know."[2]

As major U.S. combat forces withdrew from Iraq and drew down in Afghanistan amid the uncertain fiscal environment, Greenert and Richardson made concerted attempts to orient the Navy toward blue-water missions against a peer competitor. Despite additional budgetary and procurement problems with the LCS program, *Zumwalt*-class destroyers, and *Gerald R. Ford*-class carriers, their efforts ultimately fell victim to the post–Cold War Navy's persistent inability to align on a service strategy and broaden the regional Joint Force outlook that largely drove N8's work on the POM. All of these factors together meant that while the Navy had managed to identify a primary threat—China—against which to plan its future force structure, little actual progress was made by 2019 thanks to the continuing lack of a concerted force design effort.

Admiral Jonathan W. Greenert (2011–15)

At first glance, the middle of 2011 appears an unintuitive place to mark the beginning of a new era in Navy force design. The U.S. military presence in Afghanistan and Iraq had not yet ended, the DOD remained committed to the Quadrennial Defense Review based around assessing capabilities rather than threats, and the major procurement programs begun a decade or more previously—LCS, *Zumwalt*, and *Ford*—remained underway. But Admiral Jonathan W. Greenert's time as CNO witnessed the most significant changes in U.S. defense activities since the initiation of the Global War on Terrorism, beginning with the withdrawal of U.S. forces from Iraq in the middle of December 2011. As American military commitments overseas decreased, the Navy became more capable of considering its long-term options, gradually forced to confront its dangerously spiraling acquisition and maintenance costs. While Greenert, like his two predecessors, made dealing with these problems a central part of his leadership plans, the consistent distractions posed by congressional battles over the federal budget would once again combine with inconsistent Navy messaging to thwart any chance of the CNO's approach to leadership surviving his tenure.

Acquisition costs and a shrinking battle force were far from new problems. While CNOs Mullen and Roughead had overseen a temporary stabilization in ship numbers in the 280s between 2005 and 2010, by 2011 the Navy was poised to retire the remaining 26 *Oliver Hazard Perry*-class frigates then in service.[3] These were intended to be replaced primarily by *Freedom*- and *Independence*- class littoral combat ships, the first pair of which were already in commission. Unfortunately, the LCS was designed around "swappable" mission modules for surface combat, minesweeping, and antisubmarine warfare, all of which were delayed and over budget. They finally entered testing in 2014, 2015, and 2016, respectively, but would not be ready for actual deployment in the near future. Meanwhile, *Zumwalt*-class destroyer acquisition had been reduced to a mere three hulls due to cost concerns, while USS *Gerald R. Ford* (CVN-78), laid down in 2008, had already seen its price balloon from $10.5 to $12.8 billion before even being launched.[4] Despite all efforts to the contrary, the delicate balance between acquisition and fleet size—the maintenance of which had stymied any moves toward long-term force design between 2001 and 2010—remained in crisis and once again fell to a new CNO to try and control.

USS *Gerald R. Ford* (CVN-78) and USS *Harry S. Truman* (CVN-75) underway in the Atlantic, 4 June 2020. (U.S. Navy, 200604-NBD352-0199)

Selected to succeed Roughead due to an ongoing investigation of Secretary of Defense Robert Gates' first choice, Admiral James G. Stavridis, Greenert was a career submariner with a strong programmatic background. A 1975 graduate of the U.S. Naval Academy, his duties ashore had included head of the Navy comptroller office (2000–2002), two tours in N8 including one as its director (2006–2007), commander of Fleet Forces Command (2007–2009) and Roughead's Vice Chief of Naval Operations (2009–11).[5] Upon assuming office, Greenert declared that his tenure would be guided by three principles: "Warfighting First," "Operate Forward," and "Be Ready." These ideas stood in general opposition to the broader systemic definition of the Navy's missions as contained in Mullen and Roughead's "A Cooperative Strategy for 21st Century Seapower," and were also targeted at the Navy's persistent readiness issues that had first drawn the ire of SECDEF Donald H. Rumsfeld in 2001.[6]

Greenert did not believe in what he saw as knee-jerk, one-for-one replacement of old platforms with new ones. Instead, the CNO believed that the Navy needed a way to figure out how each new system would integrate and function with the existing force structure—potentially cutting down on overall requirements.[7] Therefore, Greenert asserted that one of the Navy's chief long-term problems was the disconnection of procurement and maintenance calculations, which consistently led to underestimation of total program life cycle costs. For example, the resource costs for training and keeping systems manned were rarely considered in this process. To make matters worse, this had been amplified over the previous 20 years by the tendency of OPNAV to permit readiness to decline in the surface fleet in order to preserve funds for use in other areas of the Navy where similar actions might produce high-profile accidents (like plane crashes, for example). It had also become abundantly clear by 2011 that there was no real idea of how much the Navy's newest platforms, LCS and *Zumwalt*, would cost to operate and maintain. The CNO believed that what he termed "wholeness," or a consistent and careful consideration of all the potential effects of programs together, needed to be made a permanent part of N8's yearly processes in order to solve this problem.[8]

In pursuit of this idea of "wholeness," Greenert therefore undertook a reorganization of OPNAV centered on total cost ownership behavior that incorporated holistic cost factors otherwise omitted from life cycle cost estimates, notably manpower and logistics considerations.[9] The platform sponsors within N8—N85 (expeditionary warfare), N86 (surface warfare), N87 (undersea warfare), N88 (air warfare), and N89 (special programs)—

were moved under a new DCNO for Warfare Systems (N9) and became N95, N96, N97, N98, and N99, respectively. Additionally, individuals that had been focused on fleet-wide calculations under the DCNO for Manpower, Personnel, Training, and Education (N1) and Fleet Readiness and Logistics (N4) were moved to N9 to work directly with the platform sponsors.[10] While the CNO did not seek to upset the position of primacy that N8 had assumed within OPNAV with the end of the Cold War, he wished for that organization to act more as a "first among equals" rather than the outright dominant organization. Separating the platform sponsors was thus intended to reduce what Greenert perceived as the overly heavy workload levied on N8, allowing it to focus on the POM and spread the analytical basis for its decisions between N8 and other OPNAV entities, particularly N9. That new organization would, in turn, focus on determining the total life cycle costs of its individual platforms as well as how those platforms would coexist. In short, Greenert wanted to control platform costs by forcing sponsors to consider the long-term price of their choices more holistically in terms of money and manpower and, hopefully, make accurate and longer-term planning possible.[11]

All of the CNO's ideas were laid out in brief, regular vision documents that were divided into tiers based on their specificity and referred to using the lingo of marine navigation. "Sailing Directions," which contained high-level guidance based around the three tenets that guided Greenert's tenure ("Warfighting First," "Operate Forward," and "Be Ready"), were published frequently on the Navy's website. More detailed "navigation plans" with a similar structure were published yearly. Finally, "position reports" were periodically composed to assess the Navy's progress in implementing Greenert's ideas. In general, these remained focused throughout the CNO's tenure on the current state of readiness of the Navy's forces and the progress of its procurement programs. While none of these documents were concerned with long-term planning or force design, Greenert's position reports did give status updates on the gradual progress of revising 2007's "A Cooperative Strategy for 21st Century Seapower," a process that took until 2015 to complete.[12]

But just as the Bush administration's pivot to systemic defense had motivated the addition of low-intensity trade protection and humanitarian tasks to the list of primary missions of the Navy, Greenert believed that the changing-world situation in 2011 once again signaled the need for a different approach. Yet while the new CNO initiated work on a revision to "A Cooperative Strategy" before he even entered office, his attention would

not remain focused on the task until 2014, leaving the primary writers of the new strategy—OPNAV's Strategy and Policy Division (N51)—unable to make serious headway before that time and then needing to account for the 2014 QDR.[13]

Published under nearly the same name as its predecessor in *Proceedings* and on the Navy's website beginning in the spring of 2015, *A Cooperative Strategy for 21st Century Seapower: Forward, Engaged, Ready* (CS21R) maintained some of its predecessor's language referring to Navy's role in protecting the global commons in conjunction with allies. But it particularly emphasized the importance of blue-water combat capabilities and what it referred to as "all-domain access." While addressing numerous subjects including cyberattacks, it conspicuously stated the need to counter rising anti-access/area denial (A2/AD) threats in the Indo-Asia-Pacific region.[14] Ultimately, CS21R represented a course change back away from systemic protection towards the traditional mission of high-intensity combat as the Navy's number one priority. It was also effectively a demonstration for Congress, foreign powers, and academics that the Navy understood that times (and the budget) were changing. CS21R was no longer consistently referenced or briefed after only a few months of mixed reception and general indifference at the OSD level.[15]

A large part of the problem hampering the execution of CS21R and Greenert's reforms, in general, was what most often plagues CNOs: unexpected events. While this included the standard fare of power-projection carrier strikes between 2011 and 2015 (principally in the form of attacks against Islamic State of Iraq and Syria [ISIS] forces beginning in 2014), Greenert was faced with an additional pair of major challenges from both within the Navy and beyond. From below, the number of commanding officers relieved due to sexual misconduct escalated dramatically in 2011 due in part to the increased visibility such problems gained through the spread of the internet and email. No effort undertaken during Greenert's tenure had an appreciable effect on this trend and remained a persistent problem after his departure.[16]

From above, persistent disagreement between Congress and the President over the federal budget was an equally, if not even more, serious problem from the very beginning of Greenert's time in office. Uncertainty surrounding the budget rendered any CNO initiative problematic. Continuing resolutions that temporarily funded the government at the previous year's levels and shutdowns due to a lack of any funding were not new occurrences, but the use of CRs and the accompanying threat of shutdowns escalated, with

14 enacted between 2011 and 2015 alone.[17] The budget battles led to a new round of sequestration in 2013 that dramatically cut DOD budgets across the board, with the Navy's slice decreasing from $223 billion in FY 2011 to $192 billion in FY 2015.[18] Congress simultaneously applied pressure to the DOD to adopt business models for streamlining platform development and cutting staff overhead costs.[19] These cuts prevented Greenert from focusing effectively on his own priorities for any significant length of time. This state of affairs also ensured the continued disconnection of the Navy's assessment and procurement activities from any serious long-term planning regardless of the CNO's intent. N8's year-by-year work on the POM thus remained the Navy's only real planning activity through 2015 despite the gradual shifting of the DOD's attention towards the Pacific.

Admiral John M. Richardson (2015–19)

Admiral John M. Richardson became CNO in September 2015. A 1982 graduate of the U.S. Naval Academy, he holds master's degrees in electrical engineering from Massachusetts Institute of Technology (MIT and Woods Hole Oceanographic Institute as well as in national security strategy from the National War College. Richardson was a submariner whose shore billets included: chief of staff for U.S. Naval Forces Europe and U.S. Naval Forces Africa; commander of Naval Submarine Forces; director of Naval Reactors; naval aide to the President of the United States; assistant deputy director for regional operations on the Joint Staff; and director of strategy and policy at the U.S. Joint Forces Command.[20]

The Navy budget stabilized to an extent and began to increase regularly after FY 2015, growing from about $191.7 billion to $226.8 billion in FY 2020.[21] This budgetary stability allowed Richardson to embrace a far more ambitious force design and long-range planning effort than his predecessor, and he restructured OPNAV to facilitate this shift. In December 2018 he stood up a new N7, the Director for Warfighting Development, to oversee education, experimentation, exercise, and analysis, as well as oversee leader development. N7's goal was to develop "synergy between how we fight and how we learn" to improve combat effectiveness.[22] Richardson also expanded his conception of how to reduce the problematic disconnect between the development and dissemination of naval doctrine and naval capability. Like Hayward, Richardson turned to the Naval War College in tandem with the Naval Warfare Development Command, and the Type Command (TYCOM) Warfare Development Commands in an ultimately unfulfilled

bid to establish the Navy Center of Excellence for concept development (DEVGRUEAST) at C2F. In tandem, he called for the establishment of the Navy Center of Excellence for capability development (DEVGRUWEST) at C3F, comprised of the Space and Naval Warfare Systems Command, Naval Postgraduate School, Naval Warfare Development Command, and TYCOM Warfare Development Commands. If implemented, Richardson intended for DEVGRUEAST and DEVGRUWEST to collaborate and "exploit the constructive, iterative dynamic between capability and concept development."[23]

In December 2016, the Navy released its plan for achieving and maintaining a fleet of 355 manned ships. This total was derived from a force structure assessment conducted earlier that year in which input was solicited from the combatant commanders to determine the capabilities they found necessary to implement the Navy's portion of the National Security Strategy from both warfighting and peacetime forward-deployed perspectives. That input was then converted into ship numbers based on current and projected types. [24]

The 355-ship fleet was conceived as:

Table 11. The Planned 355-Ship Fleet

Vessel Type	Number of Vessels
Ballistic Missile Submarines (SSBN)	12
Attack Submarines (SSN)	66
Aircraft Carriers (CVN)	12
Large Surface Combatants (CG and DDG)	104
Small Surface Combatants (FFG, LCS, Mine Warfare)	52
Amphibious Ships	38
Combat Logistics Force Ships	32
Command and Support Ships	39
Total	**355**

Source: Adapted from O'Rourke, *Navy Force Structure and Shipbuilding Plans*, 2.

However, the 355-ship fleet force design was not without controversy. An April 2017 CBO report stated that getting to 355 ships required the Navy

to spend $400 billion over more than thirty years and require a 13 percent annual budget increase over a 308-ship Navy from $90 billion to $102 billion. The CBO stated that the Navy required a sustained annual shipbuilding budget for ship construction of $26.6 billion, which was a 60 percent increase over the average amount that Congress appropriated. This shipbuilding budget took into account the assumption that the Navy would be required to procure 329 ships (12 per year) due to retirements of older vessels and massively expand infrastructure and work forces at all seven U.S. shipyards.[25]

Richardson faced serious procurement issues that hampered his 355-ship fleet force goal. Small surface combatants were slated to comprise 52 ships of that total, divided between 32 littoral combat ships and 20 FFG(X) next generation frigates to be based on an existing hull design. However, the LCS program continued to be plagued by cost overruns, construction issues, and technical difficulties due in no small part to the program being comprised of two radically different ship designs produced by Lockheed and General Dynamics that were constructed at Marinette Marine and Austral USA, respectively. Further, serious concerns about the LCS's ability to operate in a high-end fight and continuing delays in the rollout of its modular mission packages caused Richardson to ask Congress to terminate the LCS program early in favor of procuring the as of yet-to-be designed FFG(X).[26] The FFG(X) was intended to exceed the LCS's combat capabilities as a blue water multi-mission platform, and was conceived explicitly to reduce ASW requirements for the Navy's cruisers and destroyers. The Navy first issued a request to industry in July 2017 for the FFG(X) with the requirements that it incorporate VLS cells, utilize the Enterprise Air Surveillance Radar (a smaller version of the set on the *Ford* class), focus heavily on unmanned systems, advanced sensors, and be able to conduct independent operations in a contested environment or contribute to a larger strike group[27]

Richardson allocated $134.8 million in R&D funding for the FFG(X) in FY 2019, with the goal of procuring the first FFG(X) by 2020. While ambitious, this objective was considered unrealistic by the Congressional Research Service, as the Navy had yet to select a hull to base it on (both domestic and foreign designs were under consideration), and there was simply insufficient time to fully develop the ship. However, unlike LCS, the Navy limited the FFG(X)'s construction to a single design and single construction firm with the goal of procuring two annually.[28] Departing from the modularity of the LCS, the FFG(X) became a conventional design—a more direct descendant from the *Oliver Hazard Perry*-class frigates. The

Navy's requirements called for it to be a multi-mission vessel capable of conducting AAW, ASW, Electromagnetic Maneuver Warfare (EMW), and ASW operations. Its procurement costs were estimated at $800–950 million each, and like Zumwalt's stipulations for the earlier FFG, it was envisioned to utilize existing technologies and systems.[29] In the meantime, Richardson worked on sustainable deployment schedules for the Navy's LCS complement in an effort to normalize LCS shipbuilding and operations away from the program's controversial development phase and rollout.[30]

Likewise, Richardson faced major procurement issues with the Navy's large surface combatants. Richardson sought to derive material and experiential gains from the abbreviated production of the *Zumwalt*-class destroyers and treat the class as a technology testbed. While the *Zumwalt* class itself was limited to three ships due to its $24 billion procurement costs and prolonged development and production schedules, Richardson believed that the advanced technologies pioneered for its development should be "a centerpiece of the strategy going forward" as the Navy looked to replace its aging *Ticonderoga*-class cruisers. Specifically, he cited the ship's advanced and powerful integrated power system, stealth characteristics, and sophisticated communications capabilities as "exactly the types of lessons that I would look forward into rolling into the next ship." Beyond the cruiser replacement, Richardson also directed the team working on the FFG(X) to utilize *Zumwalt*-derived developments.[31] In contrast to the *Zumwalt*, *Arleigh Burke* procurement continued apace at one to three ships annually, with the first Flight III ship procured in FY 2017.[32]

Richardson's tenure saw the long-anticipated introduction of the *Ford*-class supercarrier to the fleet. *Gerald R. Ford* (CVN-78) commissioned in 2017, nine years after its FY 2008 procurement and with a final price tag in excess of $13 billion. Richardson also oversaw the procurement of two additional carriers, *Enterprise* (CVN-80) and *Doris Miller* (CVN-81), in FY 2019 as part of a two-ship block buy for $12.3 and $12.4 billion and with delivery dates of 2028 and 2032, respectively. *John F. Kennedy* (CVN-79)—procured in FY 2013 at a cost of nearly $11.4 billion—was under construction with a scheduled delivery date of 2024.[33]

However, the *Ford*-class—like LCS and *Zumwalt*— was expensive and plagued by setbacks. By 2019, the Navy was still experiencing major difficulties in correcting a litany of technical issues with *Ford*, particularly the 11 advanced weapons elevators to move ordnance from the ship's magazines to the flight deck.[34] In January 2019, Director of Operational Test and Evaluation Robert Behler publicly laid out the *Ford*'s continual issues that

delayed the carrier's full introduction by two years. These included lower than expected crew berthing space and deficiencies that prevented sortie generation, including "poor or unknown reliability of systems critical for flight operations."[35]

Shortly after becoming CNO, Richardson directed N513 (Strategic Concepts) to draft a new classified single-service Navy Strategic Plan for Program Objective Memorandum 2018 (NSP-18) to inform POM 18. Additionally, Richardson directed the publication of the eight-page "A Design for Maintaining Maritime Superiority," which the CNO wrote in conjunction with his assistants and promulgated in January 2016. Much like Admiral Hayward had with "Sea Strike" and the Maritime Strategy, Admiral Richardson used the "Design for Undersea Warfare" that he wrote while serving as Commander, Submarine Forces as a template.[36]

The purpose of the "Design for Undersea Warfare" was to lay out initiatives to achieve the goals articulated in CS21R. Richardson grounded this design in the Navy's history, and specifically tied it to Mahan's assertion that a strong Navy was necessary to secure U.S. access to international markets. Beyond the physical aspects of securing U.S. maritime interests, Richardson also articulated the global information system and rapid rate of technological creation and adoption as three interconnected forces that he saw as paramount concerns for the Navy in the highly globalized world of the early 21st century.[37] This return to Mahanian doctrine was evident in Richardson's redirection of the Navy away from the low-intensity littoral conflicts of the 2000s and toward the return of great power competition. He identified Russia and China as multi-domain rivals whose capable navies were operating ever farther from home, as well as North Korea and Iran who both leveraged advanced technologies into credible threats to the Navy. Domestically, Richardson identified budget instability as the fourth force facing the Navy, stating that the Navy could not "buy our way out of the challenges we face."[38]

Richardson believed that the scope and complexity of these challenges mandated the need for this new design for undersea warfare. He wanted the Navy to prepare for decentralized operations that were guided by commander's intent and predicated on the four core attributes of integrity, accountability, initiative, and toughness.[39] In turn this design was built along four lines of effort. The first was to strengthen naval power at and from the sea, which called for a trained and ready fleet to fight in every maritime domain from the deep ocean to space. This included maintaining and modernizing the fleet's guided missile submarines, developing concepts and capabilities

to provide policymakers with greater threat response options that stressed "blue-water scenarios" and power projection ashore. He stressed that these concepts needed to be continually tested and refined through modeling, war-gaming, simulations, training, fleet exercises, and certification. Richardson stressed the importance of technology and alternative fleet designs to grant COCOMs flexibility to meet evolving threats and called for OPNAV to be organized more rationally to support warfighting requirements.[40]

The second line of effort was achieving "high velocity at every level." Richardson emphasized that the reforms based on the Design for Undersea Warfare's could not come from the top down, but needed to be undertaken by personnel at the individual level to implement best practices and "optimize the Navy intellectual enterprise" to maximize combat effectiveness and efficiency. The third line of effort on strengthening the Navy team dovetailed into this point to improve and modernize sailor training and leadership development in line with the improvement goals laid out in the "Sailor 2025" program. The fourth line of effort to expand and to strengthen the Navy's network of partners called for the Navy to improve relations with Joint Service and interagency partners on matters including current and future planning and concept and capability development and assessment. Richardson also stressed the need to foster international partnerships through information sharing, interoperability, and combined operations as well as improve the Navy's relationships with academia and the research and commercial sectors.[41] Shortly after its promulgation, Navy leaders began to refocus on carrying out this design rather than CS21R.[42]

In the wake of what would become known as *A Design for Maintaining Maritime Superiority 1.0*, Richardson developed a holistic approach to maintaining U.S. naval power with the intention to "elevate our thinking" beyond what he saw as false choices between capability and capacity, as well as expand on how policymakers and the public thought about the Navy. Richardson applied a nuclear engineering lens to what he termed the Navy "nucleus and its six interconnected dimensions": a bigger navy, a better navy, a networked navy, a more talented navy, a more agile navy, and a more ready navy. Richardson described these six components as irretrievably interconnected, removing one would result "in an isotope" of incomplete naval power that could individually decay and in turn negatively impact the collective whole.[43]

Richardson broke down the six dimensions of naval power into practical applications:

1. A larger navy was inherently a more powerful one; he believed that the 355-ship force provided the ideal force structure.
2. Modernization provided the Navy with the opportunity to qualitatively improve each of its platforms to make them more individually capable. As Zumwalt had argued, emerging technological advances held great potential in this area. These included directed energy weapons, electromagnetic maneuver warfare, and unmanned systems.
3. Improving the fleet's networking would allow for increased awareness.
4. To crew the improved fleet and leverage the advantages inherent to a better networked and data-driven force, the Navy needed to recruit and retain a larger number of sailors with the requisite skillsets.
5. Administrative agility was required to properly manage the Navy's need to consistently operate and maintain the fleet as technology continually improved. Technology and operational concepts (CONOPS) needed to be deeply integrated and continually improved to overcome artificial constraints such as the boundaries between geographic combatant commanders.
6. Readiness was the lynchpin to the aforementioned facets of naval power. Without adequate logistics or proper maintenance, the Navy's capabilities degrade.[44]

Richardson found Congress' short-term budgets and continuing resolutions just as degrading to readiness and proper maintenance as Greenert had experienced. The lack of long-term budgetary certainty prevented the Navy from having the stability needed to allocate resources and personnel at naval shipyards to conduct intensive maintenance work, which, in turn, hurt future readiness as the backlog built up. Richardson introduced multiple workarounds in an effort to mitigate these budgetary challenges. He added a "wholeness review" to the budget process to support his conception of the balanced nucleus of naval power, and ordered that no major work or acquisition efforts should be scheduled in the first quarter of the fiscal year.[45]

Richardson subsequently released *A Design for Maintaining Maritime Security 2.0* in December 2018 as a 16-page expanded update to the much shorter original. The CNO justified the second iteration as an attempt to align the Navy's plans with the Trump administration's December 2017 National Security Strategy and Secretary of Defense James N. Mattis's Jan-

uary 2018 National Defense Strategy, which firmly oriented U.S. national security objectives back to great power competition.[46] The first iteration was explicitly intended to be assessed and, if necessary, revised to stay relevant, and version 2.0 was the first reevaluation. The 2018 document maintained the same essential structure as the 2016 document, and remained predicated on Richardson's articulation of core attributes and lines of effort.[47] Design 2.0 stated outright that the Navy's competitive advantage had largely disappeared while the competitive space itself had expanded with "exponential and disruptive ranges of change," which made identifying near- and mid-term outcomes more difficult.[48]

One major change from Design 1.0 to 2.0 was the inclusion of clearly identified procurement and force design goals to meet the new competitive landscape. These included the award of the future frigate contract in 2020 and the award of the large surface combatant, large unmanned surface vehicle, future small auxiliary, and future large auxiliary contracts in 2023. Additionally, Richardson called for the introductions of the MQ-25 and MQ-4C unmanned aerial vehicles (UAVs) as soon as possible, the contract and fielding of the family of underwater unmanned vehicles no later than 2025, and the identification of requirements by 2019 to replace the Navy's fleet of F/A-18E/F Super Hornets and EA-18G Growlers by 2030. Individual systems were also prioritized, including the development of hypersonic weapons by 2025, directed directed-energy weapons no later than 2025, and enterprise networks by 2019.[49] To boost the Navy's readiness, reduce dependence on vulnerable supply chains, and lower costs, he called for the intensification of additive manufacturing under N4 and the SYSCOMs to fabricate components.[50]

Beyond the lingering issues with the major ship procurement programs, further distractions for Richardson included two high-profile collisions at sea in 2017, which resulted in the death of 17 sailors. On 17 June, the *Fitzgerald* (DDG-62) collided with a container ship off the Japanese island of Oshima. A subsequent Navy investigation found the cause to be negligence by the ship's command staff. On 21 August, *John S. McCain* (DDG-56) collided with an oil tanker near the Strait of Malacca due to a loss of steering control. That investigation found that the collision "resulted primarily from complacency, overconfidence, and lack of procedural compliance."[51] The two collisions caused sufficient damage that *John S. McCain* and *Fitzgerald* both required more than two years of shipyard repairs before they rejoined the fleet in October 2019 and June 2020, respectively.[52] Lack of due diligence in command and reduction in crew complements that led to sailor work weeks

in excess of 100 hours were ascribed as key causations of the collisions, with SECNAV Richard Spencer placing blame on Congress for adding too many additional training requirements.[53]

Richardson was succeeded by Admiral Michael Gilday as CNO in August 2019. In departing the service, he conceded that readiness and ship maintenance remained challenges that would confront the Navy (while moving in the right direction) for years to come.[54]

Conclusion

The period from 2011 to 2019 marked extreme shifts in how OPNAV was able to conduct long-range planning and force design. Echoing the hectic situation that CNO Zumwalt contended with in the wake of the Vietnam War, the tenures of CNOs Greenert and Richardson were marked by many of the same struggles: an aging fleet, over-budget and long-delayed successor platforms, and Congressionally derived budget instability. Likewise, they oversaw a transitional period for the Navy as operations in Iraq ended, those in Afghanistan wound down, and the U.S. was confronted with the return of great power competition with the identification of the growing Chinese Navy as the pacing threat in the Western Pacific.

CNO Greenert's tenure was defined by extreme budgetary instability as sequestration and the rise of short-term funding resolutions prevented him from embarking on any meaningful effort to look beyond the Navy's immediate needs. Instead, as the cost overruns of LCS, *Zumwalt*, and *Ford* refused to abate, Greenert embraced readiness and budgetary "wholeness" to more accurately predict the life cycle costs of the Navy's procurement programs and holistically place them within the context of the Navy's overall budget and requirements. Beyond this emphasis on wholeness, Greenert's long-range planning efforts were largely dedicated to carrying out revisions of 2007's "A Cooperative Strategy for 21st Century Seapower."

The budget largely stabilized during Richardson's tenure, and he embarked on a more concrete effort to position the Navy for the future. In December 2016, the Navy released its force design plan for achieving and maintaining a fleet of 355 manned ships. However, this ship total came not from the CNO or OPNAV, but from the surveyed COCOMs to determine the capabilities that they found necessary to implement the Navy's portion of the National Security Strategy from both warfighting and peacetime forward-deployed perspectives. In an overt return to Mahanian doctrine, Richardson redirected the Navy away from the low-intensity littoral con-

flicts of the 2000s and toward the return of great power competition across the world's oceans. He identified Russia and China as multi-domain rivals as well as North Korea and Iran as credible regional threats.

Richardson also oversaw two iterations of *A Design for Maintaining Maritime Security*, with the second iteration including clearly defined procurement and force design goals to meet the new competitive landscape. These included the award of multiple procurement contracts including: the future frigate, large surface combatant, large unmanned surface vehicle, future small auxiliary, and future large auxiliary contracts, several UAV programs. It also included contracts to develop a manned replacement for the Navy's aging Super Hornet fleet. However, like Greenert, Richardson found LCS, *Ford*, and *Zumwalt* to be immensely expensive impediments to carrying out these long-range goals.

In an attempt to meet these challenges, Greenert restructured OPNAV by moving the platform sponsors to a new N9 in pursuit of "total ownership cost behavior." Richardson also restructured OPNAV by standing up N7 to oversee education, experimentation, exercise and analysis as well as oversee leader development. In describing this latest iteration of sweeping changes to OPNAV and the way it does business in their survey of the history of that organization, historians Curtis Utz and Thomas Hone observed:

> [Staff organizations] are supposed to gather information for the men and women holding the most senior positions so that those senior officials can make well-informed decisions and lead the crafting of Navy policy. Once decisions are made, the staffs ideally communicate those decisions and their implications throughout the Navy and then track what is happening in the Navy to learn if decisions made in Washington are being implemented and policies properly followed. But what you see today in OPNAV and the secretariat are large complex organizations that require very careful management if they are to be what [Navy] Secretary [Ray] Mabus said he wanted them to be: engines of innovation and creators of a "cost-management" culture. The danger is that elements of the secretariat and perhaps even of OPNAV will become like line organizations, charged with actually making things or executing policies—as against monitoring what others charged with

operational responsibilities are doing. The congressional pressure to make the services more businesslike may actually be making the Secretariat and OPNAV more directive and therefore—perhaps—more difficult for the Secretary and the CNO to lead.[55]

Conclusion

This study set out to examine how the Navy conducted force planning and design from World War II to the present, and how it integrated long-range planning, strategy, and budgeting in these processes. The fundamental issue facing the Navy was that, except in times of active conflict, Presidents and Congresses consistently prioritized cost-effective naval power over proactive mitigation of risk. Resourcing always constrained force planning and force design. Therefore, they have been consistently reactive in character. This circumstance is not unique to the United States Navy; it is common in modern naval history.[1]

This constraint was bounded and defined by what Deputy Secretary of Defense Kathleen Hicks has termed the "iron triangle of painful tradeoffs" (ITPT). Navy force planning and design had to balance three interrelated dynamics: "preparing to be ready today (readiness), preparing to be ready tomorrow (investment), and sizing the force (structure)."[2] Hicks' observations were made in reference to overall U.S. military policy, but they aptly describe the Navy's situation in the post–World War II era. The steady operational demand on Navy readiness and force structure to maintain forward naval presence in peacetime and active fleets in times of conflict competed with efforts to modernize the fleet. For the most part, neither Navy nor national leaders found the risk associated with reductions in readiness to be palatable. Securing support for modernization often became a contentious political matter, which made resourcing for it inconsistent and unpredictable. This exerted a powerful disincentive for major changes in both force planning and design. Forced to make difficult trade-offs, Navy

leaders frequently sought to retire obsolescing vessels to free funding for modernization and new construction, and they tended to default to long-held force design concepts, such as balanced battle fleets centered on capital ships and incremental improvement of ship types optimized for efficient high-end capabilities.

The Maritime Strategy period (1981–86) was an exception. This was the only time since 1945 that peacetime Navy force planning objectives aligned with the political goals and priorities of the President and Congress effectively enough to overcome the ITPT paradigm. The indispensable preconditions necessary to make it happen were: (1) a succession of Chiefs of Naval Operations (CNOs) unifying the Navy behind an offensively-oriented wartime strategy that shaped force structure and design decisions; (2) a Secretary of the Navy (SECNAV) politically effective at promoting that strategy and the 600-ship Navy force goal; and (3) a President and Congress willing to commit the political capital and resourcing necessary to build up U.S. naval power. Without any one of those elements, the success of the Maritime Strategy era likely would not have been achieved. Once this alignment disappeared, the ITPT reasserted itself.

Impediments to Navy Force Planning and Design

The Navy experienced its greatest success in transcending the ITPT in the post–World War II era when the service's force planning and design objectives aligned with unambiguous support from the President and Congress. Such alignment proved elusive, however. Why? Ultimately two factors impeded the Navy's efforts, one external and one internal: a lack of sustained influence at the policy, legislative, and joint levels; and the challenge CNOs and SECNAVs had in forging and maintaining a Navy-wide consensus and continuity in force planning and design.

The Navy did not have the unilateral authority to determine the outcome of its force planning and design efforts; ultimately, the President and Congress decided that through policy and budget decisions. Politics determined the Navy's size and composition. Navy leadership did have a level of influence on the decision-making process. Up through the end of World War II, SECNAVs and CNOs enjoyed an effective, direct working relationship with the President and congressional leaders that shaped force structure and shipbuilding goals and Navy budgets adequate to achieve them. After the war, a series of changes in the government's national security institutions ushered in a long trend of consolidating decision-making authority

over force planning and design in OSD and Joint Chiefs of Staff (JCS) at the expense of the services. The Navy's influence over the main elements of its force planning and design—strategy, budgeting, programming, and acquisition—gradually declined. From the Navy's perspective, the most important of these were:

National Security Act of 1947 (and 1949 amendments): Despite the opposition of Navy leadership and its congressional supporters, the National Security Act of 1947 embedded the services within a unified executive DOD, under the direction of the SECDEF and OSD. It formalized the role of the JCS over joint strategic planning. Beginning in FY 1948, OSD and JCS oversaw a joint DOD budgeting process. For the first time, senior Navy leaders lost unimpeded access to the President and Congress. Navy force planning and design was now subject to SECDEF and JCS oversight as exemplified by the interservice fights over budgets, naval aviation, and the cancellation of *United States*. The 1949 amendments to the act strengthened the SECDEF's executive authority and eliminated the SECNAV's direct access to the President.

Defense Reorganization Act of 1958: Frustrated by ongoing interservice disputes over missions and funding which prevented his goal of reducing defense spending, President Eisenhower pushed Congress for reform legislation, which resulted in the Defense Reorganization Act of 1958. It further strengthened the authority of CJCS and established the chain of command running from SECDEF to the joint unified and specified commands via the JCS. Most importantly for the Navy, it removed the CNO from the operational chain of command, ending their direct control over naval operating forces.

McNamara's reforms (1961–68): The two centerpieces of SECDEF Robert McNamara's extensive DOD reforms, the Planning, Programming, and Budgeting System (PPBS) and Total Package Procurement (TPP), had an enormous long-term impact on the Navy force planning and design. PPBS forced the services to justify the cost-effectiveness of their major platform programs through detailed systems analysis, effectively centering programming and budgeting decision-making in OSD. Responding to PPBS's demands set off an organizational round-robin lasting several decades among OPNAV's strategy, budgeting/programming, and analytical offices

as successive CNOs reorganized their staff to effectively manage the new process. Most of OPNAV became focused on constructing the annual POM. Navy program managers became more responsive to OSD guidance than that of the CNO or OPNAV. TPP ended shipbuilding in Navy yards, shifting it entirely to single-source private contractors. The Navy no longer spread its shipbuilding contracts among several private firms, nor did it construct prototypes, approaches previously used to help support the industry and impose some cost and quality control. As a result of TPP's winner-take-all contract awards and the decline in new construction, only nine commercial shipyards were left building Navy vessels by the 1970s.

Sequestration—Goldwater-Nichols—Base Force—1993 Bottom-Up Review: The end of the Cold War in 1989 coincided with implementation of Congress's Goldwater-Nichols DOD Reorganization Act of 1986 and initial efforts to develop a post–Cold War strategic concept and joint force structure. The end of the Soviet threat diminished seapower thinking in joint strategic and operational planning and began the shift from global threat-based to regional capabilities-based planning that broke the link between Navy strategic planning and force design. Even before the Cold War ended, Congress curbed defense expenditures incurred by the Reagan administration's military buildup through budget sequestration. Goldwater-Nichols enacted reforms to correct deficiencies in joint force operations. It made CJCS the primary military advisor to the President and SECDEF, sidelining the service chiefs. The act increased the authority of the regional combatant commands, which now reported directly to SECDEF. CNOs were firmly subordinated to the SECNAV. Anticipating a post–Cold War "peace dividend," CJCS General Colin Powell's 1990 "Base Force" plan called for a 400-ship Navy, and 12 active carriers based on a national strategy focused on regional and contingency conflicts and peacetime forward basing. The Clinton administration's 1993 "Bottom-Up Review" further cut the Navy to 350 ships and 11 active (and one reserve) carriers. The Bottom-Up Review enshrined the Navy's post–Cold War roles of forward presence and power projection from the littorals in support of joint operations ashore. Following its publication, Navy planning centered on forces able to deter or defeat a range of non-specific future regional adversary capabilities.

The cumulative effect of this centralization concentrated authority over strategic planning, budgeting, and programming in OSD and CJCS and

firmly embedded the Navy within the joint force construct. Compared to their predecessors, post–World War II SECNAVs and CNOs were left with diminishing latitude to emphasize maritime and naval strategic principles in Navy force planning and design.

Even as they found their influence at the political and joint levels declining, CNOs and SECNAVs labored to build and maintain consensus on future force planning and design goals within the Department of the Navy. The decentralized character of the Navy always placed a premium on the ability of its leaders to build consensus to enable change. From 1900 to 1951, the General Board held responsibility for long-term planning, force structure design, and ship characteristic determinations. Historian John Kuehn argued that the General Board performed a "balancing wheel" function, with its hearings and revolving membership creating a medium for dispersed Navy leaders, personnel, operating forces, and shore-based elements to exchange views and debate questions. The board's studies and reports reflected the disparate perspectives emerging from these exchanges, which helped generate support for change and innovation.[3]

After the disbandment of the General Board, responsibility for building consensus and backing for future force plans fell more squarely upon the CNOs. Those considered successful at it—Burke, Zumwalt, Hayward, Kelso, for example—had clearly articulated visions for change and worked hard to communicate them at all levels. SECNAVs could also play a constructive role; Lehman pressed as hard to obtain Navy acceptance of the Maritime Strategy as he did at the political level. Even so, not many CNOs were able to engineer long-term change. The introduction of McNamara's PPBS changed the calculus on short-term vs. long-term planning. With CNO's unlikely to realize long-term goals within their tenures in office, the usefulness of long-term planning declined. Without the continuity of long-term objectives, other factors—such as personality, experience, preferences of individual CNOs, preferences within the warfare communities, preferences in OSD or the JCS, and the outcomes of budget decisions—played a larger role in determining short-term force goals.

Under the circumstances, warfare community sponsors ("barons") and platform program managers became alternate centers of influence within the Navy, complicating the efforts of the CNOs. They remained in office longer than CNOs and once their programs received OSD sanction, they became difficult for Navy leaders to alter significantly or cancel. Lengthening development and acquisition lead times meant that force design decisions taken by one CNO, like the LCS and the *Zumwalt*-class destroyers, could

foreclose options for their successors. Likewise, major program cancellations, such as the A-12, or unsuccessful ones, like the *Zumwalt*-class, forced CNOs to rely on expedients like the Super Hornet and restarting *Arleigh Burke*-class destroyer construction to close force structure gaps. Resourcing constraints could spark conflict among platform proponents and warfare communities, resulting in missed opportunities, such as the Navy's aviation community objections to the development of surface-launched anti-ship missiles and unmanned systems. CNOs spent much of their time adjudicating differences within the Navy to avoid disrupting preparation of budget submissions rather than building Navy-wide support for their force planning and design goals.

CNO Approaches to Force Planning and Design

CNOs sought to respond to these challenges in several ways: long-term planning; ad-hoc planning and capstone strategies; OPNAV reorganization; and retention of traditional force structure concepts with incremental changes.

Long-term planning: Following the dissolution of the General Board in 1951, several CNOs attempted to implement centralized long-term planning efforts in OPNAV to shape force planning and design, but in general these were not sustained on a continual basis. The most successful effort occurred under CNO Arleigh Burke, who made OP-93 (Long Range Objectives Group) a centerpiece of his force planning and design efforts in the late 1950s. He assigned rising leaders and highly capable staff to run it. Its studies and memoranda setting medium- and long-range objectives charted a clear course for integrating technological advances and new warfighting concepts into a future Navy force structure. OP-93's influence waned under Burke's successors in the 1960s as force planning and design became increasingly subject to DOD PPBS priorities. CNO Elmo Zumwalt disestablished it in 1970. At the recommendation of the Defense Science Board, CNO Thomas Hayward created OP-00X (Long-Range Planning Group) in 1980 within his own inner staff. By 1983, however, CNO James Watkins had realigned OP-00X and its tasks were gradually absorbed elsewhere in OPNAV. Hayward later lamented:

> My general view of long-range planning is it's a waste of time, because the outcome never turns out even close to the way it was planned for. Mid-range planning—you

> know, three to five years, okay—but 15 to 25? The staff's got too much else to do. The [long-range planning] document never serves any purpose. If I had full control of the budget—with the CNO really in charge—I think it would have a lot of purpose. [I]t was useless by my time, because I couldn't control its outcome.[4]

A 1988 OPNAV instruction on Navy long-range planning stated that, "By design, the Navy does not maintain a formal, centralized Long-Range Plan."[5] OPNAV carried out long-term planning in a decentralized manner in the Goldwater-Nichols era under the direction of the CNO and senior leader boards. In 1995, CNO Jeremy Boorda reoriented the Strategic Studies Group (SSG) to focus on concept generation, the new joint term for long-range planning, which it did with varying degrees of effectiveness until it was disbanded in 2016. Congress mandated that the Navy provide a 30-year shipbuilding plan with its annual budget submission beginning in 2003. Most versions proved more aspirational than instrumental; anticipating acquisitions beyond the contemporary Five Year Defense Plan largely rested on future defense spending forecasts and vessel acquisition and service life estimates from program management offices. Like all of the Navy's long-term planning efforts, these were contingent on the annual Navy budget and appropriations outcomes.

Ad-hoc planning and capstone strategies: In lieu of sustained long-term planning, the Navy often preferred the use of temporary ad-hoc boards, committees, and staff organizations to manage specific studies, projects, and programs. Beginning with Zumwalt's Project 60, CNO's also began sponsoring capstone strategy documents which sought to establish a central premise or concept around which the Navy could plan and organize. These efforts have yielded mixed outcomes. CNO Robert Carney's 1954 ad-hoc committee to study shipbuilding presaged the elevation of OP-93 and its influential "The Navy of the 1970s Era" report. Burke oversaw perhaps the Navy's most successful ad-hoc program, the Special Projects Office (SPO), under Rear Admiral William F. Raborn, which he used to manage the development of the Polaris-armed Fleet Ballistic Missile (FBM) submarine program in the mid-to-late 1950s and early 1960s. Success became a double-edged sword, however, as OSD adopted the SPO vertical management concept and special projects proliferated within the Navy. This further contributed to the centralization of authority within OSD as Navy special

project managers began responding to DOD acquisition oversight instead of CNO or SECNAV priorities.[6]

CNO capstone strategies have been aimed at various audiences and have achieved varying degrees of influence. Project 60 became a touchstone for many CNOs and OPNAV, which modeled their products on it. Zumwalt also sponsored Project 2000, an abortive attempt to forecast a range of alternative futures for use by long-range force planners, which was cancelled by CNO James Holloway. Holloway produced "Sea Plan 2000," based on his own "Sea Strike" concept, calling for an aggressive Navy strategy and enlarged force structure. It received pushback within DOD, but favorably influenced future members of the Reagan administration. Sea Plan 2000 and CNO Hayward's "Maritime Balance Study" provided the basis for the Maritime Strategy concept, itself the product of OPNAV strategy and budgeting staff specifically selected by Hayward. CNO Kelso issued "The Way Ahead" and "The Navy Policy Book" outlining his vision for the post–Cold War Navy, but neither had impact beyond his tenure. He also produced ". . . From the Sea" in conjunction with the Marine Corps commandant, which provided the basic concept for the Navy's role in joint operations that remained influential into the early 21st century. CNO Roughead promulgated "A Cooperative Strategy for 21st Century Seapower," developed by CNO Mullen and his staff to explain the role of the Navy and the maritime world to the American public and Congress. This had considerable resonance, particularly with overseas allies, but CNO Greenert's follow up, *A Cooperative Strategy for 21st Century Seapower: Forward, Engaged, Ready*, which presaged a return to high-end combat mission, had a much more muted response. CNO Richardson's *A Design for Maintaining Maritime Superiority*, both 1.0 and 2.0, reoriented the Navy back toward Great Power competition and outlined future decentralized Navy operations, unmanned platform development, new technologies, and new ships to meet the challenge.

Reorganizing OPNAV: From 1970 to the late 2000s, several CNOs conducted major and minor OPNAV reorganizations. These organizational changes had the net effect of shifting influence over force planning and design between strategy, programming, and budgeting and analysis staff elements in an attempt to master the challenges posed by the centralization of authority at the OSD and JCS level and the constraints imposed by the ITPT. In the wake of SECDEF McNamara's 1960s PPBS reforms, OPNAV became "tuned, like a tuning fork, to the vibrations of the budgetary process."[7] CNO Zumwalt sought to respond to this by empowering OPNAVs systems analysts, elevating the air, surface, and submarine platform sponsors

to DCNOs, and strengthening the integrating directorates in the early 1970s. In the late 1970s and early 1980s, CNOs Holloway and Hayward prioritized the role of the strategists. Hayward also created a new long-range planning office and the Strategic Studies Group. CNO Watkins abolished the systems analysis office and recreated it as a budgeting/programming analytical function. He also reassigned the long-range planners. CNO Trost upgraded the naval warfare and systems integrators to directorates and reduced the platform sponsors to ACNOs. CNO Kelso introduced wholesale changes in the early 1990s, converting OPNAV to N-codes aligned with Joint Staff functions. He aligned the program sponsors, warfare integrators, analytical assessment, and budget and programming offices under one DCNO and combined operations, strategy, and concept development under another, all in an effort to reduce internal competition and promote consensus. By the 2000s, CNO Clark created several strategy offices within his inner staff and dual-hatted the analytical assessment director to run one of them. He again separated the platform sponsors to counterbalance the programming and analysis branch, but CNO Mullen merged them again. CNO Roughead ended the analytical assessment dual-hat arrangement but maintained the division as the Navy's primary analysis organization, and recreated a Navy warfare integrator in his inner staff. CNO Greenert once again separated the platform sponsors from the programmers and analysts into different directorates in the early 2010s. In December 2018, CNO Richardson stood up a warfighting development directorate (N7) to oversee education, experimentation, exercise, analysis, and strategy and concepts. While this steady procession of changes may have addressed problems confronting each CNO, they did not solve the original challenge of alleviating the dominating grip of the annual Navy POM and DOD budgeting and programming process.

Adherence to traditional force structure concepts and incremental change: Throughout the entire post–World War II era, the Navy adhered to the concept of the balanced battle fleet primarily built around its aircraft carrier capital ships. Modern battle forces and battle groups are direct descendants of World War II task forces and groups. At the same time, Navy force designers demonstrated a clear preference for acquiring large ships with high-end, multi-mission capabilities over smaller, less capable vessels. This adherence to large and sophisticated vessels proved to be a challenge to effectively reshaping the fleet in response to technological change. Deliberate force design choices, not apace with technological change, resulted in a consistent preference for more capable individual platforms. This trend led to increasing procurement costs, longer development lead times, and fewer ships. When

provided with an opportunity to adopt an alternate fleet design concept, the Navy as an institution declined to do so. Through Project 60, CNO Zumwalt tried to implement a bi-modal "high–low mix" fleet concept, emphasizing wartime sea control, based on analytical studies done while he led OP-96 and prevailing strategic thinking in OSD and JCS. While Zumwalt pushed through the acquisition of the successful *Oliver Hazard Perry*-class frigates and development of new weapons systems, which became key elements in the fleet in the late 1970s and 1980s, the Navy abandoned his bi-modal concept after he left command. His immediate successors instead doubled down on early Cold War Navy war planning with the offensively oriented Maritime Strategy that prioritized strike and power projection missions, large-deck aircraft carriers, and long-range naval aviation. Since then, the Navy has consistently defaulted to its traditional force design preferences and new ship types that are incremental improvements over those that they replace.

Each of these approaches achieved some measure of success either singly or in tandem. What they have not been able to do is to provide the Navy with a method of conducting sustained, effective force planning and design. The power and authority of SECNAVs and CNOs has become circumscribed to the point where the Navy cannot unilaterally shape its future force structure and warfighting concepts on its own except through incremental change and painful trade-offs. However, it has demonstrated that SECNAVs and CNOs can greatly amplify their influence by creating alignment with the objectives of the President and Congress and by rallying the department behind a strategic concept that provides the logic and justification for future force structure objectives. Achieving both is within the Navy's capability should it make a priority to do so.

Implications

1. In a resource–constrained environment, successful Navy force planning depends on aligning clearly articulated naval force structure and program goals with presidential and congressional political support. Such alignment allows the Navy to overcome the disincentives to modernization posed by the competing demands of current readiness and force structure maintenance. Without such alignment, the only force planning alternatives are to pursue marginal change or to sacrifice readiness or force structure to resource modernization.
2. In order to generate support for its force goals with OSD and the Joint Force, the Navy must advocate more effectively for naval and maritime perspectives in joint strategic and operational thinking.
3. The Navy requires iterative force design over the long term to enable change in force planning. The tenures of individual SECNAVs and CNOs are too brief to ensure the continuity needed to drive lasting change. Iterative force design can also help mitigate uncertainty and risk. A consequence of a lack of continuity is the emergence of strategy and/or force mismatches, which are difficult to alleviate in the short term.
4. OPNAV's capability to conduct long-term force design planning has been centralized and decentralized multiple times since 1945. If it is to be effective, it must be prioritized and sustained over time by successive CNOs.
5. In order to develop and articulate clear naval force planning goals, senior Navy leaders need institutional mechanisms to forge and sustain service-wide consensus aligning strategy and force design. Such mechanisms should provide a forum to represent and integrate perspectives across all Navy communities.
6. The Navy's consistent preference for more capable platforms has led to increasing procurement costs, development lead times, and fewer ships.

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33. Carney, "Oral History Interview with Robert B. Carney, 1964," 659–61; Barlow, *From Hot War to Cold*, 372–75.

34. Carney, "Oral History Interview with Robert B. Carney, 1964," 661–63; *National Defense Budget Estimates for FY 2022*, 84, 98.

35. Friedman, *U.S. Cruisers*, 380–83; Cotton, *NAVSEA Report*, A-1; Friedman, *U.S. Destroyers,* 275; Friedman, *U.S. Submarines*, 109, 128.

36. Friedman, *Fighters over the Fleet,* 232–33.

37. Friedman, *Fighters over the Fleet*, 259–61, 264–68.

38. NRAC, *Historical Perspectives in Long-Range Planning in the Navy*, 31–32.

39. NRAC, *Historical Perspectives in Long-Range Planning in the Navy*, 33–34.

40. NRAC, *Historical Perspectives in Long-Range Planning in the Navy*, 34–38; CNO Arleigh Burke to Distribution List, "The Navy of the 1970 Era," 13 January 1958, Appendix A in NRAC, *Historical Perspectives in Long-Range Planning in the Navy*, A-39–A-41.

41. After becoming CNO in 1955, Burke approved this shipbuilding proposal for planning purposes and applied the recommendations where appropriate to the mid-range and yearly programs. NRAC, *Historical Perspectives in Long-Range Planning in the Navy*, 34–38; CNO Arleigh Burke to Distribution List, "The Navy of the 1970 Era," 13 January 1958, Appendix A, in NRAC, *Historical Perspectives in Long-Range Planning in the Navy,* A-37, A-39–A-46.

42. "Origins of SOSUS," Commander, Undersea Surveillance, Submarine Force Pacific, accessed 6 September 2022, https://www.csp.navy.mil/cus/About-IUSS/Origins-of-SOSUS/.

43. Parsch, "RGM-6: Vought SSM-N-8/RGM-6 *Regulus*."

44. Kelley, "The Terrier: A Capsule History of Missile Development," 18–26.

45. Garten and Dean, "Evolution of the Talos Missile," 117–22; Friedman, *U.S. Cruisers*, 380–82.

46. Please note that Carney attributed his replacement due to his angering SECNAV. Some remarks he made off record were published that showed SECNAV and the New Look policy in a poor light. Carney, "Oral History Interview with Robert B. Carney, 1964"; Barlow, *From Hot War to Cold*, 396–401.

47. Note that just before Burke assumed the position of CNO, Eisenhower had announced he was going to end the draft. Upon entering office, Burke realized that the Navy's manpower situation would drastically deteriorate if the administration enacted the policy. Therefore, he appealed to first the SECNAV and then when that didn't work insisted on his prerogative as CNO to plead his case before the President of the United States. Eisenhower reluctantly agreed with Burke's argument but told Burke never to place him in such an untenable position again. Arleigh A. Burke, U.S. Navy (Retired), *Reminiscences of Admiral Arleigh A. Burke, U.S. Navy (Retired), Years 1955–1961*, interview by John T. Mason Jr., interviews conducted between November 1972 and January 1973; David A. Rosenberg, "Visionary yet Realistic: Arleigh Albert Burke (1901–1996)," in *Nineteen Gun Salute: Case Studies of Operational, Strategic, and Diplomatic Naval Leadership During the 20th and Early 21st Centuries*, ed. John B. Hattendorf and Bruce A. Elleman (Naval War College Press, 2010), 123.

48. Rosenberg, "Visionary yet Realistic: Arleigh Albert Burke," 123–24; Arleigh A. Burke, "Interview with Admiral Arleigh Burke, U.S. Navy (Retired)," interviewed by John T. Mason Jr., in *Series of Interviews on the Subject of Polaris* (Naval Institute Press, 1982), 3–9.

49. Rosenberg, "Visionary yet Realistic: Arleigh Albert Burke," 128–29; Friedman, *U.S. Submarines Since 1945*, 195; David A. Rosenberg, "Arleigh Burke: The Last CNO," NHHC, last modified 2

September 2020, https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/a/arleigh-burke-the-last-cno.html; Robert J. Watson, *History of the Office of Secretary of Defense,* vol. 4, *Into the Missile the Age, 1956–1960* (Historical Office, Office of the Secretary of Defense, 1997), 473–95; David A. Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945–1960," *International Security Studies* 7, no. 4 (1983): 3–71; William Burr, ed., "'How Much is Enough?': The U.S. Navy and 'Finite Deterrence," National Security Archive Electronic Briefing Book no. 275, National Security Archive, 1 May 2009, https://nsarchive2.gwu.edu/nukevault/ebb275/index.html; Converse, *Rearming for the Cold War, 1945–1960*, 527–29.

50. Burke, "Interview with Admiral Arleigh Burke," interview by John T. Mason Jr., in Bethesda, MD, 24 November 1972, 94–95; James M. Roherty, *Decisions of Robert S. McNamara: A Study of the Role of the Secretary of Defense* (University of Miami Press, 1970), 54–55.

51. Burke, "Interview with Admiral Arleigh Burke, U.S. Navy (Retired)," 3–9; Converse, *Rearming for the Cold War,* 527–29; Wyndham D. Miles, "The Polaris," *Technology and Culture* 4, no. 4 (1963): 478–89, https://www.jstor.org/stable/3101381.

52. Rosenberg, "Visionary yet Realistic: Arleigh Albert Burke (1901–1996)," 128–29; Friedman, *U.S. Submarines Since 1945*, 195; Rosenberg, "Arleigh Burke: The Last CNO"; Watson, *History of the Office of Secretary of Defense*, 473–95; Rosenberg, "Origins of Overkill," 3–71; Burr, "'How Much is Enough?'"; Converse, *Rearming for the Cold War*, 529.

53. Friedman, *U.S. Submarines Since 1945*, 183, 195–97; Rosenberg, "Visionary yet Realistic: Arleigh Albert Burke (1901–1996)," 128–29; Converse, *Rearming for the Cold War*, 526–27.

54. This concept would eventually mature into the Outer Air Battle doctrine of the 1970s that utilized Aegis, the E-2 Hawkeye, and AIM-54 Phoenix-armed F-14A Tomcats to create effective defense in depth.

55. Friedman, *Fighters over the Fleet,* 274–76, 342–43.

56. Rosenberg, "Arleigh Burke: The Last CNO"; Robert J. Watson, *History of the Office of Secretary of Defense,* vol. 4, *Into the Missile the Age, 1956–1960* (Historical Office, Office of the Secretary of Defense, 1997), 478; Friedman, *U.S. Destroyers*, 249–52.

57. Friedman, *U.S. Aircraft Carriers*, 279–80; Friedman, *U.S. Cruisers*, 403–4, 411, 413; Stephen Phillips, "Admiral Hyman Rickover: Engineer of Power," podcast interview with Mark Wortman, *Preble Hall*, 5 February 2023; Converse, *Rearming for the Cold War*, 529–30, 534; Edward Hidalgo, *Naval Ship Procurement Process Study* (Department of the Navy, 1978), v; Walter S. Poole, *History of Acquisition in the Department of Defense*, vol. 2, *Adapting to Flexible Response, 1960–1968* (Historical Office, Office of the Secretary of Defense, 2013): 302–5; Friedman, *U.S. Destroyers*, 336–37.

58. NRAC, *Historical Perspectives in Long-Range Planning in the Navy,* 34, 39, 44–47, A-39–A-41.

59. NRAC, *Historical Perspectives in Long-Range Planning in the Navy,* A-42.

60. NRAC, *Historical Perspectives in Long-Range Planning in the Navy,* 34, 39, 44–47, A-39–A-41; Poole, *Adapting to Flexible Response*, 303.

61. Chief of Naval Operations, *Annual Report to the Secretary of the Navy by the Chief of Naval Operations* (OPNAV, 24 August 1959), 40.

62. Eli Vinock, "Old Navy: FRAM Fixes the Fleet," *Proceedings*, August 1984, https://www.usni.org/magazines/proceedings/1984/august; Friedman, *U.S. Destroyers*, 162, 284–90; Chief of Naval Operations, *Annual Report to the Secretary of the Navy by the Chief of Naval Operations* (OPNAV, 1959), 40.

63. Converse, *Rearming for the Cold War*, 531–32; David L. Boslaugh, "First-Hand: No Damned Computer Is Going to Tell Me What to Do—The Story of the Naval Tactical Data System, NTDS," *ETHW*, 12 May 2021, https://ethw.org/First-Hand:No_Damned_Computer_is_Going_to_Tell_Me_What_to_DO_-_The_Story_of_the_Naval_Tactical_Data_System,_NTDS; Willis C. Barns, "Korea and Vietnam," in *Naval Engineering and American Sea Power*, ed. R. W. King (Nautical and Aviation Publishing Company of American, 1989), 290–92.

64. Friedman, *U.S. Cruisers*, 410–11; Converse, *Rearming for the Cold War*, 531–32; Friedman, *U.S. Destroyers*, 221–23; Robert O. Work, "Thinking About Fleet Design," Surface Navy Association presentation, 12 January 2012; Alvin R. Eaton, "Bumblebee Missile Aerodynamic Design: A Constant in a Changing World," *Johns Hopkins APL Technical Digest* 13, no 1 (1992), 69–81; Matthew Montoya, "Standard Missile: A Cornerstone of Navy Theater Air Missile Defense," *Johns Hopkins APL Technical Digest* 22, no. 3 (2001): 234–47; Kenneth P. Werrell, *The Evolution of the Cruise Missile* (Air University Press, 1985), 135–39, 150–51; Burke, "Interview with Admiral Arleigh Burke," interview by John T. Mason Jr., in Bethesda, MD, 24 November 1972.

65. Hone and Utz, *History of OPNAV,* 229–32.

66. Rosenberg, "Arleigh Albert Burke," 276; "U.S. Navy Active Ship Force Levels, 1945–1950," NHHC; Converse, *Rearming for the Cold War*, 531; David L. Boslaugh, *When Computers Went to Sea: The Digitization of the United States Navy* (Wiley, 2003), passim.

67. Hugh R. Slotten, "Satellite Communications, Globalization, and the Cold War," *Technology and Culture* 43, no. 2 (2002): 315–50, https://www.jstor.org/stable/25147905; Philip Nash, "Nuclear Weapons in Kennedy's Foreign Policy," *Historian* 56, no. 2 (Winter 1994): 285–300, https://www.jstor.org/stable/24449256; Thomas S. Gates Jr., "Interview with the Honorable Thomas S. Gates, Jr.," by John T. Mason Jr., in New York, NY, 3 October 1972, in John T. Mason Jr., *Series of Interviews on the Subject of Polaris* (U.S. Naval Institute Press, 1982); Lawrence S. Kaplan et al., *History of the Office of the Secretary of Defense*, vol. 5, *The McNamara Ascendancy, 1961–1965* (Historical Office, Office of the Secretary of Defense, 2006), 302–3.

68. Anthony Hartley, "John Kennedy's Foreign Policy," *Foreign Policy*, no. 4 (Autumn 1971): 77–87, https://www.jstor.org/stable/1147736; Stephen G. Rabe, "Cold War Presidents," in *America in the World: The Historiography of American Foreign Relations Since 1941*, ed. Frank Costigliola and Michael J. Hogan, 2nd ed. (Cambridge University Press, 2014), 139–44; *National Defense Budget Estimates for FY 2022*, 84–85; Poole, *Adapting to Flexible Response*, 285.

69. PPBS evolved into the current DOD Program Objective Memorandum (POM) and Planning, Programming, Budgeting, and Execution (PPBE) process.

70. Roherty, *Decisions of Robert S. McNamara*, 21; J. Ronald Fox, *Defense Acquisition Reform, 1960–2009: An Elusive Goal* (Center of Military History, USAA, 2011), 13, 35–40, 193–94; Edward J. Drea, *Secretaries of Defense Historical Series*, vol. 6, *McNamara, Clifford, and the Burdens of Vietnam, 1965–1969* (Historical Office, Office of the Secretary of Defense, 2011); Thomas C. Hone, *Power and Change: The Administrative History of the Office of the Chief of Naval Opera-*

tions 1946–1986 , Contributions to Naval History 2 (Naval Historical Center, 1989), 79; Kaplan et al., *McNamara Ascendancy, 1961–1965*, 72–75, 245–48; Lawrence Korb, "George Whalens Anderson, Jr., 1 August 1961 – 1 August 1963," in *The Chiefs of Naval Operations*, 321–30; Poole, *Adapting to Flexible Response,* 21–22, 24–28.

71. James M. Roherty, *Decisions of Robert S. McNamara: A Study of the Role of the Secretary of Defense* (University of Miami Press, 1970), 21; Fox, *Defense Acquisition Reform, 1960–2009*, 13, 35–40, 193–94; Drea, *McNamara, Clifford, and the Burdens of Vietnam, 1965–1969*, 165–68; Hone, *Power and Change*, 79; Kaplan et al., *McNamara Ascendancy, 1961–1965*, 72–75, 245–48; Lawrence Korb, "George Whalens Anderson, Jr., 1 August 1961 – 1 August 1963," in *The Chiefs of Naval Operations*, 321–30; Poole, *Adapting to Flexible Response*, 21–22, 24–28.

72. Korb, "George Whalens Anderson, Jr., 1 August 1961 – 1 August 1963," 321–30; Horacio Rivero Jr., "Navy Programming Manual (OPNAV 90P-1), Department of the Navy, 1965; F. G. Bennett, "Navy Programming Manual (OPNAV 90-P-1C)," Department of the Navy, 1969; Hone and Utz, *History of OPNAV*, 250, 261–62; Poole, *Adapting to Flexible Response, 1960–1968*, 24–25.

73. Justin L. Eldridge, "A Tale of Three Ships: The Strategy, Policy, and Politics of Warship Acquisition During the McNamara Years" (unpublished manuscript, NHHC, 2017), 10–11, 135–39, 151–81; Poole, *Adapting to Flexible Response,* 71–76; Hone, *Power and Change*, 79; Howard Fireman and Stuart Williams, "The Ship Characteristics and Improvement Board: A Status Report," *Naval Engineers Journal* 134, no. 2 (2022): 31, 32.

74. Hidalgo, *Naval Ship Procurement Process Study*, v; Poole, *Adapting to Flexible Response*, 290.

75. Friedman, *Fighters over the Fleet,* 343–44.

76. George W. Anderson Jr., *The Reminiscences of Admiral George W. Anderson, Jr., U.S. Navy (Retired)*, vol. 2, interview no. 11, 477–80; Korb, "George Whalens Anderson, Jr., 1 August 1961 – 1 August 1963," 321–30; Kaplan et al., *The McNamara Ascendancy, 1961–1965*, 47–48, 124–29, 203, 212, 352. It is worth noting, though, that Kennedy and Anderson liked each other, and Kennedy sent him to Portugal to serve as ambassador at the end of his tenure as CNO.

77. Anderson, *Reminiscences of Admiral George W. Anderson, Jr.,* vol. 2, interview no. 11; Korb, "George Whalens Anderson, Jr., 1 August 1961 – 1 August 1963," 321–30.

78. The TFX project, better known as the F-111, finally died when McNamara left office in February 1968, opening the way for the Navy to adopt the F-14.

79. Anderson, *Reminiscences of Admiral George W. Anderson, Jr.,* vol. 2, interview no. 11; Korb, "George Whalens Anderson, Jr., 1 August 1961 – 1 August 1963," 321–30; Friedman, *U.S. Aircraft Carriers*, 281–83; Poole, *Adapting to Flexible Response*, 222, 224.

80. Friedman, *Fighters over the Fleet*, 345.

81. Friedman, *Fighters over the Fleet*, 348–49.

82. Friedman, *Fighters over the Fleet*, 344–45.

83. Friedman, *Fighters over the Fleet*, 346–48.

84. Friedman, *Fighters over the Fleet*, 346.

85. Friedman, *Fighters over the Fleet*, 348–49.

86. Friedman, *Fighters over the Fleet*, 353–54.

87. Anderson, *Reminiscences of Admiral George W. Anderson, Jr.,* vol. 2, interview no. 11; Korb, "George Whalens Anderson, Jr., 1 August 1961 – 1 August 1963," 321–30; Friedman, *U.S. Aircraft Carriers*, 281–83; Poole, *Adapting to Flexible Response*, 303–5; NRAC, *Historical Perspectives in Long-Range Planning in the Navy,* 50–51, 58.

88. Floyd D. Kennedy Jr., "David Lamar McDonald, 1 August 1963 – 1 August 1967," in Love, ed., *Chiefs of Naval Operations*, 333–49; Anderson, *Reminiscences of Admiral George W. Anderson, Jr.,* vol. 2, interview no. 11.

89. Kennedy, "David Lamar McDonald, 1 August 1963 – 1 August 1967," 333–49; Friedman, *U.S. Aircraft Carriers*, 282–83.

90. Friedman, *U.S. Aircraft Carriers*, 318; Poole, *Adapting to Flexible Response*, 305–6; Kennedy, "David Lamar McDonald, 1 August 1963 – 1 August 1967," 333–49.

91. Hone and Utz, *History of OPNAV*, 254–60; Poole, *Adapting to Flexible Response*, 539–40.

92. Kennedy, "David Lamar McDonald, 1 August 1963 – 1 August 1967," 333–49; NRAC, *Historical Perspectives in Long-Range Planning in the Navy,* 50–51; Hone and Utz, *History of OPNAV*, 252–54; Sarandis Papadopoulos, "Partnership: Horacio Rivero, Jr. (1910–2000)," in John B. Hattendorf and Bruce A. Elleman, ed., *Nineteen-Gun Salute: Case Studies of Operational, Strategic, and Diplomatic Naval Leadership during the 20th and Early 21st Centuries* (Naval War College Press, 2010), 145–55.

93. NRAC, *Historical Perspectives in Long-Range Planning in the Navy,* 47–48, 51–52, 54–55; Hone and Utz, *History of OPNAV*, 260–64.

94. Garten and Dean, "Evolution of the Talos Missile," 117–22; James D. Flanagan and William N. Sweet, "Aegis: Advanced Surface Missile System," *Johns Hopkins APL Technical Digest* 2, no. 4 (1981): 243–45; Montoya, 234–47; Poole, *Adapting to Flexible Response,* 315–16.

95. Kennedy, "David Lamar McDonald, 1 August 1963 – 1 August 1967," 333–49.

96. NRAC, *Historical Perspectives in Long-Range Planning in the Navy,* 55.

97. J. Kenneth McDonald, "Thomas Hinman Moorer, 1 August 1967 – 1 July 1970," in Love, ed., *Chiefs of Naval Operations*, 351–63; "U.S. Ship Force Levels, 1886–Present," NHHC, last updated 17 November 2017; Werrell, *Evolution of the Cruise Missile*, 150; Montoya, 234–47.

98. McDonald, "Thomas Hinman Moorer, 1 August 1967 – 1 July 1970," in Love, ed., *Chiefs of Naval Operations*, 351–63; Drea, *McNamara, Clifford, and the Burdens of Vietnam*, 515–16; Friedman, *U.S. Aircraft Carriers*, 318.

99. McDonald, "Thomas Hinman Moorer, 1 August 1967 – 1 July 1970," in Love, ed., *Chiefs of Naval Operations*, 351–63; Edward G. Keating, *A Historical Survey of Ship Reactivations* (Congressional Budget Office [CBO], 2018), 1, https://www.cbo.gov/publication/53820.

100. NRAC, *Historical Perspectives in Long-Range Planning in the Navy,* 47–48, 51–52, 54–55; Henry A. Kissinger to the Secretary of Defense, "A Review of U.S. Naval Forces," 26 April 1969, Nixon Library Digital Archives, https://www.nixonlibrary.gov/sites/default/files/virtuallibrary/documents/nssm/nssm_050.pdf.

101. Stanley D. M. Carpenter, "Bold but Prudent: Thomas Hinman Moorer (1912–2004)," in Hattendorf and Elleman, *Nineteen-Gun Salute*, 157–68.

102. Montoya, 234–47; Flanagan and Sweet, 43–45; John G. Wilkinson Jr., "APL's Contributions to Aegis Programs: An Overview," *Johns Hopkins APL Technical Digest* 22, no. 4 (2001): 425–27.

103. Werrell, *Evolution of the Cruise Missile*, 150–51; Barns, "Korea and Vietnam," 288–89.

3. From Lowest Ebb to Highest Tide, 1970–90

1. John B. Hattendorf, *The Evolution of the U.S. Navy's Maritime Strategy, 1977–1986* (Naval War College Press, 1989), 3–4.

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3. Hattendorf, *U.S. Naval Strategy in the 1970s*, xiii.

4. John B. Hattendorf and Peter M. Swartz, ed., *U.S. Naval Strategy in the 1980s: Selected Documents* (Naval War College Press, 2008), 8–9.

5. Norman Friedman, "Elmo Russell Zumwalt Jr. 1 July 1970–1 July 1974," in Love, ed., *The Chiefs of Naval Operations*, 365–67.

6. Larson, *Force Planning Scenarios*, 61–63.

7. Hone, *Power and Change*, 81–82.

8. Larson, *Force Planning Scenarios,* 65–66.

9. Hattendorf, *U.S. Naval Strategy in the 1970s*, ix.

10. Timothy L. Francis, "Money, Management, and Manpower: Important Variables in the Design and Acquisition of *Oliver Hazard Perry*-Class Frigates," in Shannon A. Brown, ed., *Providing the Means of War: Historical Perspectives on Defense Acquisition, 1945–2000* (United States Army Center of Military History and Industrial College of the Armed Forces, 2005), 169–70.

11. Frederick Hartmann, *Naval Renaissance: The U.S. Navy in the 1980s* (Naval Institute Press, 1990), 14.

12. Elmo Zumwalt, *On Watch: A Memoir* (Quadrangle, New York Times Book Co., 1976), 83–84.

13. Hartmann, *Naval Renaissance*, 14–15.

14. Zumwalt, *On Watch*, 59.

15. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 4–6.

16. t, *On Watch*, 66–67.

17. Hattendorf, *U.S. Naval Strategy in the 1970s*, 1–2; David A. Rosenberg, *Project 60: Twelve Years Later,* OP-965, 1982, Encl. 2, 4–5. Document provided by Mr. Bruce Stubbs, N722.

18. Hone and Utz, *History of OPNAV*, 282.

19. Rosenberg, *Project 60: Twelve Years Later,* 1982, Encl. 2, 5–6. Document provided by Mr. Bruce Stubbs, N722.

20. Rosenberg, *Project 60: Twelve Years Later,* Encl. 2, 5–6.
21. Rosenberg, *Project 60: Twelve Years Later,* Encl. 2, 8.
22. Zumwalt, *On Watch,* 306–7.
23. Hone and Utz, *History of OPNAV*, 283.
24. Hone, *Power and Change*, 85–86.
25. Rosenberg, *Project 60: Twelve Years Later,* Encl. 2–3.
26. Hone and Utz, *History of OPNAV*, 282–83.
27. The "four forces" structure was centered on DCNOs for undersea warfare, surface warfare, air warfare, and mobile combat logistics support (amphibious warfare). They were augmented by a DCNO for strategic plans and policy, and a DCNO for programs and budget. The DCNOs would be superior to the chief of naval material. Hone and Utz, *History of OPNAV*, 263.
28. Hone, *Power and Change,* 90–91
29. Hone and Utz, *History of OPNAV*, 285.
30. Hone, *Power and Change*, 91, 93.
31. Hone and Utz, *History of OPNAV*, 288–89.
32. Hone, *Power and Change*, 93.
33. NRAC, "Historical Perspectives in Long-Range Planning in the Navy," 61–62.
34. Friedman, "Elmo Russell Zumwalt Jr. 1 July 1970-1 July 1974," 369.
35. Hone and Utz, *History of OPNAV*, 283.
36. Rosenberg, *Project 60: Twelve Years Later,* Encl. 2–3.
37. Friedman, "Elmo Russell Zumwalt Jr. 1 July 1970–1 July 1974," 370.
38. Stephen Woodall, "Strategic Forecasting in Long-Range Military Force Planning: With an Application to the Naval Case" (PhD diss., The Ohio State University, 1985), 307.
39. NRAC, "Historical Perspectives in Long-Range Planning in the Navy," 58–59.
40. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 307–8.
41. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 310.
42. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 309.
43. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 343–44, 346.
44. NRAC, "Historical Perspectives in Long-Range Planning in the Navy," 60–61.
45. Hone and Utz, *History of OPNAV*, 283.
46. Zumwalt, *On Watch*, 83, 59–60.
47. Zumwalt, *On Watch*, 71–73.
48. Zumwalt, *On Watch*, 101–2.
49. Francis, "Money, Management, and Manpower," 170.

50. Hattendorf, *U.S. Naval Strategy in the 1970s*, xv.

51. Zumwalt, *On Watch,* 73–74.

52. Friedman, *U.S. Submarines Since 1945*, 206–7.

53. CBO, "The U.S. Sea-Based Strategic Force: Costs of the Trident Submarine and Missile Programs and Alternatives," 1980, 1–3, https://www.cbo.gov/sites/default/files/96th-congress-1979-1980/reports/80doc07bb.pdf. CBO, *Future Budget Requirements for the 600-Ship Navy: Preliminary Analysis* (CBO, 1985), ix, https://www.cbo.gov/sites/default/files/99th-congress-1985-1986/reports/85doc10a0.pdf.

54. Friedman, *Fighters over the Fleet,* 359.

55. Friedman, *U.S. Aircraft Carriers,* 324.

56. Francis, "Money, Management, and Manpower," 171–72.

57. Francis, "Money, Management, and Manpower," 174–75.

58. Hone, *Power and Change*, 286. Zumwalt found it nearly impossible to either negotiate or coerce Rickover through the entirety of his tour as CNO, effectively placing him beyond the CNO's control. Zumwalt viewed Rickover as a subversive element while Rickover viewed Zumwalt as a political admiral whose OPNAV lacked the organizational discipline to achieve his goals of a nuclear Navy.

59. Francis, "Money, Management, and Manpower," 174, 175–77.

60. Francis, "Money, Management, and Manpower," 177–78.

61. James R. McCaul, *A Study of Ship Acquisition Cost Estimating in the Naval Sea Systems Command: A Review and Analysis of the Cost Estimating Process as it Relates to Recent Cost Growth in Ship and Weapons Procurement in the Navy* (Naval Sea System Command, 1977), II–19.

62. The writers of LRO-81 believed that this multirole aircraft could accomplish 20–30 percent of all carrier air wing missions, with 45–55 percent taken by lower-cost fighter-bomber and attack aircraft, and the remaining 20–30 percent of aircraft would be high performance all-weather bombers like the A-6 Intruder. Friedman, *Fighters over the Fleet*, 358–59.

63. Zumwalt, *On Watch*, 80–81.

64. Friedman, "Elmo Russell Zumwalt Jr. 1 July 1970-1 July 1974," 370–71.

65. Zumwalt, *On Watch*, 77.

66. James L. Holloway III, *Aircraft Carriers at War: A Personal Retrospective of Korea, Vietnam, and the Soviet Confrontation* (Naval Institute Press: 2007), 341

67. Friedman, *Fighters over the Fleet*, 356.

68. Zumwalt, *On Watch*, 78–80.

69. In his memoirs, Zumwalt states that the Air Force had been incapable relative to the Navy of responding in a timely manner to the outbreak of conflict in Jordan in 1970, India-Pakistan in 1971, and Yom Kippur in 1973.

70. Zumwalt, *On Watch*, 70–71.

71. Zumwalt, *On Watch*, 82. In his memoirs, he called the Navy's cancellation of the Regulus program the "single worst decision about weapons it made during my years of service."
72. Friedman, *Fighters Over the Fleet*, 359–60.
73. Zumwalt, *On Watch*, 82.
74. Rosenberg, *Project 60: Twelve Years Later,* Encl. 2, 7.
75. Zumwalt, *On Watch*, 82.
76. Zumwalt, *On Watch*, 82–83.
77. Friedman, *Fighters over the Fleet*, 359.
78. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 9.
79. Larson, *Force Planning Scenarios*, 67–68.
80. Hartmann, *Naval Renaissance*, 14–15.
81. In his memoirs, Zumwalt stated bluntly that the Navy would lose a war in the 1970s.
82. Hartman, *Naval Renaissance*, 15.
83. Hone, *Power and Change*, 96.
84. Rosenberg, *Project 60: Twelve Years Later,* Encl. 1–3.
85. Rosenberg, *Project 60: Twelve Years Later,* Encl. 2, 10.
86. Rosenberg, *Project 60: Twelve Years Later,* Encl. 2, 10–11; Friedman, *Fighters over the Fleet*, 368–69.
87. Hone, *Power and Change*, 96.
88. "Admiral James L. Holloway III: A Lifetime of Service, 23 February 1922–26 November 2019," NHHC, last modified 11 December, 2019, https://www.history.navy.mil/browse-by-topic/people/chiefs-of-naval-operations/admiral-james-l--holloway-iii/lifetime-service.html.
89. Zumwalt, *On Watch*, 474–75, 478.
90. Hone and Utz, *History of OPNAV*, 311–12.
91. Hone, *Power and Change,* 95–96, 102–4.
92. Hone, *Power and Change*, 102–4.
93. Hone, *Power and Change*, 99–101.
94. McCaul, *A Study of Ship Acquisition Cost Estimating in the Naval Sea Systems Command*, I–2.
95. CBO, "The U.S. Sea-Based Strategic Force: Costs of the Trident Submarine and Missile Programs and Alternatives," 3.
96. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 9–10.
97. McCaul, *A Study of Ship Acquisition Cost Estimating in the Naval Sea Systems Command*, I-7–I-8.
98. Hidalgo, *Naval Ship Procurement Process Study,* v.
99. McCaul, *A Study of Ship Acquisition Cost Estimating in the Naval Sea Systems Command,* II-7–II-9.

100. McCaul, *A Study of Ship Acquisition Cost Estimating in the Naval Sea Systems Command,* II-4.

101. McCaul, *A Study of Ship Acquisition Cost Estimating in the Naval Sea Systems Command*, I-9.

102. Vice Admiral Eli T. Reich, then working for the Deputy Secretary of Defense, observed in February 1975: "[T]he Navy has done an inadequate job of specifying overall ship system integration design-systems engineering and total ship design integration have been seriously lacking in post–World War II surface ship acquisitions." Hone and Utz, *History of OPNAV*, 305–6.

103. Hidalgo, *Naval Ship Procurement Process Study*, v.

104. McCaul, *A Study of Ship Acquisition Cost Estimating in the Naval Sea Systems Command*, I-2–I-3.

105. The 600-ship fleet was estimated to give the Navy the capacity to effect complete sea control of the Northeast Pacific, Indian Ocean, the Western Mediterranean, and the Atlantic up to the Greenland-Iceland-UK gap. It would also give the Navy the ability to contest control of the South Pacific and Arabian Sea. Seven hundred ships would allow for the Navy to contest control of the Eastern Mediterranean and Norwegian Seas, while 800 ships would allow for complete control. Hattendorf, *The Evolution of the U.S. Navy's Maritime Strategy 1977–1986*, 11–12.

106. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 10.

107. Hartmann, *Naval Renaissance*, 15–16.

108. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 12.

109. Ryan A. Peeks, *Aircraft Carrier Requirements and Strategy, 1977–2001*, Contributions to Naval History 9 (NHHC, 2020), 16.

110. James Holloway III, *CNO Report 1977* (OPNAV, 1977), 29–35.

111. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 10.

112. CBO, "Overview of the 1978 Budget: An Analysis of President Ford's Proposals," 1977, 137–38, https://www.cbo.gov/sites/default/files/95th-congress-1977-1978/workingpaper/1977_01_ford_0.pdf. The CBO argued that a Navy strategy in line with Zumwalt's balance between sea control and maintaining 12 carriers for power projection that dropped the Aegis destroyer concept and slowed the Strike Cruiser development would cost around $5.4 billion for a cost savings of $1.1 billion. Conversely, an aggressive strategy predicated on maximization of power projection through the construction of more *Nimitz* carriers, three Strike Cruisers, four additional *Spruance* destroyers, and the *Long Beach* conversion would cost $1.3 billion more to total $7.8 billion.

113. Peeks, *Aircraft Carrier Requirements and Strategy*, 21–22.

114. Friedman, *U.S. Aircraft Carriers,* 324–25, 328.

115. Peeks, *Aircraft Carrier Requirements and Strategy*, 16–17.

116. Peeks, *Aircraft Carrier Requirements and Strategy*, 19.

117. Hone and Utz, *History of OPNAV*, 306.

118. Hone, *Power and Change*, 100–2.

119. Hone and Utz, *History of OPNAV*, 306–7.

120. Hone and Utz, *History of OPNAV*, 308.

121. John Lehman, *Oceans Ventured: Winning the Cold War at Sea* (W. W. Norton, 2018), 50, 53.

122. Peeks, *Aircraft Carrier Requirements and Strategy*, *18.*

123. Lehman, *Oceans Ventured*, xxiii–xxv.

124. That Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 9.

125. Hone, *Power and Change*, 102–4, 105–6. OPNAV protected itself during the study by feigning that there was a combined SECNAV/OPNAV staff to give the illusion that the Navy had less redundancy. However, Secretary of the Navy W. Graham Claytor was an active booster of Navy programming and acquisition and challenged Brown on not funding a larger fleet.

126. Peeks, *Aircraft Carrier Requirements and Strategy*, 18.

127. Hone and Utz, *History of OPNAV*, 309.

128. Friedman, *U.S. Aircraft Carriers*, 324.

129. Peeks, *Aircraft Carrier Requirements and Strategy*, 22.

130. Friedman, *Fighters Over the Fleet,* 367–69. The success of the F/A-18 program was notably the end of the VTOL effort begun by Zumwalt.

131. Holloway conceptualized this restructuring over a weekend and sent the proposal to the commanders of the Atlantic and Pacific Fleets without consulting either the Navy or Defense secretaries, deeming it the CNO's right to establish the fleet's operating procedures.

132. Hone and Utz, *History of OPNAV*, 314–15.

133. James L. Holloway III, *Strategic Concepts of the U.S. Navy, NWP 1 (A)* (OPNAV, 1978), https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/s/strategic-concepts-usnavy.html.

134. Swartz, *U.S. Naval Strategy in the 1970s*, 55–56.

135. Swartz, *U.S. Naval Strategy in the 1970s*, 54.

136. W. Graham Claytor Jr., *Sea Plan 2000 Naval Force Planning Study* (Department of the Navy, 1978), xiv–xxvii, https://www.esd.whs.mil/Portals/54/Documents/FOID/Reading%20Room/MDR_Releases/FY16/15-M-1582-15-M-1631/SEAPLAN_2000_20Mar1978.pdf.

137. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 349–50.

138. Friedman, *U.S. Aircraft Carriers*, 383.

139. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 15.

140. Lehman, *Oceans Ventured*, 54–55.

141. Claytor, *Sea Plan 2000 Naval Force Planning Study*, xxiii–xxvi.

142. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 14–15.

143. Friedman, *Fighters over the Fleet*, 383.

144. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 16–17.

145. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 350–51.

146. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 356–57, 360.

147. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, 17.

148. Friedman, *Fighters over the Fleet*, 383.

149. Lehman, *Oceans Ventured*, 56.

150. Steven T. Wills, *Strategy Shelved: The Collapse of Cold War Naval Strategic Planning* (Naval Institute Press, 2021), 54–55.

151. Lehman, *Oceans Ventured*, 48–49.

152. Sam Cox, "In Memoriam: Admiral Thomas B. Hayward, USN (Ret.), 21st CNO 1924–2022," *Sextant* (blog), 7 March 2022, https://usnhistory.navylive.dodlive.mil/People/Article-View/Article/2958017/in-memoriam-admiral-thomas-b-hayward-usn-ret-21st-cno-19242022/.

153. Hone, *Power and Change*, 106–7.

154. Wills, *Strategy Shelved*, 54–55.

155. Hone and Utz, *History of OPNAV*, 316–17.

156. John B. Hattendorf, *U.S. Naval Strategy in the 1970s: Selected Documents,* 129–30, 131.

157. John B. Hattendorf, *U.S. Naval Strategy in the 1970s: Selected Documents,* 132.

158. John B. Hattendorf, *U.S. Naval Strategy in the 1970s: Selected Documents,* 132–33.

159. Hone and Utz, *History of OPNAV*, 317.

160. Hone and Utz, *History of OPNAV*, 319–20.

161. Hone and Utz, *History of OPNAV,* 316–18.

162. Hone, *Power and Change*, 111.

163. Hone, *Power and Change*, 111–12.

164. He commissioned multiple historical retrospectives on Project 60 and long-range planning—notably under Ernest May and David Rosenberg—with the stated goal of analyzing and extrapolating lessons learned from its successes and failures.

165. Hone and Utz, *History of OPNAV*, 316–17.

166. John B. Hattendorf, *U.S. Naval Strategy in the 1970s: Selected Documents*, 125.

167. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 312–13.

168. Hone, *Power and Change*, 107–8.

169. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 352–53.

170. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 311–12.

171. Hone and Utz, *History of OPNAV*, 316–17.

172. OPNAV, "The Maritime Balance Study: The Navy Strategic Planning Experiment," 15 April 1979, 78–79, NHHC Archives.

173. OPNAV, "The Maritime Balance Study," 85–86.

174. Lehman, *Oceans Ventured*, 55.

175. Lehman, *Oceans Ventured*, xix–xxi.

176. Lehman, *Oceans Ventured*, xxiv–xxv.

177. Wills, *Strategy Shelved*, 61–63.

178. Lehman, *Oceans Ventured*, xxvi.

179. Hone and Utz, *History of OPNAV*, 322.

180. Hone and Utz, *History of OPNAV*, 315–16.

181. Lehman, *Oceans Ventured,* 46, 54–55.

182. Hone and Utz, *History of OPNAV*, 329.

183. Hone and Utz, *History of OPNAV*, 329–30, 331.

184. Wills, *Strategy Shelved*, 86–87.

185. Wills, *Strategy Shelved*, 87.

186. Hone and Utz, *History of OPNAV*, 332–33.

187. Wills, *Strategy Shelved*, 56.

188. Hone and Utz, *History of OPNAV*, 332–33.

189. Robert Gardiner, Stephen Chumbley, and Przemysław Budzbon, *All the World's Fighting Ships, 1947–1995* (Naval Institute Press, 1995), 551.

190. Hone and Utz, *History of OPNAV*, 319–20.

191. Wills, *Strategy Shelved*, 71.

192. Dmitry Filipoff, "Peter Swartz on Defining the *Maritime Strategy*," Center for International Maritime Security, 22 March 2021, https://cimsec.org/peter-swartz-on-defining-the-maritime-strategy/.

193. David E. Johnson, *Shared Problems: The Lessons of AirLand Battle and the 31 Initiatives for Multi-Domain* Battle (RAND Corporation, 2018), 2–3, https://www.rand.org/pubs/perspectives/PE301.html. AirLand Battle was a joint Army–Air Force doctrine for the defense of Western Europe without crossing the nuclear threshold. Notably, the Army did not articulate a role for the Navy in AirLand Battle.

194. William Schneider, "Financing the Reagan 600-Ship Naval Modernization Program, 1981–89," Hudson Institute, 18 July 2017, https://www.hudson.org/national-security-defense/financing-the-reagan-600-ship-naval-modernization-program-1981-89.

195. Hone and Utz, *History of OPNAV*, 333.

196. John F. Lehman Jr, "The 600-Ship Navy," *Proceedings,* January 1986, https://www.usni.org/magazines/proceedings/1986/january-supplement/600-ship-navy.

197. Friedman, *U.S. Destroyers*, 410–11.

198. Wills, *Strategy Shelved*, 75.

199. Friedman, *U.S. Destroyers*, 411, 414–17.

200. Friedman, *U.S. Destroyers*, 417, 425.

201. Friedman, *U.S. Destroyers*, 411–13.

202. Lehman, *Command of the Seas*, 351–53.

203. Hone and Utz, *History of OPNAV*, 372,

204. Hone and Utz, *History of OPNAV*, 333–34.

205. Hone, *Power and Change*, 117–18.

206. Hone, *Power and Change*, 118–19.

207. Hone and Utz, *History of OPNAV*, 334–35.

208. "Admiral James D. Watkins, June 30, 1982–June 30, 1986: Twenty-second Chief of Naval Operations," NHHC, last updated 15 July 2016, https://www.history.navy.mil/browse-by-topic/people/chiefs-of-naval-operations/admiral-james-d--watkins.html.

209. Hone and Utz, *History of OPNAV*, 336–37.

210. Hone and Utz, *History of OPNAV*, 337.

211. Hone and Utz, *History of OPNAV*, 336–37.

212. Hone and Utz, *History of the Office of the Chief of Naval Operations*, 346–47. Watkins's plans for space-based missile defense systems provided the foundation for the Reagan administration's Strategic Defense Initiative.

213. James D. Watkins, "Reforming the Navy from Within," *Defense*, November 1985, 18–19

214. Hone and Utz, *History of OPNAV*, 337.

215. Hone and Utz, *History of OPNAV*, 338–39.

216. Wills, *Strategy Shelved*, 89–90.

217. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 315–16.

218. Wills, *Strategy Shelved*, 91.

219. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 314–15.

220. Woodall, "Strategic Forecasting in Long-Range Military Force Planning," 359–61.

221. Hone, *Power and Change*, 119.

222. Hone and Utz, *History of OPNAV*, 338.

223. Hone, *Power and Change*, 117–19.

224. Hone, *Power and Change*, 120–22.

225. Hone and Utz, *History of OPNAV*, 338–40.

226. Fireman and Williams, "The Ship Characteristics and Improvement Board: A Status Report," 26–27, 30.

227. Fireman and Williams, "The Ship Characteristics and Improvement Board: A Status Report," 35–36.

228. Hone and Utz, *History of OPNAV*, 340.

229. Keating, *A Historical Survey of Ship Reactivations*, 4. Reactivated to provide naval gunfire support, recommissioning of each battleship was conducted at intervals from 1982 to 1988. It took two years to modernize each ship, and the total cost was $1.3 billion.

230. CBO, *Future Budget Requirements for the 600-Ship Navy*, viii–ix.

231. CBO, *Future Budget Requirements for the 600-Ship Navy*, 2.

232. "Admiral James D. Watkins, June 30, 1982–June 30, 1986," NHHC.

233. Hattendorf and Swartz, *U.S. Naval Strategy in the 1980s*, 14.

234. Hartmann, *Naval Renaissance*, 146.

235. Tim Colton and LeVar Huntzinger, *A Brief History of Shipbuilding in Recent Times* (Center for Naval Analyses, 2002), 18.

236. Wills, *Strategy Shelved*, 66, 90.

237. CBO, *Future Budget Requirements for the 600-Ship Navy,* viii–ix.

238. CBO, *Future Budget Requirements for the 600-Ship Navy*, ix.

239. Hattendorf and Swartz, *U.S. Naval Strategy in the 1980s*, 255–56.

240. CBO, *Future Budget Requirements for the 600-Ship Navy*, 4.

241. CBO, *Future Budget Requirements for the 600-Ship Navy*, ix.

242. Charles Nemfakos et al., *The Perfect Storm: The Goldwater-Nichols Act and Its Effect on Navy Acquisition* (RAND Corporation, 2010), 5–6, 8–9, https://www.rand.org/pubs/occasional_papers/OP308.html.

243. Nemfakos et al., *Perfect Storm,* 9–10.

244. Nemfakos et al., *Perfect Storm,* 10–11.

245. Hone and Utz, *History of OPNAV*, 361.

246. Nemfakos et al., *Perfect Storm*, 14–16, 19, 25.

247. Nemfakos et al., *Perfect Storm,* 15.

248. Wills, *Strategy Shelved,* 109.

249. Hone and Utz, *History of OPNAV*, 343–45.

250. "Carlisle Albert Herman Trost," NHHC, last modified 8 March, 2021, https://www.history.navy.mil/research/histories/biographies-list/bios-t/trost-carlisle.html.

251. Wills, *Strategy Shelved*, 100.

252. Hone and Utz, *History of OPNAV*, 372–73.

253. Wills, *Strategy Shelved*, 100.

254. Hone and Utz, *History of OPNAV*, 355–56.

255. Hone and Utz, *History of OPNAV*, 358–59.

256. Hone and Utz, *History of OPNAV*, 359–60.

257. Hone and Utz, *History of OPNAV*, 356–57.

258. Hone and Utz, *History of OPNAV*, 357.

259. Daniel F. Gilmore, "Lehman Steps Down as SECNAV," UPI, 10 April 1987, https://www.upi.com/Archives/1987/04/10/Lehman-steps-down-as-Navy-secretary/9319545025600/.

260. Hone and Utz, *History of OPNAV*, 361.

261. Wills, *Strategy Shelved*, 102.

262. Hone and Utz, *History of OPNAV*, 361.

263. Hone and Utz, *History of OPNAV*, 362–63.

264. Wills, *Strategy Shelved*, 101.

265. Hone and Utz, *History of OPNAV*, 372.

266. Wills, *Strategy Shelved*, 103.

4. Becalmed at the "End of History," 1990–2010

1. All values given are in 2023 constant dollars. *National Defense Budget Estimates for FY 2022*, 100–1.

2. Hone and Utz, *History of OPNAV*, 454.

3. Office of the Under Secretary of Defense (Comptroller), *National Defense Budget Estimates for FY 2023*, 100–1; Peter M. Swartz and Michael C. Markowitz, *Organizing OPNAV (1970–2009)* (Center for Naval Analyses, 2010), 59.

4. While the Navy's goal had been 15 carriers since the Korean War period, there had not actually been that many in commission simultaneously since the mid-1980s. In 1990, there were 13 active carriers. See the previous chapter. Also see Hattendorf and Swartz, ed., *U.S. Naval Strategy in the 1980s*; Swartz and Markowitz, *Organizing OPNAV*, 48, 72.

5. See the previous chapter for a discussion of the imposition and effects of sequestration. Christopher D. Holmes and Francis J. Park, *History of Joint Staff Strategic Planning, 1949–2020* (Joint History and Research Office, 2021), 7; Wills, *Strategy Shelved*, 107-139.

6. Holmes and Park, *History of Joint Staff Strategic Planning*, 9–10.

7. Lorna S. Jaffe, *The Development of the Base Force, 1989–1992* (Joint History Office, 1993), 12; Wills, *Strategy Shelved*, 122–25.

8. "Admiral Frank B. Kelso II," NHHC, last modified 15 July 2016, https://www.history.navy.mil/browse-by-topic/people/chiefs-of-naval-operations/admiral-frank-b--kelso-ii.html; Hone and Utz, *History of OPNAV*, 377–78.

9. Hone and Utz, *History of OPNAV*, 395; John B. Hattendorf, *U.S. Naval Strategy in the 1990s: Selected Documents* (Naval War College Press, 2006), 14–15; Swartz and Markowitz, *Organizing OPNAV*, 54.

10. Jaffe, *Development of the Base Force*, 14–15.

11. Hone and Utz, *History of OPNAV,* 404; Jaffe, *Development of the Base Force*, 12–15.

12. Hattendorf, *U.S. Naval Strategy in the 1990s*, 12; Peter D. Haynes, *Toward a New Maritime Strategy: American Naval Thinking in the Post–Cold War Era* (Naval Institute Press, 2015), 59.

13. Wills, *Strategy Shelved*, 140–95.

14. Wills, *Strategy Shelved*, 140–95.

15. Hattendorf, *U.S. Naval Strategy in the 1990s,* 13–15; Wills, *Strategy Shelved*, 197–200.

16. The need to replace the A-12 would result in both the F/A-18E/F (which had little in common with its namesake, the F/A-18A/C) and the stopgap F-14 "Bombcat" equipped with a LANTIRN targeting pod. Hone and Utz, *History of OPNAV*, 390, 413, 422.

17. Samuel J. Cox, "H-029-4: The USS *Iowa* Tragedy," NHHC, last modified 3 May 2019, https://www.history.navy.mil/about-us/leadership/director/directors-corner/h-grams/h-gram-029/h-029-4.html.

18. Hone and Utz, *History of OPNAV*, 385–87; NHHC historians John Sherwood and Tyler Pitrof interviewed former Chairman of the Joint Chiefs of Staff Adm. Michael Mullen, as part of a series on *Preble Hall* podcast. John Sherwood and Tyler Pitrof, *Preble Hall*, 2022–23, https://www.usna.edu/Museum/PrebleHall/.

19. Swartz and Markowitz, *Organizing OPNAV*, 48.

20. Specifically, these included improvements to the TLAM, *Seawolf*-class attack submarines, and *Arleigh Burke*-class guided-missile destroyers. *National Defense Budget Estimates for FY 2023*, 100–1; Swartz and Markowitz, *Organizing OPNAV*, 48.

21. "Admiral Jeremy M. Boorda," NHHC, last updated December 13, 2017, https://www.history.navy.mil/browse-by-topic/people/chiefs-of-naval-operations/admiral-jeremy-m--boorda.html; Hone and Utz, *History of OPNAV*, 403–15.

22. Hone and Utz, *History of OPNAV*, 407-412; Hattendorf, *U.S. Naval Strategy in the 1990s*, 149–50.

23. That said, Boorda did change the mandate of the CNO Strategy Studies Group (SSG) at the Naval War College to "long-range concept-generation & innovation incubator" in 1995. Swartz and Markowitz, *Organizing OPNAV*, 51, 62.

24. This went double considering that Johnson was a naval aviator himself.

25. "Admiral Jay L. Johnson," NHHC, last updated 15 July 2016, https://www.history.navy.mil/browse-by-topic/people/chiefs-of-naval-operations/admiral-jay-l--johnson.html; Hone and Utz, *History of OPNAV*, 415–17.

26. Peter D. Haynes, *Toward a New Maritime Strategy: American Naval Thinking in the Post–Cold War Era* (Naval Institute Press, 2015), 120.

27. Jeffrey D. Brake, *Quadrennial Defense Review (QDR), Background, Process, and Issues* (Congressional Research Service (CRS), 2001); Robert O. Work, *The Littoral Combat Ship: How We Got Here, and Why* (Office of the Undersecretary of the Navy, 2014), 1–3.

28. Hone and Utz, *History of OPNAV*, 420.

29. Hattendorf, *U.S. Naval Strategy in the 1990s*, 177–66.

30. *National Defense Budget Estimates for FY 2023*, 100–1; Swartz and Markowitz, *Organizing OPNAV*, 72.

31. Specifically, the *Long Beach-, Leahy-, Bainbridge-, Belknap-, California-, Truxtun-,* and *Virginia*-class cruisers; *Farragut-, Charles F. Adams-,* and *Kidd*-class destroyers; *Skipjack-, Thresher-, Narwhal-, and Lipscomb*-class nuclear attack submarines; and *Ethan Allan-, Lafayette-,* and *James Madison*-class ballistic submarines were all retired in the 1990s in addition to what is mentioned above.

32. Procurement of the *Arleigh Burke*s began in 1985, with the first entering service in 1991. The antisubmarine frigates leaving service in this same period were not replaced, and ASW capabilities in particular were where the Navy shaved off the bulk of its capabilities. Ronald O'Rourke, *CRS Report for Congress: Navy DDG-51 Destroyer Procurement Rate: Issues and Options for Congress* (CRS, 1994).

33. A final *Nimitz*-class carrier, *George H.W. Bush* (CVN-77) would be laid down in 2003.

34. Operational expectations on the fleet as a whole had not correspondingly decreased, so fewer ships now had to perform the same amount of work. Swartz and Markowitz, *Organizing OPNAV*, 48, 72.

35. It is worth mentioning that what would become the *Ford*-class was highly focused on "sortie generation," or maintaining a high rate of aircraft launch and recovery for the purposes of maximum power projection ashore. While this could technically be seen as a reflection of the ideas of ". . . From the Sea" and its two successor documents, there was no direct link between the two. *Ford* merely reflected what the Navy was actually doing in the 1990s, and no document explicitly called for maximizing a carrier design in this way.

36. The six major yards were Avondale Shipyards, Bath Iron Works, Electric Boat, Ingalls Shipbuilding, National Steel and Shipbuilding Company, and Newport News Shipbuilding. These companies were facing major financial difficulties as a result of the dramatic decline of naval contracts and their inability to compete with the major shipbuilding companies in Asia. Ronald O'Rourke, *CRS Report for Congress: Navy Major Shipbuilding Programs and Shipbuilders: Issues and Options for Congress* (CRS, 1996); Ronald O'Rourke, *Report for Congress: Navy Shipbuilding: Recent Shipyard Mergers – Background and Issues for Congress* (CRS, 2002).

37. "Admiral Vernon E. Clark," NHHC, last updated 15 July 2016, https://www.history.navy.mil/browse-by-topic/people/chiefs-of-naval-operations/admiral-vernon-e--clark.html; Hone and Utz, *History of OPNAV*, 437–39.

38. Specifically, Deep Blue, N00Z, N00K, N81, and N513. Deep Blue would be disestablished under Adm. Gary Roughead. Haynes, *Toward a New Maritime Strategy,* 152; Hone and Utz, *History of OPNAV*, 454; Swartz and Markowitz, *Organizing OPNAV*, 80–82.

39. Work, *Littoral Combat Ship*, 4.

40. LCS in particular was an outgrowth of the "Streetfighter" concept, a cheap $90 million semi-disposable warship meant to fight in littoral waters. This was not the result of a formally sanctioned or planned study, but an independently researched proposal.

41. Work, *Littoral Combat Ship*, 1–5.

42. Specifically, the budget increased from $162 billion in FY 2002 to $193 billion in FY 2003. *National Defense Budget Estimates for FY 2023*, 100–1; Hone and Utz, *History of OPNAV*, 444.

43. Hone and Utz, *History of OPNAV*, 448–52.

44. Haynes, *Toward a New Maritime Strategy*, 159.

45. Despite the shrinking size of the battle force, operational costs had continued to rise at an average of 7 percent per year since 1990. Clark (and VCNO Michael Mullen) hoped that consolidating behind the fleet's operational readiness would help eliminate this trend and avoid crippling recapitalization. Hone and Utz, *History of OPNAV*, 454.

46. Swartz and Markowitz, *Organizing OPNAV*, 72.

47. By FY 2006, the budget had risen to $203 billion. Unfortunately, the gains continued to be absorbed by the operations in support of the Global War on Terrorism. *National Defense Budget Estimates for FY 2023*, 100–1; CRS, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress* (CRS, 21 September 2016), 16–17.

48. Haynes, *Toward a New Maritime Strategy*, 174.

49. "Admiral Michael G. Mullen," NHHC, last updated 15 July 2016, https://www.history.navy.mil/browse-by-topic/people/chiefs-of-naval-operations/admiral-michael-g--mullen.html; Haynes, *Toward a New Maritime Strategy*; Hone and Utz, *History of OPNAV*, 471–74; Sherwood and Pitrof, *Preble Hall*, 2022–23.

50. Hone and Utz, *History of OPNAV*, 472.

51. Hone and Utz, *History of OPNAV*, 472–73.

52. Hone and Utz, *History of OPNAV*, 474–77.

53. Hone and Utz, *History of OPNAV*, 476–77.

54. John G. Morgan Jr. and Charles W. Martoglio, "The 1,000 Ship Navy: Global Maritime Network," *Proceedings*, November 2005, https://www.usni.org/magazines/proceedings/2005/november/1000-ship-navy-global-maritime-network.

55. While the Maritime Strategy was predicated on a high degree of cooperation between the United States and its NATO allies, there was little similar cooperative planning between the end of the Cold War and 2005. "The 1000-Ship Navy" sought to change that. Michael Mullen, "What I Believe: Eight Tenets That Guide My Vision for the 21st Century Navy," *Proceedings*, January 2006, https://www.usni.org/magazines/proceedings/2006/january/what-i-believe-eight-tenets-guide-my-vision-21st-century-navy.

56. Haynes, *Toward a New Maritime Strategy*, 213–38.

57. Haynes, *Toward a New Maritime Strategy*, 213–38; Hone and Utz, *History of OPNAV,* 458.

58. Hone and Utz, *History of OPNAV,* 476–77.

59. "Admiral Gary Roughead," NHHC, last updated 15 July 2016, https://www.history.navy.mil/browse-by-topic/people/chiefs-of-naval-operations/admiral-gary-roughead.html; Hone and Utz, *History of OPNAV*, 499–500.

60. Haynes, *Toward a New Maritime Strategy*, 229–30.

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Conclusion

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Appendix A:
The Post-Maritime Strategy Navy

With the Soviet Union's collapse, the Navy lost its opponent and the 1980s Maritime Strategy lost its purpose. The Navy faced an existential and budgetary reckoning at the dawn of the 1990s and CNOs throughout this period struggled to articulate a lasting strategic vision as they contended with the operational challenges presented by the Navy's reduced budget, personnel totals, and fleet size. Where the Maritime Strategy benefitted from continuity across three CNO tenures, strategic planning in the post-1989 Navy was marked by a series of short-lived capstone documents that were tied to each incumbent's term of office. This remained the case even after the Navy received major funding increases with the advent of the Global War on Terror.

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***Note*:** Personnel (pers.) is represented in thousands. All monetary values given are in 2023 constant dollars.

Year	CNO	Capstone Document	Budget ($)	Pers. (K)	Total Ships	New Ships	New Classes	Retired Classes
1990	Kelso	"The Way Ahead"(1991)	211B	605	546	15		*Skipjack* (SSN) *Lipscomb* (SSN)
1991			186B	605	526	11	*Arleigh Burke* (DDG)	
1992		"...From the Sea" (1992)	171B	576	466	11		*Midway* (CV) *Charles F. Adams* (DDG) *Ethan Allan* (SSBN)
1993			153B	541	435	7		*Farragut* (DDG)
1994	Boorda	"...Forward From the Sea" (1994)	151B	480	388	4		*Knox* (FF) *Lafayette* (SSBN)
1995			149B	438	372	4		*Long Beach* (CGN) *Truxtun* (CGN) *Leahy* (CG) *Belknap* (CG) *James Madison* (SSBN)
1996	Johnson	"Anytime, Anywhere" (1997)	145B	419	355	5		*Bainbridge* (CGN) *Permit* (SSN)
1997			146B	399	354	4	*Seawolf* (SSN)	
1998			147B	382	333	5		*Forrestal* (CV) *California* (CGN) *Virginia* (CGN)
1999			150B	373	317	5		*Kidd* (DDG) *Narwhal* (SSN)

Year	CNO	Capstone Document	Budget ($)	Pers. (K)	Total Ships	New Ships	New Classes	Retired Classes
2000	Clark	"Navy Strategic Planning Guidance" (2000)	158B	373	318	6		
2001			162B	378	317	6		
2002			193B	383	313	6		*Benjamin Franklin* (SSBN)
2003			184B	382	297	5		
2004			194B	373	292	7	*Virginia* (SSN)	*Sturgeon* (SSN)
2005	Mullen	" The 1,000-Ship Navy" (2005)	203B	363	282	8		*Spruance* (DD)
2006			207B	350	281	4		
2007	Roughead	"A Cooperative Strategy" (2007)	220B	338	279	5		
2008			219B	332	283	4	*Freedom* (LCS)	
2009			228B	329	285	7		*Kitty Hawk* (CV)
2010			223B	324	288	5	*Independence* (LCS)	

Appendix B: Abbreviations

A2/AD	anti-access/area denial
AAW	antiaircraft warfare
ABGCS	Alternative Battle Group Concepts Study
ACNO	Assistant Chief of Naval Operations
AEC	Atomic Energy Commission
AEW	airborne early warning
ASMS	Advanced Surface Missile System
ASW	antisubmarine warfare
BuAer	Bureau of Aeronautics
BuC&R	Bureau of Construction and Repair
BuEng	Bureau of Engineering
BuNav	Bureau of Navigation, later became BuPers
BuOrd	Bureau of Ordnance
BuPers	Bureau of Personnel
BuShips	Bureau of Ships

BuWeps	Bureau of Naval Weapons
CBO	Congressional Budget Office
CJCS	Chairman of the Joint Chiefs of Staff
CEB	CNO Executive Board
CEP	CNO Executive Panel
CG	guided missile cruiser
CG(X)	next-generation guided missile cruiser
CINCLANT	Commander-in-Chief U.S. Atlantic Fleet
CINCPAC	Commander-in-Chief, U.S. Pacific Fleet
CINCUS	Commander-in Chief, U.S. Fleet (1922–42)
CJCS	Chairperson of the Joint Chief of Staff
CNA	Center for Naval Analyses
CNO	Chief of Naval Operations
CNOG	CNO Navigation Plan
CO	commanding officer
COCOM	combatant commands
COMINCH	Commander-in Chief, U.S. Fleet (1942-45)
CONUS	continental United States
CPAM	CNO's Program Analysis Memorandum
CPPG	CNO Policy and Planning Guidance
CR	continuing resolution
CVA	attack aircraft carrier
CVV	medium aircraft carrier

CVS	antisubmarine warfare support carrier
DCNO	Deputy Chief of Naval Operations
DD	destroyer
DD(X)	next-generation guided-missile destroyer
DDG	guided-missile destroyer
DEVGRUEAST	concept development hub under 2nd Fleet at Norfolk.
DEVGRUWEST	capability development hub under 3rd Fleet at San Diego.
DOD	Department of Defense
DRB	Defense Resources Board
EMW	electromagnetic maneuver warfare
EO	Executive Order
FBM	fleet ballistic missile
FFC	Fleet Forces Command
FFG(X)	Next-generation guided-missile frigate
FRAM	Fleet Rehabilitation and Modernization
FY	fiscal year
FYDP	Five Year, and later Future Years Defense Program
GAO	Government Accountability Office
GDP	gross domestic product
HARM	high-speed anti-radiation missile
HQMC	Headquarters Marine Corps

INS	Israeli Navy Ship
JCS	Joint Chiefs of Staff
LAMPS	Light Airborne Multipurpose System
LANTIRN	Low Altitude Navigation and Targeting In frared for Night
LCS	littoral combat ship
LRO	long-range objectives report
LRR	long-range requirements
MRO	mid-range objectives
MSTS	Maritime Sea Transportation Service
NATO	North Atlantic Treaty Organization
NAVDOCCOM	Naval Doctrine Command
NAVMAT	Navy Material Command
NAVSEA	Naval Sea Systems Command
NAVWAG	Naval Warfare Analysis Group
NDP	Naval Doctrine Publication
NHHC	Naval History and Heritage Command
NORAD	North American Air Defense System
NIRA	National Industrial Recovery Act
NRL	Naval Research Laboratory
NSC	National Security Council
NTDS	Naval Tactical Data System
NWP	Naval Warfare Publication
OMB	Office of Management and Budget

ONI	Office of Naval Intelligence
ONR	Office of Naval Research
OP&M	Office of Procurement and Material
OPA	Office of Program Appraisal
OPNAV	Office of the Chief of Naval Operations
OSD	Office of the Secretary of Defense
OWM	Office of War Mobilization
PM	program manager
PMP	program management proposal
POM	program objective memorandum
PPB	Planning, Programming, and Budgeting
PPBE	Planning, Programming, Budgeting, and Execution, previously known as PPBS
PPBS	Planning, Programming, and Budgeting System, later known as PPBE
PRC	People's Republic of China
PRM	Presidential Review Memorandum
QDR	Quadrennial Defense Review
R&D	research and development
SALT	Strategic Arms Limitation Treaty
SC	surface combatant
SCB	Ship Characteristics Board
SCIB	Ship Characteristics Improvement Board
SECDEF	Secretary of Defense

SECNAV	Secretary of the Navy
SLOC	sea lines of communication
SOSUS	Sound Surveillance System
SSBN	nuclear-powered ballistic missile submarine
SSG	Strategic Studies Group
SWO	surface warfare officer
SYSCOMS	system commands
TFX	tactical fighter experimental (multiservice fighter plane)
TLAM	Tomahawk Land Attack Missile
TPP	total package procurement
TYCOM	type command
UAV	unmanned aerial vehicle
VCNO	Vice Chief of Naval Operations
VFAX	naval fighter attack experimental
VLS	vertical launch system
V/STOL	vertical and/or short take-off
VTOL	vertical take-off and landing

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Index


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