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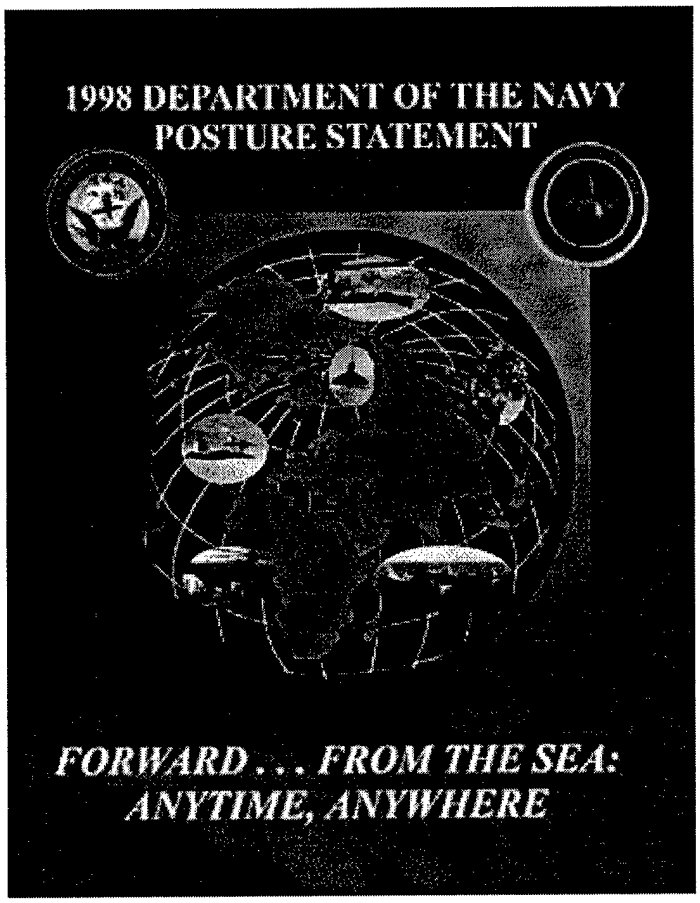

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DEPARTMENT OF THE NAVY

1998 POSTURE STATEMENT

This posture statement reflects the continuing process of transformation initiated by the Department of the Navy in 1992 with publication of ...From the Sea - a bold step taken to ensure the Navy-Marine Corps Team remained at the forefront of America's defenses in a rapidly changing world. Since then, *...From the Sea* has been refined and expanded upon with publication of *Forward...From the Sea* (1994), *Operational Maneuver...From the Sea* (1996), and *The Navy Operational Concept* (1997).

Our transformation process continues today, exploiting technologies from the Revolutions in Military and Business Affairs to give our forces the power and efficiency to dominate the battlefields of tomorrow. By doing so, we are well on the way to achieving our vision of highly effective, forward-deployed naval forces capable of shaping the peace, responding to the full spectrum of crises, and preparing for future threats. It is a process of innovation and growth which leverages the unmatched power, timeliness, and operational independence of aircraft carrier battle groups and amphibious ready groups which serve as the foundation of our Nation's forward defense.

The future holds great challenges for the Navy and Marine Corps, both operationally and organizationally, as we strive to protect our Nation's strategic investment in the world's finest naval force. We must ensure adequate resources, training, and quality of life initiatives maintain the readiness of our Sailors, Marines and civilians, and allow them to continue their heritage of Honor, Courage and Commitment.

This posture statement illustrates the framework adopted by the Department of the Navy to achieve our vision of 21st century excellence, strengthening the unrivaled Navy-Marine Corps Team so vital to America's present - and future - security.

John H. Dalton
Secretary of the Navy

Admiral J.L. Johnson, USN
Chief of Naval Operations

General C.C. Krulak, USMC
Commandant of the Marine Corps

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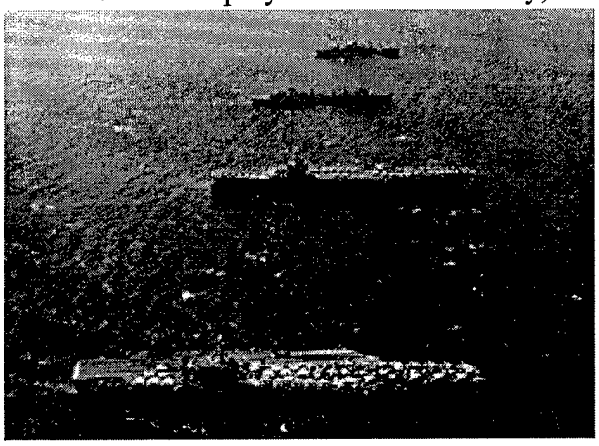
The Navy-Marine Corps Team

Answering the Nation's Call: Anytime, Anywhere

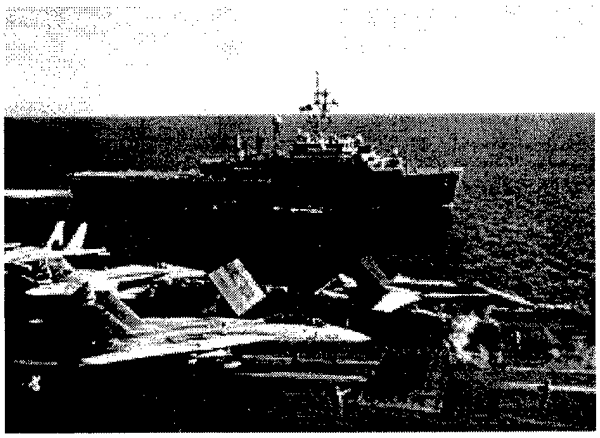
Forward-deployed and combat ready, naval forces embody the President's *National Security Strategy for a New Century*. Our nation recognizes the vital role of military engagement in supporting U.S. national interests and objectives. Because they are forward deployed every day, naval forces are a critical component of our nation's global engagement strategy. As delineated in the National Military Strategy, they provide the essential tools to shape the international environment, to respond to the full range of crises, and to prepare for an uncertain future.



We live in a complex and ever-changing world. The growth during this decade of democracies and free market economies is most encouraging. Yet nationalism, economic inequities, and ethnic tensions remain a fact of life and challenge us with disorder — and sometimes chaos. As both positive and negative changes take shape, the United States has become what some call the "indispensable nation" — the only nation with the technological capability and acknowledged benevolent objectives to ensure regional stability.

The National Defense Panel recently pointed to the rapidly changing international environment and underlined the requirement for a "transformation strategy," a coherent plan for creating the forces the United States will need to deal with the challenges ahead. The Navy-Marine Corps team recognized the need for such a strategy more than five years ago, and began to transform itself with the seminal white paper *...From the Sea*. That white paper, its companion *Forward...From the Sea*, and the concepts outlined in *Operational Maneuver...From the Sea* and *Forward...From the Sea: The Navy Operational Concept* changed the direction of the Department of the Navy dramatically and began just such a transformation strategy.

The focus of this strategic concept is to influence events ashore directly and decisively from the sea — anytime, anywhere. The strategic concepts embedded in ... *From the Sea* and *Forward ... From the Sea* easily adapted to the Quadrennial Defense Review tenets of **shaping** the international environment, **responding** to the full spectrum of crises, and **preparing** now for an uncertain future. Shaping and responding require presence — maintaining forward-deployed combat-ready naval forces. Being "on scene" matters! It is and will remain a distinctly naval contribution to peacetime engagement. As sovereign extensions of our nation, naval forces can move freely across the international seas and be brought to bear quickly when needed. The transformation that the Navy-Marine Corps team has begun seeks to build on these enduring attributes of naval power and ensure that they remain our strengths in the next century.



The balanced, concentrated striking power of aircraft carrier battlegroups and amphibious ready groups lies at the heart of our nation's ability to execute its strategy of peacetime engagement. Their power reassures allies and deters would-be aggressors, even as it demonstrates a unique ability to respond to a full range of crises. From their forward- deployed locations in the Mediterranean, the Arabian Gulf, the Western Pacific and the Caribbean, naval forces offer the National Command Authorities (NCA) a wide range of options — in effect a "rheostat" that can be dialed up or down to put the appropriate forces on scene when needed whatever the evolving crisis.

Operating in international waters and unfettered by constraints of sovereignty, naval forces are typically on scene or the first to arrive in response to a crisis. The inherent flexibility of naval forces allows a minor crisis or conflict to be resolved quickly by on- scene forces. During more complex scenarios, naval forces provide the joint force commander with a full range of options tailored for the specific situation. From these strategic locations, naval forces shape the battlespace for further operations.

Tradition and Teamwork: Hallmarks of Success

Tradition is embedded in the Navy-Marine Corps team. As we look toward the new millennium, we emphasize our traditional core values of honor, courage, and commitment. These timeless ideals remain at the center of everything we do.

Teamwork is another Navy-Marine Corps trait. It ranges from teamwork within individual units, to cooperative efforts among units, to coordination throughout the Department of the Navy. The Navy and Marine Corps also can integrate forces into any joint task force or allied coalition quickly.

Charting a Course for Future Success

The Department of the Navy is no stranger to innovation or to "Revolutions in Military Affairs." It has undertaken three such revolutions in the past one hundred years: the first occurred in the 1890s; another with carriers and amphibious warfare in the 1920s and 1930s; and the third with the ballistic missile submarine force in the 1960s.

In ...*From the Sea* and *Forward...From the Sea*, we have sown the seeds of yet another revolutionary change in naval power, one that will ensure our continued contribution to our national security in a changing world. It revolves about an easily understood axiom: the purpose of naval forces is to influence events ashore directly and decisively from the sea ... anytime, anywhere.

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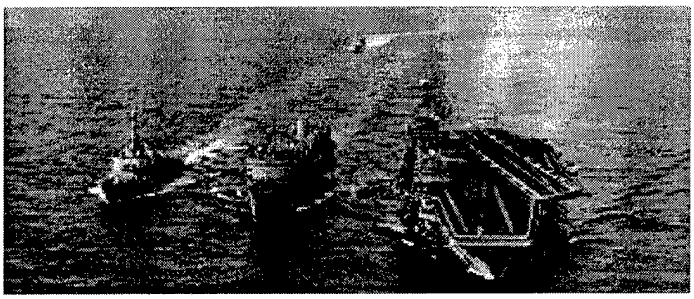
II. Naval Expeditionary Forces: Full Spectrum Capability

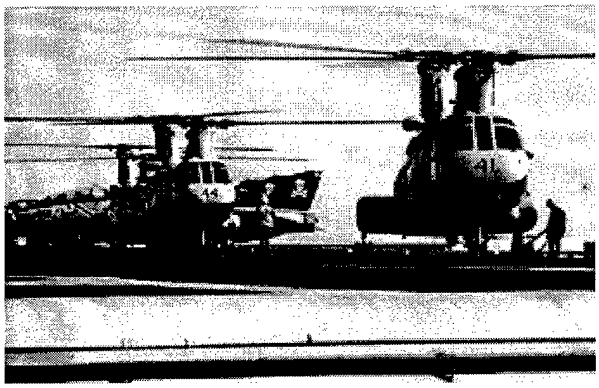


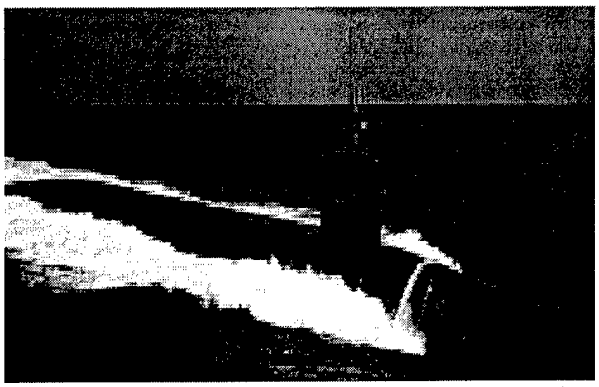
The President's *National Security Strategy for a New Century* identifies engagement as a critical ingredient in maintaining peace and stability around the world. Our National Military Strategy specifies three tasks: shape the international environment, respond to the full spectrum of crises, and prepare now for an uncertain future.

Shaping the International Environment

Naval forces project U.S. influence and power abroad in ways that promote regional economic and political stability, which in turn serves as a foundation for prosperity. Naval forces remain continually engaged around the world as a visible tool of U.S. foreign policy. The power-projection capabilities of our aircraft carrier battle groups and amphibious ready groups provide a potent response to aggression. Our forces shape the local security calculus by being there — a visible, powerful presence with a full range of options. These same forces reassure allies of our commitment to regional peace and stability. Routine exercises with allied forces enhance coalition interoperability and add to our collective ability to respond to attack. Sailors and Marines do this every day of the year. Nearly one-third of Navy and Marine Corps operational forces — more than 60,000 men and women and 100 ships — are deployed around the world. Carrier battle groups and amphibious ready groups provide near-continuous presence in four major deployment areas: the Mediterranean Sea, the Arabian Gulf/Indian Ocean, the Western Pacific, and the Caribbean. In Japan, we anchor regional stability with the forward-stationed *Independence* (CV 62) Battle Group and the *Belleau Wood* (LHA 3) Amphibious Ready Group. Closer to home, the Navy's Western Hemisphere Group is shaping the environment by strengthening the bonds to South and Latin American allies. Each of these strategic locations provides a launching point for quick reaction by naval forces to crises virtually anywhere.

Peacetime engagement is our primary means of shaping the international environment; it is a traditional role for the Navy and Marine Corps. Our forces participate in an array of engagement activities, becoming forces to be reckoned with in the regional security environment. They participate in a complete range of shaping activities — from deterrence to coalition building — establishing new friendships and strengthening existing ones during port visits around the world. These visits promote stability, build confidence, and establish important military-to-military relationships. In addition, port visits provide an opportunity to demonstrate good will toward local communities, further promoting democratic ideals.





Deterrence is another shaping factor. Because foreign nuclear weapons remain a threat, we continue our vigilant efforts to discourage their proliferation and use, along with other weapons of mass destruction. This nation must maintain a credible nuclear-deterrent capability. Our ballistic missile submarine (SSBN) fleet is a key component of peacetime deterrence. The reliability and security of their command-and-control systems, and the superb accuracy and inherent flexibility of their weapons combine to convince any adversary that seeking a nuclear advantage — or even nuclear parity — would be futile. Stealth and mobility make this force the most survivable element of our strategic nuclear triad.

However, we seek to deter more than simply the use of weapons of mass destruction. We also seek to prevent aggression with conventional forces. While the total capability of our armed forces is a factor in such conventional deterrence, it is the visible, forward- deployed naval expeditionary forces that have perhaps the most critical role. Naval forces act as local extensions of our sovereign national territory, able to maneuver in international waters unencumbered by the political constraints that may limit other forms of military power. Routine naval deployments signal both friend and foe of our commitment to peace and stability in the region. This demonstrated ability to respond rapidly to crises — and to fight and win should deterrence fail — offers a clear warning that aggression cannot succeed. Moreover, the ability of the forward-deployed forces to protect local allies and secure access ashore provide a guarantee that the full might of our joint forces can be brought to bear. Taken together these visible U.S. capabilities foreclose opportunities for aggression and help shape a stable local peace.

One key element of this conventional deterrence is helping allies to help themselves. The Navy and Marine Corps execute a full exercise schedule with nations throughout the world. The expeditionary nature of our forces promotes interaction with the sea, land, and air forces of numerous allies. Each exercise, large or small, directly contributes to successful coalition building. Credible coalitions play a key role in deterring aggression and controlling crises. Our routine interactions promote trust and confidence, and encourage measures that increase both our security and that of our allies.

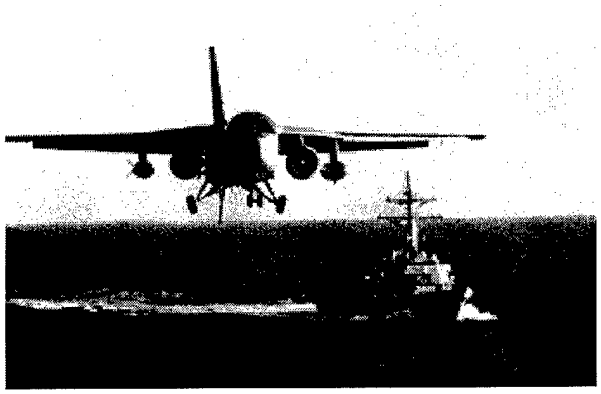
The Navy and Marine Corps role in both conventional and strategic deterrence, including laying the foundations for future coalitions, is a critical ingredient in our national strategy of peacetime engagement. Forward naval forces truly shape our international environment every day in tension spots around our uncertain world.

Providing Options for an NCA "Rheostat"

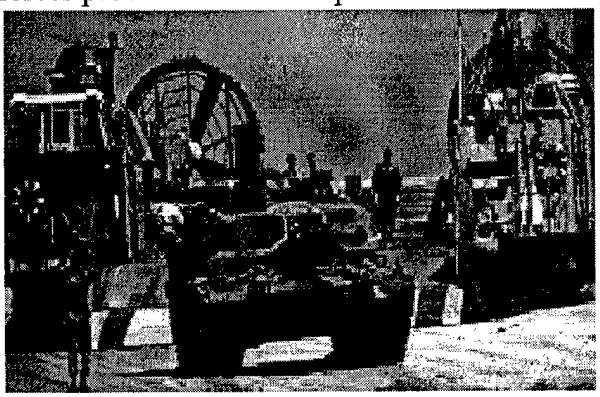
One enduring strength of naval forces is their balance. The combined capabilities of a carrier battle group and an amphibious ready group offer air, sea, and land power that can be applied across the full spectrum of combat. They are positioned forward, able to provide an immediate, highly visible crisis-response capability, but they can also be unobtrusive by operating beyond the horizon or from an undetected submerged position. This balance and flexibility provides the National Command Authorities (NCA) a range of military options that is truly unique.

Forward presence provides an immediate response capability that prevents an aggressor from achieving a fait accompli. On-scene naval forces not only shape the battlespace — they demonstrate our capability to halt aggression long before adversaries can achieve their objectives.

While enhancing deterrence, naval forces simultaneously shift the military balance in our favor by offering numerous options in response to aggression. We force adversaries to consider multiple responses by injecting uncertainty into their planning, disrupting their ability to execute a coherent campaign, and eroding their confidence in the likelihood of success. Naval forces can provide security and employ unique operational and logistic capabilities, allowing civil initiatives to work. Options may range from establishing a no-fly zone to ensuring delivery of humanitarian supplies.



The flexible, rapid movement of naval forces at the onset of any crisis is an ideal way to signal our nation's commitment. Our quick-reaction capability, combined with self- sustaining logistics, enables the Navy-Marine Corps team to be on scene at the outset and to remain as long as necessary to stabilize the situation. The advantage of our expeditionary nature is amplified when allied nations are reluctant or unable to support crisis-response efforts. Naval forces provide numerous options to the National Command Authorities, including: sea and area control; naval gunfire for fire support; interdiction and deep strike missions; amphibious operations; special warfare operations; and Marine air-ground task force operations ashore. The mobility and agility of naval units make them the force of choice in a wide variety of situations. The presence of naval forces in the early stages of a crisis reminds a would-be aggressor of the overwhelming power that can be projected from the continental United States.

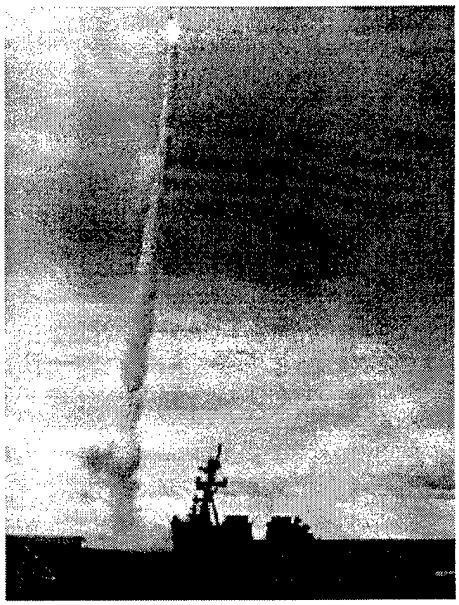


There are numerous examples of the Navy-Marine Corps team providing instantaneous real-world support of the National Command Authorities. In mid-1997, the *Nassau* (LHA 4) Amphibious Ready Group (ARG), with the 26th Marine Expeditionary Unit (Special Operations Capable) (MEU(SOC)) embarked, and the *Kearsarge* (LHD 3) ARG, with 22d MEU(SOC) embarked, planned sequential noncombatant evacuation operations in the former Zaire, Sierra Leone,

and Albania. The geographic separation and unique requirements of each event clearly demonstrated the flexibility of naval forces. Later in 1997, when Iraqi intransigence resurfaced, the *Nimitz* (CVN 68) Carrier Battle Group (CVBG) rapidly repositioned from the Pacific to the Arabian Gulf. Soon afterward, the *George Washington* (CVN 73) CVBG relocated from the Mediterranean Sea to the Arabian Gulf, to emphasize U.S. resolve. Partially in response to these movements, and in concert with vigorous diplomatic efforts, the Iraqi government agreed to terms that allowed U.N. inspectors, including Americans, to return to work.

In the early stages of a crisis, our combat capabilities can defend allies and their critical ports and airfields, needed for the arrival of follow-on forces from the continental United States. In the future, our emerging theater air-and-missile-defense capabilities will enhance this protective shield for joint forces and allies — unobtrusively, from the sea. The mobility of these systems, currently being developed around the existing Aegis surface combatant fleet, will be a critical force multiplier. Our dynamic pursuit of area and theater-missile defense continues.

The ability to fight and win against any adversary is vital to the National Security Strategy. Throughout the joint campaign, naval forces will capitalize on our command- and-control system to concentrate combat power from dispersed, networked forces and project power far inland. Initial operations by swiftly responding naval forces often can halt aggression early in the conflict. In those cases where aggression is not contained immediately, our initial operations will be critical in enabling a joint campaign to begin. The Navy's ability to dominate the littorals ensures sea and area control, while defeating enemy area-denial threats. Naval forces also can assert maritime superiority and provide strategic sealift to transport joint and allied forces into theater. Our ability to counter enemy area-denial threats effectively — with potent information warfare, power projection, and force-protection capabilities — increases our decisive impact early in a joint campaign.



Naval operations are critical elements of the joint campaign. We deliver precision naval fire support — strike, force interdiction, close air support, and shore bombardment. We seize the advantage of being able to operate on and from the sea. Using high-tech information-processing equipment, we achieve superior speed of command by rapidly collecting information, assessing the situation, developing a course of action, and executing the most advantageous option to overwhelm an adversary. Throughout the joint campaign we keep the vital seaborne logistics pipeline flowing. And, when the joint campaign is over, naval forces can remain on scene for long periods to enforce sanctions and guarantee the continuation of regional stability.

Preparing for an Uncertain Future

Today, the Navy and Marine Corps enjoy maritime superiority around the world. We find ourselves at a strategic inflection point, during which we can think in different ways about warfighting in the future. We have an opportunity to be innovative and create new capabilities to overcome the threats that lie ahead. We must embrace change and make it our ally. The Department of the Navy is committed to exploiting emerging technologies, concepts, and doctrine to guarantee the military superiority vital to our nation's global leadership. In addition, we are examining concepts that will capitalize on our national capabilities, going beyond jointness and the interagency network. These concepts envision bringing together all elements of national power including academia, laboratories, financial institutions, industry, communications, humanitarian organizations — to meet the challenges of the 21st century.

Similarly, we must acknowledge today's realities. Although Navy and Marine Corps deployed unit readiness remains high, a combination of constrained resources and the pace of operations required to execute NCA tasking and fulfill the requirements of the Unified Commands are affecting the readiness of our non-deployed forces. In concert with Congress, we must find ways to address this situation. We must and will take advantage of the ongoing revolutions in military affairs and business affairs to achieve our goals.

Revolution in Military Affairs

A revolution in military affairs (RMA) occurs when new concepts of warfare combine with new technologies to achieve a quantum leap in military capabilities. Carrier aviation, amphibious warfare, and ballistic missile submarines are vivid examples of such previous successes. We embarked on a similar innovative path with the 1992 publication of ... *From the Sea*, and further refined our strategic vision with *Forward... From the Sea* in 1994. The revolution has continued in the past two years with publication of the Navy's *Operating Forward... From the Sea*, and the Marine Corps' *Operational Maneuver From the Sea (OMFTS)*. These operational concepts show how the naval service will execute its strategic concept and maintain its operational primacy into the 21st century.

The Navy and Marine Corps are involved actively in developing concepts that will combine in the future to attain revolutionary capabilities. These efforts include information warfare, precision strikes from the sea, Cooperative Engagement Capability (CEC), Network-Centric Warfare, theater ballistic missile defense, and Ship-to-Objective Maneuver (STOM). These concepts enhance our broad mission areas of sea and area control, power projection, presence, and deterrence. Our revolution is appropriate for the times.

Revolution in Business Affairs

An RMA must combine new concepts, technologies, organizational structures, doctrine, and programs. Modernization and recapitalization, using dedicated funds, are necessary to exploit fully the RMA. We seek to find some of these funds by instituting a revolution in business affairs. Modernizing our force structure to better reflect tomorrow's challenges and streamlining our support services to make them more efficient are two methods we are using to realize additional fiscal savings for reallocation to support more robust modernization efforts.

The importance of achieving these savings cannot be overemphasized. Our shipbuilding plan produces technologically superior ships, such as *Arleigh Burke* (DDG 51), *San Antonio* (LPD 17), the New Attack Submarine (NSSN), and CVN-77, and the average rate of production in the future years defense plan (FYDP) is adequate in the near term to support the projected FY 03 force of about 300 ships. However, beyond the FYDP, this rate of production will not permit us to maintain the required ship and aircraft inventory. The operational commitments undertaken by the Navy and Marine Corps today require a certain force level, to satisfy both personnel tempo concerns and worldwide presence missions. Our rate of new-ship and aircraft construction must recapitalize the force in the long term to maintain this balance. We need to ensure that, in the future, adequate modernization funding is provided in order to fulfill tomorrow's tasking.

The Navy-Marine Corps team is the finest maritime force in the world today. To maintain our preeminence, we must continue our investment in technological advances. Indeed, the rapid pace at which technology proliferates around the world presents us with new challenges. In the information age, potential adversaries will acquire knowledge of our systems and capabilities much faster than ever before. In order to remain on the leading edge of technological innovation, we must undertake a revolution in the way we procure systems and place them in the fleet — a revolution in business affairs. Further, we must learn from the successes of others, and prepare to manage acquisition in a way that makes the most of every dollar spent. The transformation of our forces must integrate the strengths of our people with emerging technologies.

Institutionalizing Innovation

Both the Navy and the Marine Corps are moving swiftly to institutionalize the generation of innovative concepts and ideas. The CNO's Strategic Studies Group (SSG) is dedicated to developing revolutionary naval warfare concepts 15 to 20 years from today. The SSG fellows combine analysis of naval campaigns and scientific methodology, to identify future warfighting concepts that offer an order-of-magnitude improvement over current capabilities. This continuing effort complements Fleet Battle Experiments, which examine future concepts and doctrine 5 to 10 years from now. The Marine Corps' Warfighting Laboratory (MCWL) and the Sea Dragon series of experiments also are creating the necessary focus on new concepts and doctrine.

In 1997, the MCWL conducted the first in a series of Advanced Warfighting Experiments (AWEs), Hunter Warrior, and is currently preparing for the second AWE, Urban Warrior. The Marine Corps capitalized on the innovative momentum generated through the MCWL by creating the Office of Science and Innovation (OSI) on 15 August 1997. The mission of the OSI is to develop visions focused on the development of policies and strategies associated with the exploitation of scientific innovation, modeling, simulation, and technology, in order to enhance Marine warfighting capabilities. The OSI has taken the lead in incorporating the successes of the MCWL into the Marine Corps Combat Development System.

In 1998, the Navy will establish the Navy Warfare Development Command in Newport. This new command will combine the expertise of the Naval War College, Navy Doctrine Command, and the CNO

Strategic Studies Group into an organization capable of integrating concept development, experimentation, and doctrine within the framework of the Navy strategic vision. This organization will formalize a process for rapid generation and experimentation of innovative concepts. It also will maximize the unique abilities at the Naval War College and empower the doctrine development process.

Our Navy and Marine Corps are focused on the future, building upon the firm foundation of *...From the Sea* and *Forward... From the Sea.* We will maintain carrier battle groups and amphibious ready groups forward, shaping the international environment and creating conditions favorable to U.S. interests and global security. From their forward locations, our forces are positioned to respond to a full range of crises and contingencies, and protect our national interests. Our continued emphasis on innovative thinking is preparing us well for an uncertain future.

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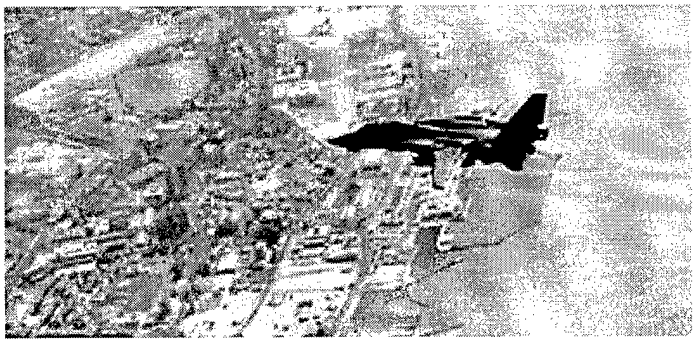
III. Operational Primacy: 1997 in Review



Throughout 1997, the Navy and Marine Corps maintained an average of 119 ships, 62,300 Sailors, and 23,300 Marines deployed overseas in support of forward presence missions, training exercises, and operations in more than 100 countries. Sea-based and self-sustained, naval forces take advantage of bilateral training opportunities in countries with limited infrastructure or ability to support large scale military deployments. These training exercises offer emerging democracies a unique opportunity to train with U.S. forces. Forward-deployed expeditionary forces also give theater commanders a flexible, responsive force that can be positioned in key trouble spots for extended periods, as a visible example of U.S. resolve and commitment. During 1997, the Navy-Marine Corps team proved time and again that sea-based forces are the premier forward presence asset.

Operations

Arabian Gulf/Red Sea

Iraq: *Operation Southern Watch* (August 1992-present). Navy, Marine, and Air Force units continue to enforce the "no-fly" zone over Iraq. Naval operations in 1997 included extensive Navy and Marine aircraft sorties from the aircraft carriers *Kitty Hawk* (CV 63), *Theodore Roosevelt* (CVN 71), *Constellation* (CV 64), *John F. Kennedy* (CV 67), Nimitz (CVN 68), and *George Washington* (CVN 73). *Operation Northern Watch* (May 97-present). Navy and Marine EA-6B squadrons are operating to enforce the no-fly zone over northern Iraq.

CVN Thrust (Oct 97-present). In response to Iraq's expulsion of UN weapons inspectors, *Nimitz* (CVN 68) accelerated its transit to the Arabian Gulf, while *George Washington* (CVN 73) swung to the Gulf from deployment in the Mediterranean to provide a formidable force with massive strike capability.

Saudi Arabia: *Operation Desert Focus* (July 1996-present). In the aftermath of the Khobar bombings, the First Marine Expeditionary Force (I MEF) provided counterintelligence team support for force protection to Joint Task Force-Southwest Asia (JTF-SWA). The deployment was extended into FY 97 because of the continued terrorist threat.

Bahrain: *Reinforcement of Naval Security in Bahrain* (April-June 1997). A reinforced platoon of the Fleet Antiterrorism Security Team (FAST) Company deployed in response to a Navy Central Command (NavCent) request immediately following indications and warnings of terrorist threats. Naval Reserve Mobile Inshore Undersea Warfare Units deployed to Manama, Bahrain, to augment port surveillance and security.

Maritime Interception Operations: (August 1990 - present). Surface combatants, amphibious ships, and maritime patrol aircraft continue the maritime intercept operations in the Arabian Gulf in support of U.N. sanctions against Iraq. Almost 25,000 queries, 11,000 boardings, and over 600 diverts of shipping have occurred since the operation began. U.S. Navy ships are the principle tool for enforcing

the U.N. mandated sanctions against Iraq.

Africa

Democratic Peoples Republic Of The Congo (Formerly Zaire): *Operation Guardian Retrieval* (March-June 97). As conditions in Kinshasa deteriorated, *Nassau* (LHA 4), with elements of the 26th Marine Expeditionary Unit (Special Operations Capable) (MEU(SOC)) on board, was dispatched off the coast of Zaire. The remainder of the 26th MEU(SOC) Forward on board *Nashville* (LPD 13) and *Pensacola* (LSD 38) remained in the Mediterranean Sea to provide strategic reserve for the NATO Stabilization Force (SFOR) in Bosnia. The 26th MEU(SOC) assumed the main effort of a planned noncombatant evacuation operation named Joint Task Force Guardian Retrieval. *Kearsarge* (LHD 3) and the 22d MEU(SOC) deployed two weeks early to relieve *Nassau* and the 26th MEU(SOC); the former assumed responsibility for the Joint Task Force (JTF) mission on 2 May 1997.

Sierra Leone: *Operation Noble Obelisk* (May-June 97). As *Operation Guardian Retrieval* finished, the deteriorating security situation in Freetown, Sierra Leone, required *Kearsarge* (LHD3) and the 22d MEU(SOC) to relocate quickly to another crisis operating area. As commander for JTF Noble Obelisk, the 22d MEU(SOC) evacuated 451 American citizens and 2,059 third-country nationals in four days to *Kearsarge*. All evacuees were later transferred to Conakry, Guinea, for processing.

Europe

Bosnia: *Operation Deliberate Guard* (December 1996-present). Earlier Bosnian-related operations (*Operations Deny Flight* and *Decisive Edge*) transitioned to *Operation Deliberate Guard* in support of the Stabilization Force (SFOR). Carrier and shore-based aviation squadrons continue joint and combined flight operations to enforce the "no-fly" zone over the Republic of Bosnia-Herzegovina. Additional Navy and Marine F/A-18 and EA-6B aircraft, forward-deployed to Aviano, Italy, provide suppression of enemy air defense, close air support, and electronic warfare capabilities to the SFOR. Naval Mobile Construction Battalion Seabees and Marines augment Army civil affairs brigades to support specific peacekeeping operations. Nearly 500 Naval Reserve personnel were recalled to support Bosnian operations.

Adriatic Sea: *Operation Joint Guard* (December 1996-present). During four of five operational phases, SFOR designated deployed MEU(SOC)s as the reserve in support of the NATO-led implementation of the Dayton Peace Accords. In March 1997, *Nassau* and the 26th MEU(SOC) returned to the Adriatic Sea as a supporting force after responding to the crises in the former Zaire and Sierra Leone. *Nassau*was later relieved by*Kearsarge* and the 22d MEU(SOC). During 1997, Navy maritime patrol aircraft supplied reconnaissance support to area commanders. VMU-2, a Marine Corps unmanned aerial vehicle (UAV) squadron equipped with the Pioneer UAV, transmitted a video data link to Navy P-3 aircraft for further relay to the three multinational divisions. VMU-1 deployed in September 1997 to provide a video link to officials during the Bosnian municipal elections. Marine active and reserve personnel augment USCINCEUR's effort in Bosnia.

Albania: *Operation Silver Wake* (March-July 1997). *USS Nassau*(LHA 4) Amphibious Ready Group (ARG), with the 26th MEU(SOC) embarked, conducted a noncombatant evacuation operation (NEO) in Tirana, Albania. Spreading anarchy in Albania compelled the evacuation of 877 Americans and third-country nationals. Following the evacuation, Marines provided security for personnel remaining in the embassy and housing compounds. These elements were later relieved by Marine Corps Security Forces from Naples, Italy, and Souda Bay, Crete.

Caribbean and South America

Counterdrug Operations: Active and reserve Navy ships, submarines, and aircraft continue detection and monitoring missions in the Caribbean Sea and the Atlantic and Pacific Oceans. Navy and Marine Corps personnel serve as tactical planners, analysts, and mobile training teams in drug-source countries to enhance host-nation law enforcement. Marine Corps units have also conducted 55 missions along the Southwest border, in support of domestic law enforcement agencies. Navy personnel operate and maintain re-locatable over-the-horizon radar (ROTHR) sites in Virginia and Texas, providing wide area surveillance of the transit zone. Efforts are underway to construct a ROTHR site in Puerto Rico, which will extend surveillance capabilities to the source countries. Additional surveillance is provided by a Naval Reserve E-2 radar early warning aircraft squadron established in support of counterdrug operations. The Director of Naval Intelligence maintains dedicated, maritime-focused counterdrug intelligence support and interagency coordination via multisource fusion analysis of commercial shipping and noncommercial vessels. These intelligence sources provided information to law enforcement and Department of Defense personnel.

Haiti: *New Horizons Haiti* (formerly exercise Fairwinds) (April 96-Dec 97). Navy Seabees, Marine engineers, and Navy medical units supported the nation building efforts of "U.S. Support Group Haiti." These units provided important humanitarian assistance to the Government of Haiti through the completion of engineering projects and medical support.

Cuba: *Cuban Migrant Support* (August 1994-present). Marines from the Second Marine Expeditionary Force (II MEF) continue the Cuban and Haitian migrant handling, processing, and security missions in Guantanamo Bay, Cuba. Navy personnel provide medical and logistic support to the migrants. Since September 1994, as many as 40,000 migrants housed at the Guantanamo Bay Naval Facility have been repatriated.

Peru: *Operation Laser Strike* (September 1996-June 1997). Marines supported the counter-drug operations of U.S. Southern Command (CINCSOUTH) with a ground mobile radar and communications team.

Asia

Korea: Naval sea and air power forward-based in Yokosuka, Sasebo, and Atsugi, along with Marine expeditionary forces from Okinawa, continue to provide a visible and unambiguous presence

around the Korean peninsula. Four at-sea training exercises were conducted with South Korean forces: *Sharem 120* featured *Thach* (FFG 43), *Hewitt* (DD 966), and *Topeka* (SSN 754) in an antisubmarine exercise; MCMEX tested anti-mine warfare expertise with *Guardian* (MCM 5) and *Patriot* (MCM 7); *Foal Eagle '97* was a large-scale carrier battle group exercise centered on the *Independence* (CV 62) battle group, combatants from 3rd Fleet, and numerous support ships; *Ulchii Focus Lens '97* is a major joint and combined command and control exercise for the *Blue Ridge* (LCC 19), 7th Fleet's command ship forward deployed in Japan. These highly beneficial exercises are integral to our ability to operate in a nearly seamless fashion with South Korean forces.

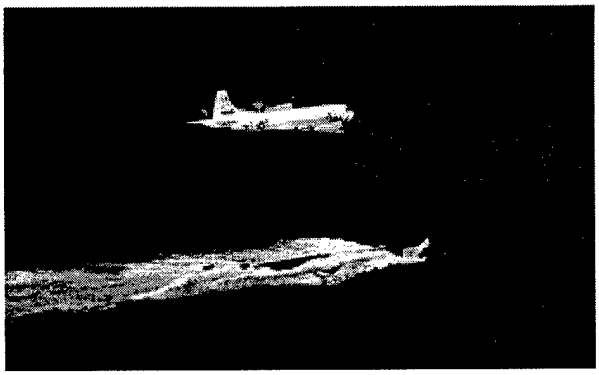
Guam: *Operation Pacific Haven* (September 1996-March 1997). Navy personnel from Helicopter Combat Support Squadron Five, Naval Mobile Construction Battalion Seabees based in Guam, Marine translators, and a reinforced Marine rifle company from Okinawa supported the USCINCPAC effort of screening and processing Kurdish refugees from northern Iraq.

Korean Airlines Flight 801: *Crash Recovery Operations* (August 1997). Navy helicopter units provided medical evacuation assistance to survivors to the U.S. Naval Hospital in Guam. The Navy's medical and dental personnel were instrumental in the recovery and identification of victims. In addition, a seven-member special psychiatric rapid intervention team (SPRINT) was dispatched from the Naval Medical Center, San Diego, two days after the crash to provide counseling and emotional support for rescue workers. Seabees provided further rescue and salvage support to the National Transportation Safety Board.

Cambodia: *Operation Bevel Edge* (July 1997). Marines from the Third Marine Expeditionary Force (III MEF) deployed to Utapao, Thailand, to support a USCINCPAC JTF mission. The 31st MEU(SOC) was placed on alert for a possible NEO from Cambodia.

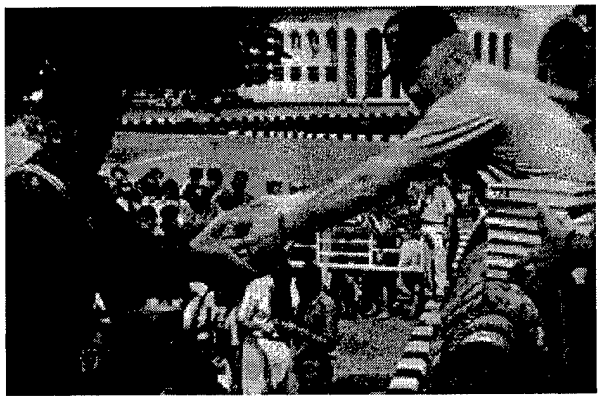
Exercises

West African Training Cruise (WATC): This annual deployment provides interaction between U.S. Naval forces and their host-nation counterparts for military training, expanded military-to-military relations, and to maintain familiarity with the West African littoral environment. The Navy and Marine forces in the Whidbey Island (LSD 41) during WATC 97 also participated in UNITAS 97.

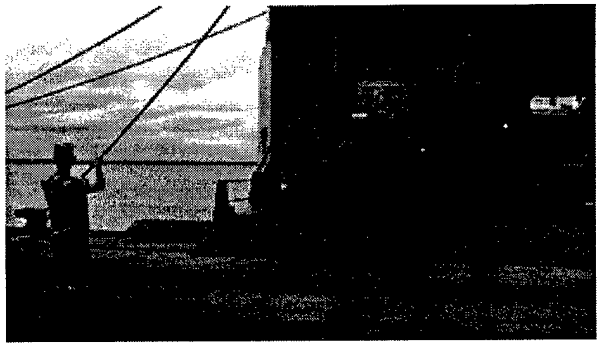


UNITAS 97: The annual UNITAS deployment is a primary means of supporting regional stability in the Western Hemisphere. Active and reserve surface combatants and P-3C aircraft, Marine forces from II MEF, a submarine, reserve medium lift transport aircraft, and a U.S. Coast Guard cutter join to conduct multinational exercises with Venezuela, Colombia, Ecuador, Peru, Chile, Argentina, Uruguay, and Brazil, while circumnavigating the continent during a five-month period. This year, France, The Netherlands, Canada, UK, Germany, and Portugal also participated during phases of the nine-nation, 29-city deployment. These exercises often provide the only opportunity for Latin American forces to train with U.S. and other allied forces.

Partnership for Peace: The Partnership for Peace (PfP) program continues to be the centerpiece of NATO's strategic relationship with Central and Eastern European nations. These operations, part of our bilateral military-to-military contacts program, included basic seamanship exercises and familiarization visits with the regional forces. Surface ships, aircraft, and submarines participated in many exercises in 1997 including: BALTOPS '97, Ioklos, Briz, Posidon, and 5 other bilateral cooperative exercises which took place in the Mediterranean, Baltic, and Black Seas. These exercises are central to Sixth Fleet's participation in PfP endeavors.

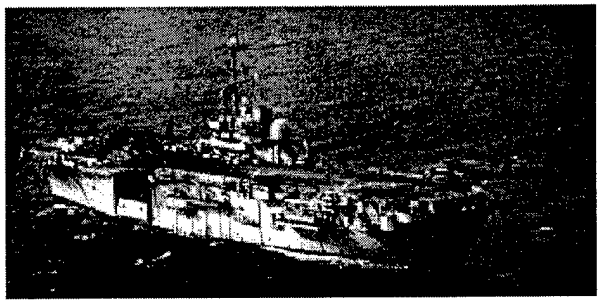


Black Sea Operations: Navy and Marine Corps units have conducted training operations with forces from Romania, Ukraine, and Bulgaria. Sailors and Marines make a major contribution to national efforts aimed at building Black Sea alliances and furthering relationships via Partnership for Peace. Through exercises such as Rescue Eagle and Sea Breeze, forward-deployed, self-sustained naval forces provide excellent opportunities for initial bilateral training with the armed forces of emerging democracies.



Baltic Challenge 97: The second Baltic Challenge exercise involved 2,800 personnel from nine nations: Estonia, Latvia, Lithuania, Norway, Sweden, Finland, Denmark, Ukraine and the United States. Focused primarily on peacekeeping and humanitarian assistance, naval active and reserve forces demonstrated a range of capabilities that support operational objectives in Europe, including the stationing of a Maritime Prepositioning Force in the Baltic Sea. Additionally, reservists made up nearly 25% of the Marine Forces deploying to Estonia, showcasing the readiness and skill inherent in the "total force."

Blue Harrier 97: This biennial, multinational mine-warfare exercise highlighted the newly converted mine countermeasures (MCM) command-and-control ship *Inchon* (MCS 12). This exercise provided NATO mine warfare units the opportunity to interact in tactics and procedures, which promoted cooperation and mutual understanding amongst its participants.



Tandem Thrust 97: Tandem Thrust 97 was conducted in the Shoal Water Bay Training Area, Australia. As part of a Combined Task Force (CTF) headed by Commander Seventh Fleet, forces from *Independence* (CV 62) Carrier Battle Group, an Amphibious Ready Group built around the *New Orleans* (LPH 11), III MEF, and the 11th MEU(SOC) worked with other US and Australian forces on a short-warning crisis-action scenario. The exercise implemented USCINCPAC's cooperative engagement strategy and demonstrated U.S.-Australian cooperation.

Carat 97: Regional stability in Southeast Asia is supported by the Pacific Fleet's cooperation afloat readiness and training (CARAT) program, patterned after UNITAS. Active and reserve surface combatants, maritime patrol aircraft, a special purpose Marine air-ground task force, medical detachments, and a U.S. Coast Guard cutter conduct exercise with six countries in the South China Sea region for two months each year. In 1997, Brunei, Indonesia, Malaysia, Singapore, and Thailand participated. Our naval forces exercised with the host nation's air, sea, and land forces to promote

regional maritime interoperability, increase readiness, enhance military-to-military relations, and ensure stability of Southeast Asian sea lanes of communication.

Kernel Blitz 97: This large scale amphibious exercise was conducted at Camp Pendleton, California in June 1997. As a maritime contingency response to a freedom-of- navigation challenge, Kernel Blitz 97 demonstrated the inherent flexibility of the Navy-Marine Corps team with at sea, amphibious, and subsequent operations ashore. The use of emerging technology was a key underlying concept to Kernel Blitz 97. Using the Global Command and Control System (GCCS), all participating units received a common tactical and imagery picture from multiple sources.

Arctic Care 97: Navy and Marine reservists of the 4th Force Service Support Group participated in a joint civic action exercise in isolated villages in the Yukon-Kuskokwim Delta in Alaska. This exercise provided valuable training for 150 Marines and Sailors as they augmented the understaffed rural health care system. Humanitarian medical, dental, veterinary, and light engineering support were afforded to the indigenous Yupik Eskimo population.

Military Support To Civil Authorities

Chemical-Biological Incident Response Force: In response to the threat of weapons of mass destruction against American interests, the Marine Corps Chemical-Biological Incident Response Force (CBIRF) provided support for national events during 1997— beginning with a deployment to Washington, D.C., for the second inauguration of President Clinton. The CBIRF, consisting of both Marine and Navy personnel, was positioned to quickly respond to a terrorist chemical or biological attack. Functioning within the Federal Response Plan and working with the First Army's Response Task Force, the CBIRF developed a helpful relationship with other first responders. In addition, the CBIRF supported the Summit of Eight in Denver, Colorado during the summer of 1997.

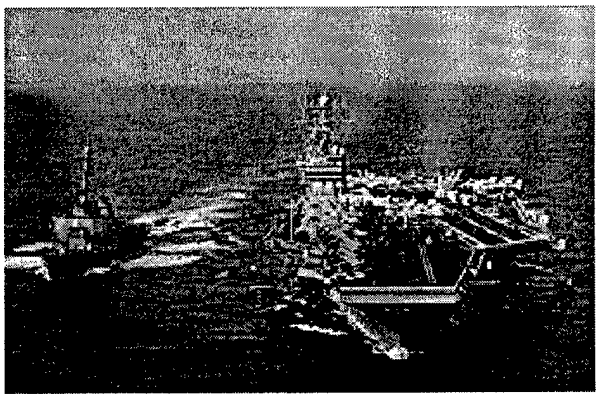
Western U.S. Floods: (Winter/Spring 1997). Nevada and California experienced record rainfalls and rapid winter snow melts in 1997. Widespread flooding forced the evacuation of thousands of residents and caused extensive damage. Naval Reserve emergency preparedness liaison officers (EPLOs) were assigned to the Federal Emergency Management Agency (FEMA) and National Guard emergency operations centers to coordinate Federal, Department of Defense, and state assets. Navy EPLOs coordinated Naval Construction Battalion efforts to repair weakened dams and bridges, and coordinated logistical support requirements, including shipment of more than one million sandbags.

Great Plains Blizzard and Flood: (Winter/Spring 1997). North and South Dakota's record-setting snowfall and subsequent snow melt produced extensive flooding. During these events, Navy EPLOs were responsible for coordinating support equipment from nearby bases. Navy EPLOs established themselves on site and became the official Department of Defense representatives for coordinating DOD support with the 5th Continental Army.

When later Spring floods again affected South Dakota and Minnesota, Navy EPLOs were on scene. Marine Corps and Coast Guard personnel entered the fray, and Navy EPLOs were requested to once again help coordinate support efforts. Navy EPLOs worked with the Department of Defense Disaster Coordination Office, the other armed services, and many local agencies.

Freedom Of Navigation

The ability to move U.S. forces when and where they are needed depends upon unfettered access to the world's oceans and international airspace. To ensure access as a matter of legal right, U.S. naval forces in 1997 conducted more than 20 operations to protest excessive maritime claims, in support of the President's Freedom of Navigation Program. These assertions supported the U.S. foreign policy objective of adherence by all nations to the International Law of the Sea.



Similarly, the Department of the Navy strongly supports U.S. accession to the Law of the Sea Convention as amended in 1994. A majority of the world's nations now are signatories to the Convention, including all major maritime powers except the United States. Worldwide acceptance of the Law of the Sea Convention remains the best guarantee of a stable ocean's regime that recognizes navigational and overflight freedom crucial to naval operations. Accession by the United States also provides less of an incentive for states to make and enforce excessive claims. That should, in the long term, result in a decline in the number of excessive maritime claims which restrict our rights of mobility and access.

The Department of the Navy is operating today to provide for America's interests. The forward-deployed strategy is cost-effective for the nation while simultaneously providing a ready, responsive force capable of meeting the challenges of today's chaotic world. Conducting daily operations and exercises with allies reinforces our commitments to friends and potential adversaries alike.

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IV. Sailors, Marines and Civilians: Our Most Valuable Resource

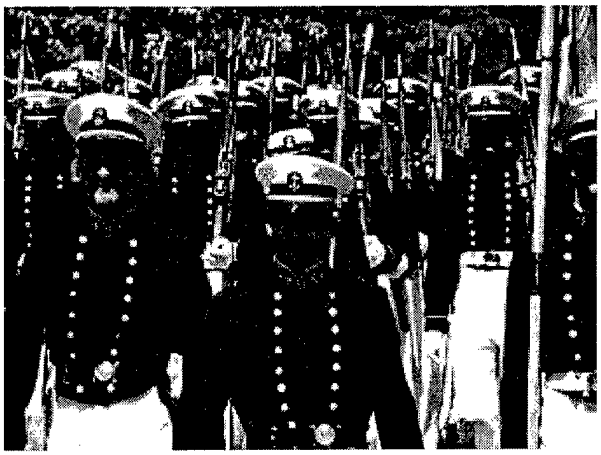
People are the heart and soul of the Navy-Marine Corps team. With a FY 97 end strength of 395,000 active duty and 95,898 Reserve Sailors, 174,000 active duty and 42,000 Reserve Marines, supported by 220,000 federal civilian employees, the Department's personnel form a flexible, well-trained and responsive team.

A key element in recruiting and retaining a high quality all-volunteer force must be a military compensation package that allows the Department of the Navy to keep faith with our people and is reasonably competitive in the civilian labor market. A solid and sensible compensation plan remains essential to maintaining operational readiness. Compensation competitiveness is determined by the real-dollar value of basic pay, food and housing allowances, special and incentive pays or bonuses, and such benefits as commissary and exchange privileges, medical and dental care, retirement, and paid leave. Given the extraordinary demands placed upon Sailors, Marines, and their families, it is imperative that we ensure all factors of compensation, from basic pay and dependents' medical care to retirement benefits, are adequately addressed. This is even more vital given the vast array of private sector opportunities which continue to attract our most talented, highly trained, and experienced Sailors and Marines.

Together, the Navy-Marine Corps team has served as the shield of the republic since the earliest days of our nation. Navy and Marine Corps personnel have performed together magnificently as a result of our ability to recruit, train, and retain the highest quality personnel. For over two centuries, Navy and the Marine Corps personnel have exemplified our shared core values of honor, courage, and commitment. At the leading edge of the new century, the significance of our forward-deployed Navy-Marine Corps team has never been greater. The unique culture and traditions that have brought success in the past need to be sustained and nurtured in the future.

Shaping the Total Force

Navy-Marine Corps end strength is approaching steady-state, but will require further modest reductions to implement the recommendations of the Quadrennial Defense Review (QDR). Consequently, the operational readiness of the Navy and Marine Corps depends, now more than ever, upon our ability to recruit and retain the very best men and women with the right mix of skills and experience. Ensuring the quality of life and professional development of our Sailors and Marines is of primary importance. We must provide rewarding career opportunities, a quality standard of living, and fair and adequate compensation.



Recruiting Tomorrow's Leaders

Attracting the high-caliber youth needed to maintain our future force is the recruiting focus of the Department of the Navy. Although low national unemployment and an increase in college enrollment created a challenging recruiting environment, 1997 proved to be a successful year for Navy and Marine Corps recruiting. Recruiting strategy focused on attracting highly qualified individuals for particular skills in the Fleet and Fleet Marine Forces. Navy recruiters achieved 100% of their overall recruiting goals, employing targeted marketing to achieve 100% of nuclear field and critical-ratings goals. In addition, the academic quality of Navy enlisted recruits remains high: more than 95% earned high school diplomas, and 66% scored in the upper half of the Armed Forces Qualification Test. The Marine Corps attained more than 100% of enlisted recruiting goals and exceeded Department of Defense goals in all tier and aptitude categories for the previous 30 consecutive months. This singular accomplishment is directly attributed to the dedicated efforts of our Marine Recruiters.

Traditional commercial advertisements, emphasizing our core values of honor, courage, and commitment continue as the mainstays of our recruiting effort. The Marine Corps also has developed a series of advertising campaigns designed to attract more women and minorities into officer and enlisted programs. They are increasing the use of radio, print, and direct-mail advertising specifically tailored for women, as well as such high-profile marketing opportunities as sponsorship of the Extreme Games and Hoop-It-Up.

Partly responsible for this success is the boost special duty assignment pay (SDAP) has given to maintain a quality recruiting force. The Navy and Marine Corps recruiting commands continue to assign the highest-caliber commanders and most stringently screened Sailors and Marines to recruiting duty. A number of initiatives are in place to improve the quality of life for recruiters and their families assigned away from major bases or stations.

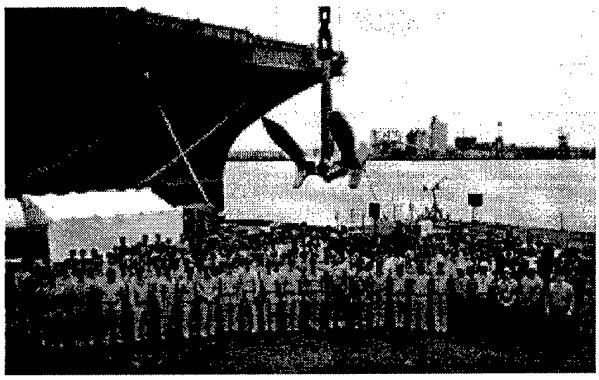
As we continue in our efforts to attract highly qualified and culturally diverse officer and enlisted candidates, we are ever-mindful of the formidable challenges the future presents. Historically low unemployment, record high college enrollment, and a declining veteran population which reduces exposure to the military as a career option, contribute to a potentially lower propensity to enter the military services. For the first two months of FY 98, Navy recruiting accessed only 91% of goal. If that trend continues through FY 98, it may lead to an annual accession goal shortfall of 4,000 personnel.

Realizing that recruiting top quality people is one of the most significant challenges facing the Department, we have developed a recruiting campaign involving the entire chain of command. As an example, the Secretary of the Navy has sent letters to high school principals throughout the Nation, urging them to actively discuss the potential of a Navy or Marine Corps career with their students. We also are attempting to address the challenge head-on with a number of new initiatives, including accessing more females, recruiting more general detail (GENDETS) personnel, and increasing opportunities for Navy veterans to return to active duty. Extensive use of Internet homepages to advertise highly technical careers in the Department also has proven to be a superb recruiting tool. Additionally, funding has been increased for traditional advertising, enlisted bonuses, and the Navy College Fund (NCF) program to help in all aspects of retention and recruiting.

We made improvements in increasing minority accessions in both officer and enlisted ranks

through the enhanced opportunities for minorities initiatives (EOMI) program. While solid progress was made for enlisted accessions, more work is needed in the area of officer accessions. Additionally, we are exploring better ways in which to achieve a better distribution of minorities across technical and nontechnical ratings. Our efforts are not focused on achieving quotas, but rather continuing to accept and promote only the best qualified and highly motivated personnel to serve in the Department of the Navy.

The Department's ability to recruit an exceptionally well-qualified and diverse civilian workforce has been enhanced through a series of coordinated recruitment programs, which have brought Navy and Marine Corps activities together with college and university students. To invest in future civilian recruitment, special residential and scholarship programs were established to acquaint outstanding high school and college students with the Department's technical missions.



Retaining the Best and the Brightest

Maintaining a skilled, motivated and ready force is the foundation for the future of the Navy-Marine Corps team. By FY 00, after several years of downsizing, we will be at a point where every loss to the Navy must be offset by a recruit in order to maintain stable end strength. This will be challenging. The United States has a strong economy with plentiful employment options. Moreover, fewer young people today express interest in joining a military service. Although faced with further reductions associated with the Quadrennial Defense Review, it is prudent that we start retooling our retention program now. For example, we continue to offer a selected reenlistment bonus to keep critical billets filled. The percentage of Sailors offered this program was greatly reduced during peak downsizing years, but current personnel levels demand an increase in those eligible for this bonus. Other career stabilizing initiatives include affording Marine Corps first- term reenlistees the option of choosing one of three duty stations for their second term. Similarly, Navy homebasing initiatives give families more stability by serving in a single fleet concentration area.

Educational opportunity remains a cornerstone of Department of the Navy career- incentive programs. New Navy recruits report that the Montgomery G.I. Bill was the number one reason for enlisting, and the Navy College Fund (NCF) continues as a primary incentive program for specialized-skill areas. This past year, Navy increased the NCF to provide a total of $40,000 in benefits for nuclear program enlistees. In addition, tuition assistance is available for self-motivated Sailors and Marines. At sea, or when deployed to remote locations, the Program for Afloat College Education (PACE) and the Marine Corps Satellite Education Network (MCSEN) continue to accelerate the use of distance learning for further education.

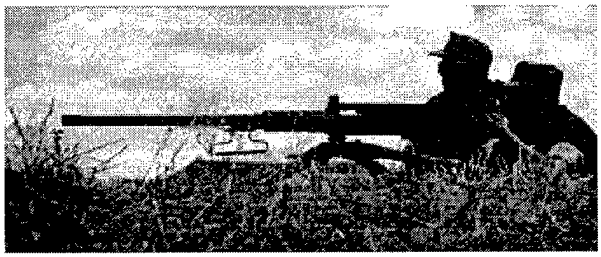
A stable and competitive officer corps is essential to lead the Navy and Marine Corps. Nuclear officer incentive pay, medical officer incentive special pay and Aviation Continuation Pay (ACP) are some of the tools enabling the naval services to retain capable, talented and technically oriented leaders in the face of ever-increasing private sector competition. Using the higher authority approved in the 1998 National Defense Authorization Act, the Navy and Marine Corps are addressing pilot retention issues within selected warfare communities.

Adequate compensation fosters improved retention in mission critical skills, increases morale, and maintains high readiness. The basic allowance for housing (BAH) system, authorized by Congress in the FY 98 Defense Authorization Act, will be phased in over a six-year transition period. The BAH is expected to provide an immense benefit for Sailors and Marines stationed in high-cost, metropolitan coastal areas, and improve the lives of our junior enlisted personnel.

Passage of the Military Retirement Reform Act of 1986 (Redux) has decreased considerably the benefits of making military service a career. Studies have shown that a typical enlisted member with 20 years of service will receive 25% less retirement compensation than before Redux. This erosion of benefits translates into a growing perception that a military career is less advantageous than civilian employment. This, in turn, affects force retention and stability in our mid-grade officer and enlisted personnel. The Department supports the exploration of alternative retirement savings programs.

Navy and Marine Corps Reserve Contribution

The Naval and Marine Corps Reserve provided an unprecedented level of support during the past year. Increasingly used as a force multiplier to accomplish everyday missions, the Naval and Marine Corps Reserve is no longer just a force-in-waiting — to be called upon in the event of global war. To this end, Reserve contributory support to the active Fleet has more than doubled since 1991, to more than two million man-days of direct mission support in 1997.



The Naval Reserve plays a significant role in virtually all major operations and exercises. Reserve ships and aircraft are increasingly used for counter-drug and other fleet operations, such as a Mediterranean deployment for the operational reserve carrier *John F. Kennedy* (CV 67) and a deployment to Europe for a multinational mine countermeasures (MCM) exercise for the reserve MCM command ship *Inchon* (MCS 12). A driving force in this increased deployment of reserve force ships and aircraft has been to lessen active duty personnel operational tempo. This increased role is highlighted by the fact that five of the ten reserve frigates were deployed for periods of four to six months in 1997. These deployments included CARAT, BALTOPS and counter-drug operations, which were missions previously assigned to active units. Naval reserve force ships have expanded their role in these deployments by rotating selected Reservists that make up one-fourth the crew.

The reserve expanded their support of the fleet in other ways as well. Reservists filled critical positions in fleet hospitals, naval hospitals and with the Marine Corps, and participated in virtually all naval medical exercises. Even critical leadership positions have become an area for Reserve personnel to assist the fleet.

In addition to the traditional mobilization posture, the Naval Reserve has expanded its utility to the active component, as a contingency response team and a vital pool of manpower and equipment. Structured to support the fleet on a daily basis, the Naval Reserve provides 100% of the Navy's forces in

such mission areas as: adversary aviation squadrons, fleet aviation logistics support, mobile inshore undersea warfare, and naval control of shipping.

The Marine Reserve component is a critical element of the Total Force. The active component, as the nation's most ready force, has primary responsibility for forward presence, operations other than war, and crisis response. The Marine Corps Reserve supports these missions with individuals and units as required. During FY 97, Marine Reservists worked and trained alongside their active counterparts in numerous operations and exercises. More importantly, the Marine Reserve augments and reinforces the active component, creating a Total Force capable of sustained combat in the event of a major theater war.

Today, more than 95% of the units of Marine Forces Reserve are assigned to active component forces in support of the Marine commitment to joint operations plans. Reserve participation is essential with today's smaller active-duty force. Success throughout the full range of possible missions, from military operations other than war (MOOTW) to augmenting and reinforcing the active component in periods of crisis, demands the seamless integration of both forces.

The Marine Corps Reserve exists to enhance the operational capabilities of the active component. The Marine Corps Reserve currently contributes 26% of the force structure and 37% of the trained manpower to the Total Force Marine Corps. One hundred percent of the adversary squadrons, civil affairs groups, and battalion-sized reconnaissance units; 50% of the tank battalions and theater missile defense detachments; and 33% of the artillery battalions are provided by the Marine Corps Reserve. The full integration of active and reserve personnel into combined-arms air-ground teams are the nation's force- in-readiness... the highly capable Marine Corps.

Naval Training: Today's Investment, Tomorrow's Capability

The Navy Training Continuum

The Naval Training Center in Great Lakes, Illinois, has initiated an innovative boot camp final exam named "Battle Stations." This was done to ensure that Sailors were ready to join the Fleet. New Sailors use teamwork, basic seamanship and nautical knowledge gained during the boot camp curriculum to master seven training stations during a pre- graduation battle problem. "Battle Stations" uses fleet experiences to create a more challenging and relevant training regimen for the Navy's newest Sailors.

To continue preparing junior Sailors for career success after basic recruit training, the Navy uses basic and advanced-skills schools in areas such as engineering and weapon systems. Employing electronic manuals, remote video classroom techniques, and on- board systems, the Navy is training more Sailors with greater productivity. Afloat training groups at fleet concentration areas are used to tailor training to meet the needs of individual commands. Tailored training eliminates duplication, saves time and concentrates on correcting individual and unit weaknesses. In addition, through careful planning, operational exercises provide windows of opportunity for follow-on at-sea training.

The Navy's leadership continuum puts career-spanning rigor into leadership training, for both active and reserve personnel. The leadership continuum is the Navy's vehicle for imparting leadership qualities into a program of recurring training from recruitment to retirement. The purpose of the training is to produce warriors whose individual skills and values enable them to bond together as a cohesive combat-ready team.

Leadership training commences at accession training and is reinforced through eight courses for officer and enlisted personnel, which form the basis of the continuum. Enlisted personnel attend the leadership training after selection to E-5, E-6, E-7, and Command Master Chief or Chief of the Boat.

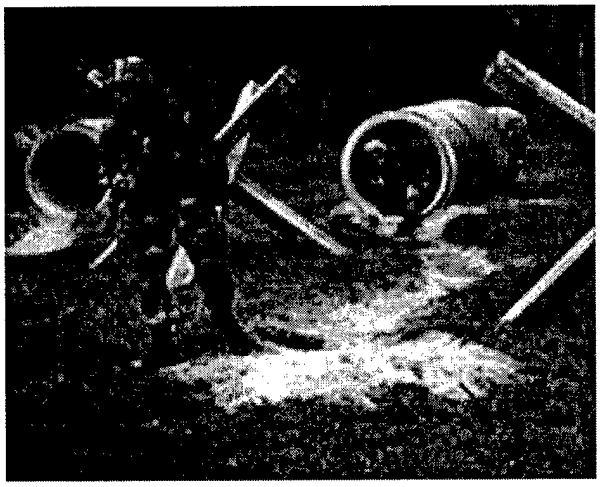
Officers attend the leadership training en route to specific leadership assignments. These progressive and sequential courses are all two weeks in length with the exception of the nine week Senior Enlisted Academy.

Four major themes are the foundation of all the courses: values; responsibilities, authority, and accountability of leadership; unity of command, Navy and services; and continuous improvement. The training is a deliberate process to transform behavior and attitudes, rather than just ensuring compliance with regulations, by providing a common perspective on the real importance of the Navy's core values of honor, courage, and commitment. As each Sailor progresses through the leadership training courses, they acquire the knowledge, skills, and experience to form the basis of leadership techniques. The formal leadership training is periodically reinforced in warfare and specialty pipeline training, at annual All-Hands training, and during development/professional assignments. Current education and training programs, which include leadership modules, are being aligned with the continuum themes to ensure consistency, and to eliminate redundancies and conflicts.

Marine Corps Transformation Process

Transformation is an ongoing and dynamic process of making Marines, and consists of four phases: recruiting, recruit training, cohesion, and sustainment.

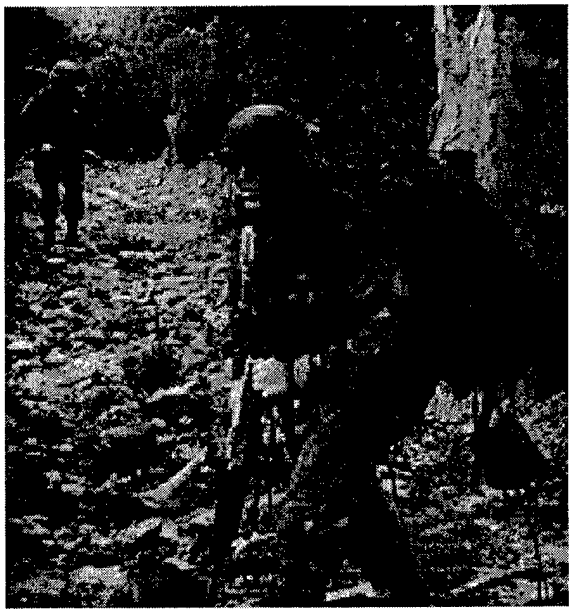
Recruiting. The transformation process begins with the first contact with a Marine recruiter. A demanding and extremely selective screening process follows: Those who qualify enter an improved delayed-entry pool to prepare for recruit training; enhanced physical conditioning, study guides, and instruction on Marine Corps history and traditions become integral parts of that preparation; and potential recruits also receive their introduction to Marine Corps core values. In addition, the recruiter introduces them to the concept of total fitness — body, mind, and spirit. From the outset, it is made clear to recruits that they will be expected to undergo a transformation to become a valued part of an elite organization.



Recruit Training. On 1 October 1997 recruit depots implemented significant changes to the focus and content of recruit training. Recruit training was lengthened from 11 to 12 weeks for both males and females. This provides additional time for drill instructors to teach, mold, and mentor their recruits. Supporting this change is a significant increase in core values training, totaling more than 50 hours of instruction, discussion, and training reinforcement critiques. The most notable enhancement to recruit training is the addition of the "Crucible" event, intended to test the mettle of every recruit at the culmination of recruit training. As the true rite of passage from recruit to Marine, the Crucible is a 54- hour field training evolution, emphasizing the importance of teamwork in overcoming adversity. The regimen includes food and sleep deprivation and an operational tempo that poses continuous physical and mental challenges.

Cohesion. Unit cohesion is defined as the intense bonding of Marines, strengthened over time, resulting in absolute trust, subordination of self, and an intuitive devotion to the collective actions of the unit. To achieve this, the Marine Corps is forming teams of Marines immediately after recruit training and assigning those teams to follow-on skill producing schools. Subsequently, they are assigned to operational units in the Fleet Marine Force. Changing from individual assignment to unit assignment is a major modification of personnel policies — but one that will improve combat efficiency.

Sustainment. The sustainment of the transformation process is continuous, and spans all that Marines do throughout their service. Professional military education schools educate Marine leaders — officers, staff noncommissioned officers, and noncommissioned officers — in "whole Marine" character development. Leaders in both the operating and in support forces conduct business and accomplish their missions in ways that support and reinforce both core values and team building. Leaders are also expected to manifest core values and mentor their subordinates. Living the Marine Corps ethos is a shared responsibility for all Marines and continues until the day a Marine hangs up the uniform for the last time — and beyond.



Voluntary, Professional, and Graduate Education

Voluntary education programs have made a significant contribution to recruiting, retention, and readiness. The latest recruiting survey indicates that over 25% of Navy's enlistees cited "money for college" as the primary reason they joined the Navy. Our enlisted force has shown that pursuing follow on education remains a high priority. For the past several years, a majority of our E-4 to E-6 potential career force retention candidates have used tuition assistance (TA). The interest in advanced education prompted the Department to consolidate the Navy and the Marine Corps tuition assistance programs in 1995. This "centralized" TA system saved $1 million in its first year of operation. These and future savings will translate in more courses for our personnel.

The Department of the Navy is committed to making it just as easy for personnel at sea to have access to educational opportunities as those ashore. In FY 97, the Navy's Program for Afloat College Education (PACE) became available in every one of the 346 ships in the Navy, and over 20,000 Sailors participated in the program. Using tools such as PACE and the Marine Corps Satellite Education Network (MCSEN), most Sailors and Marines are able to pursue an education during off-duty time, regardless of duty assignment or location.

To increase access to education, the Navy is moving to establish academic skills learning centers worldwide. By FY 99, 21 centers will be activated, with a total of 52 centers planned by FY 01. These centers provide Sailors with the opportunity to improve basic academic skills, assist them in retaking the Armed Services Vocational Aptitude Battery (ASVAB) tests, help prepare them for college work, and achieve their educational potential.. The MCSEN also provides the technology to deliver a standardized military academic skills program to all major Marine Corps installations, which guarantees accessibility to basic skills improvement courses in reading, writing, communications, and mathematics.

As the largest single source of Navy and Marine Corps officers, the Naval Reserve Officer Training Command (NROTC) prepares men and women at civilian universities to assume junior officer positions in today's technical Navy and Marine Corps. NROTC scholarships at our nation's finest universities gives the Department added visibility to recruit tomorrow's leaders.

The Department of the Navy is evaluating our graduate education programs to ensure that its leaders are prepared for the challenges of warfare and national security in the next century. Naval flagship education institutions, which include the Naval Postgraduate School, Naval War College,

Marine Corps University, and the United States Naval Academy, provide multiple opportunities for officers to attain graduate education in a military setting. Opportunities for naval personnel to obtain postgraduate education at civilian universities also exist in several disciplines under the graduate education at civilian institutions program. Joint postgraduate education enables naval officers to function within the joint environment and master the intricacies of joint warfare planning and operations. The Naval Academy now offers a graduate program in leadership, culminating with a Master's degree for junior officers. Navy graduate medical education programs prepare medical officers for the challenge of operational and peacetime roles. In addition, the Navy and the Marine Corps have ensured that tuition assistance remains a continuing option to complete graduate education for enlisted and officer service members.

The Department of the Navy civilian leadership development program identifies certain leadership competencies that commands and activities use to establish formal leadership programs. The program provides all employees with opportunities to acquire knowledge and skills that enhance their competitiveness for higher level positions. Civilian leadership development also supports the Defense leadership and management program, which offers advanced leadership and executive-level skills and professional military education to GS-14 through Senior Executive Service (SES) employees. These programs support Department of the Navy initiatives to bring civilians into high-demand technical career paths. These programs start at the entry level and can help highly motivated and successful employees move to senior management and executive levels.

Fostering Excellence

Core Values: Principles By Which We Live

The Navy and Marine Corps are committed to sustaining our tradition of building strong character and ethical behavior. Character, ethics, and core values underscore morale and personnel readiness to improve mission performance. People who are trained and led by role models of high character are inspired to attain equally high levels of integrity and commitment.

The emphasis placed upon our core values of honor, courage, and commitment is the foundation of Navy and Marine Corps efforts to combat such unacceptable behavior as sexual harassment, alcohol and drug abuse, hazing, and fraternization. Ethical awareness and adherence to core values is at the forefront of Department policy, planning, and action. In 1996, we promulgated our core values charter, which highlights the bedrock principles of the Navy-Marine Corps team. Character, ethics, and core values are emphasized throughout the career of each Sailor, Marine and civilian. This approach ensures that character, ethics, and core values are visible continuously at all levels, and reemphasized as each individual grows in tenure, responsibility and authority.

Equal Opportunity

The Department of the Navy offers every Sailor, Marine, and civilian employee equal opportunity to succeed and achieve his or her fullest potential, regardless of ethnicity, gender, national origin, race, or religion. With strong emphasis on core values, the Department ensures that each individual is treated with dignity and respect. A recent amendment to Department of the Navy regulations prohibits participation in any supremacist organization espousing discrimination based upon race, creed, color, sex or national origin. In addition, the Department of the Navy continues to emphasize the critical role of women in the fleet.

Since 1994, women have been eligible for assignment on board combat ships and aircraft. With the exception of submarine duty and special operations, women train and serve in every Navy community and career field. Moreover, the women at sea program continues to expand career opportunities for women on combatants and in aviation. In FY 98, more ships and another carrier air wing will become gender integrated, bringing the gender- integrated ship total to 133 and the air wing total to five.

The Department of the Navy's focused efforts to eliminate sexual harassment were reflected in the 1995 Department of Defense Sexual Harassment Study, which reported that the Navy and Marine Corps showed the greatest declines in reported sexual harassment incidents among all the Services. We continue to reemphasize our commitment to eradicating sexual harassment, unprofessional relationships, and unacceptable conduct. Active efforts concentrate on oversight, leadership, policies, and training, while providing assistance and formal assessments of our programs. In a recent survey, Navy and Marine Corps focus groups reported we are successfully communicating to the field our core values and policies on sexual harassment and unprofessional relationships. When policy infractions occur, our toll-free advice lines, victim/witness assistance programs, counseling, advocacy, and other community support services are working effectively with our commanders to take action to eliminate the problem and prevent recurrence.

Quality of Life: Taking Care of Self and Family

The Department of the Navy recognizes quality of life as a vital component in recruiting and retaining the quality men and women needed for the force of the 21st century. The Departmental focus is to provide an acceptable level of quality housing, health care, and community support services to Sailors, Marines, and their families, regardless of duty station. Key elements of the quality-of-life program include an adequate compensation and benefits package, as well as a positive environment that provides our personnel the requisite tools to reach their full potential. To this end, the Department of the Navy has established minimum quality-of-life guidelines, and is working toward consistent and professional delivery of all quality-of-life components.

Alcohol and drug abuse can seriously impact the quality of life of Navy and Marine Corps members and their families. Alcohol abuse accounts for almost half the accidental deaths each year in the Navy and Marine Corps. It is also associated with many safety, health, discipline, and family problems. We are actively and aggressively addressing these issues and promoting an environment and culture which will not accept alcohol abuse. We have established a standing committee on alcohol use "deglamorization" that monitors the Navy's "Right Spirit" campaign and the Marine Corps "Semper Fit" program. These initiatives have contributed to the declining trends in alcohol abuse.

Additionally, our "Zero Tolerance" policy has significantly reduced drug abuse. Positive drug-test results have declined from 14% in 1981 to less than 1% today. More recently, both Navy and Marine Corps have initiated pre-employment drug testing at Military Entrance Processing Stations (MEPS) which should further reduce drug abuse within our active duty forces.

Housing the Force

Properly housing our personnel and their families remains a core quality-of-life issue. New initiatives underway in family housing, bachelor quarters, and housing allowances underpin our commitment. The military housing privatization authorities are rapidly becoming the sharpest tools in our kit. Erasing maintenance and repair backlogs and suitable-housing deficits hinges on the careful use of these authorities, in concert with the traditional application of appropriated dollars. Changes to the housing compensation system now provide allowances that more closely match actual housing costs.

The availability of family housing program dollars continues to challenge the Department in its desire to eliminate maintenance and repair backlogs. With more than 45,000 homes in need of major repair or replacement, the Department is developing projects to be funded through a combination of family housing funds and an aggressive public-private venture (P/PV) program. By calling upon the strengths and capabilities of private-sector housing providers and experts, the P/PV authorities will allow the Department to accelerate revitalization goals and stimulate the development of quality housing units.

The Navy is reexamining the requirements necessary to achieve the barracks standard of "1+1" (e.g., two single-occupant rooms that share restroom and bathing facilities) for permanent-party personnel in grades E-1 through E-4 and have committed to the development of installation-level implementation plans. The Navy plan will be completed by April 1998. Construction funds have been programmed through the current Future Years Defense Plan (FYDP) to help the Navy attain the "1+1" goal. The Marine Corps plan began in FY 96 by identifying priorities at each installation, based upon projected manning requirements, the current inventory of adequate spaces, and proposed new construction. As an interim step in executing its plan, the Marine Corps has programmed more than triple the historic funding level to replace approximately 10,000 inadequate barracks spaces and meet a "2+0" standard by 2005 (e.g., double-occupant room with a private restroom and bathing facility).

Child Care

Affordable, high-quality child care also is a critical quality-of-life requirement. Initiatives to expand availability include: contracting for spaces in qualified off-base civilian centers, expanding family child care to incorporate off-base residences, enhancing our resource and referral program, school-age care partnerships, and regional contracts with local providers.

Community and Family Support

Rounding out quality-of-life services for Marines, Sailors and families are community support programs, entailing individual and family support services. A full range of family support services, emphasizing basic skills for living, are available. The Marine Corps' formal Key Volunteer Network Program and the Navy's Ombudsman Program work at the grass roots level to assist spouses and families while the service member is deployed. In addition, the Marine Corps is implementing LINKS (lifestyle, insights, networking, knowledge, and skills) to assist new families adapt to life in the Marine Corps. These outreach efforts are an integral part of readiness and retention.

Single Sailors and Marines represent the largest category of personnel in our Armed Forces. Typically, they live in modest accommodations, and need programs which enhance their physical and mental readiness, provide recreational opportunities, and offer meaningful and beneficial activities during off-duty hours. The single Sailor and Marine programs address these specific needs. Initiatives include safe and secure storage for personal belongings and vehicles during deployment, pier-side laundry facilities for those who live on board ship or are deployed overseas, and quality fitness equipment. The Great Lakes Training Center even has a recreational facility, providing activities for recruits during the recruit training curriculum.

Meeting Spiritual Needs

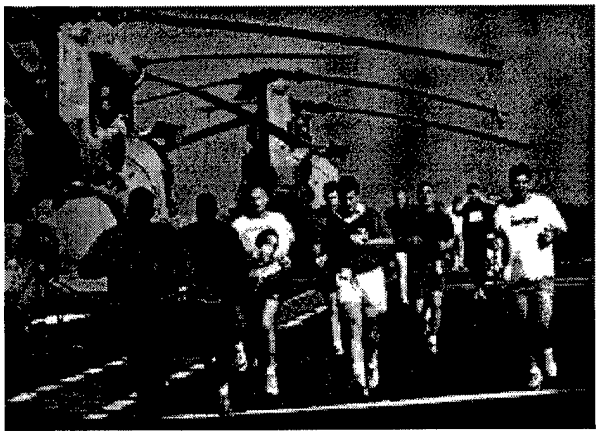
Quality of life for Sailors and Marines also means ministry at sea, in battalions, on flight lines, and in housing areas. More than 900 chaplains in the Navy, including 350 serving with Marine Corps units, mold values by facilitating the free exercise of religious faith, providing around-the-clock pastoral care and counsel, and encouraging spiritual growth. As key players during crises, chaplains provide intervention skills and spiritual, emotional, and practical support during times of personal loss, bereavement, and transition. Chaplains interact with Family Service Centers, the Navy and Marine Corps Relief Society, American Red Cross, and other agencies to ensure that military personnel always receive superb support.

Drug Demand Reduction Task Force

The Secretary of the Navy's Drug Demand Reduction Task Force (DDRTF) continues its contribution to the war on drugs and is committed to increasing Navy and Marine Corps readiness. The cornerstone program, drug education for youth (DEFY), provides constant positive influence for 9-to 12-year-old children of Sailors and Marines. In 1998, the DDRTF is producing television public service announcements, spotlighting the "It's a Life or Drugs Situation" campaign.

Serving our Retired Shipmates

We are committed to fulfilling our promises to the more than 460,000 Naval Service Retirees. The Navy and Marine Corps have established Retired Activities Offices worldwide, manned by volunteers who provide counseling and assistance to retirees and family members.



Health and Fitness

The goal of the health promotions program is to develop physical health and readiness of all Department of the Navy military personnel. Progress in achieving and maintaining a healthy lifestyle is evaluated through semiannual physical fitness and body-composition testing programs. Today's Sailors and Marines are more fit and healthier than at any other time in our nation's history.

Morale, welfare, and recreation (MWR) programs support the mental and physical readiness of our Sailors. Our fitness and sports activities are the cornerstones of our approach to ensure all Sailors meet mandatory fitness standards. Our main focus is to engage naval personnel in a comprehensive fitness program for the benefit of the individual, the unit in which they serve, and the Department as a whole.

To better prepare Marines for the rigors of combat, the Marine Corps is developing training and education programs that will provide access to basic sports-medicine information. These courses will be offered on the Internet and in CD-ROM format. Sports medicine and rehabilitation therapy (SMART) clinics at both San Diego and Parris Island Marine Corps Recruit Depots were established to assist recruits who receive sports-related injuries during their initial training. In addition, Marine Corps Base, Quantico, has established the Wellness Center in Larson Gym, to provide preventive medical care.

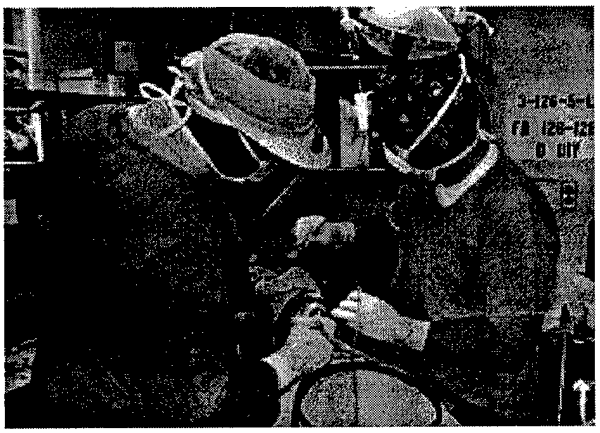
Medical

Quality health care is the hallmark of Navy medicine. In recent years, average accreditation scores for Navy hospitals have been in the 90th percentile, exceeding average civilian hospital scores.

Navy medicine will continue to find innovative ways to provide medical and dental care as close to the worksite as possible. Pierside clinics, deployment of health-care specialists with the operating forces, and new programs at recruit training activities that save valuable training time by delivering health care to trainees on-site are just the first steps.

New technology enables the Navy to provide specialty consultation in remote areas and achieve cost and time savings by reducing the need to transport patients. It also greatly enhances the ability to provide quality health care for forward-deployed operating forces and at remote medical treatment facilities. The successful telemedicine technology developed in our operational testbed, *George Washington* (CVN 73), is now being applied to support operational medical services in other locations.

Navy medicine is committed to providing an atmosphere of health care excellence. Guiding Navy medicine are three basic themes: taking health care to the deckplates; moving information not people; and making TRICARE work. TRICARE's triple option health plan offers opportunities to reduce family member out-of-pocket expenses and improves health care access. While the HMO option of TRICARE (Prime) is most likely the best choice for most family members and retirees, the program offers traditional fee- for-service options for those who prefer more freedom of choice in selecting a health care provider.



We are working to improve the ways we assist people who have experienced problems with the health care system. We demonstrated a TRICARE Advocacy Plan at several facilities recently which has shown very promising results. The Department plans to expand this program to more Navy and Marine Corps bases.

In conjunction with the Department of Defense and other Services, the Navy is working to ensure TRICARE's success. As TRICARE approaches full implementation in 1998, delivery of patient-focused, consistent health care to all beneficiaries, regardless of geographical location, remains our goal.

Beneficiary education and customer-focused marketing are some of our important priorities. The Navy and Marine Corps leadership is promoting improvement of services and our response to the needs of Sailors, Marines, retirees, and family members. Encouraging current legislative authority allows the Department of Defense to proceed with the Medicare subvention demonstration project. Although the subvention test sites have yet to be approved, Navy is preparing to participate in this important demonstration. Working with DoD and the other services, we look forward to demonstrating our ability to offer TRICARE Prime to our valued retirees age 65 and older. We also are continuing to assess options to improve access to medical care for our Medicare-eligible beneficiaries. Indeed, we estimate that only half of our medicare-eligible population lives near a military treatment facility and would therefore not be eligible to join TRICARE even if it were authorized across the country. Navy supports all initiatives to assess alternative health care options for our retirees. We are acutely aware of the "broken promise" of lifetime care expressed by many retirees, especially those over 65 years old and not eligible for TRICARE. Recent efforts by DoD to review options to the present programs are fully

supported by the Department. Our study of this issue will hopefully help us develop an equitable and consistent health plan for all retirees.

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V. Readiness

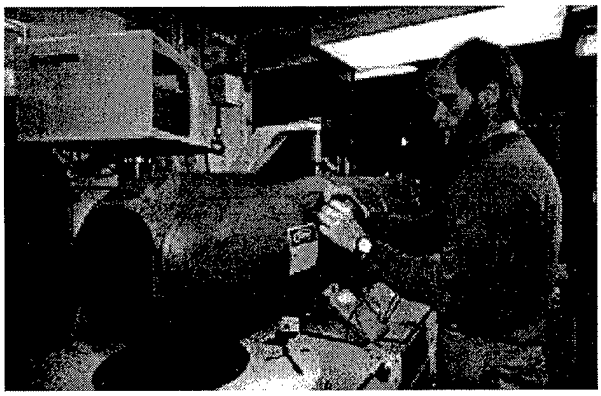
VII. Efficiency: Exploiting the Revolution in Business Affairs

Acquisition Reform

The Department of the Navy's research, development and acquisition team continues to be the engine for developing, procuring and supporting technologically superior and affordable systems for the Navy and the Marine Corps, as well as joint and allied forces. These critical goals are being attained through strategic acquisition reforms, the application of a range of tools, and the implementation of the Federal Acquisition Streamlining Act and the Clinger-Cohen Act.

The Department of the Navy is confronting key management issues and developing tools such as "cost as an independent variable" (CAIV) to reduce total ownership costs. Acquisition specialists are inserting commercial dual-use technologies into fielded weapon systems, to make operations and support costs more affordable. The Department is accelerating the move from military specifications and standards to performance-based specifications through Navy-developed software tools such as TURBO STREAMLINER, SPECRIGHT!, and the Single Plant Process initiative.

Acquisition Center of Excellence: The Department of the Navy is committed to developing the infrastructure that enables large distributed work teams to produce higher quality systems at reduced cost over a shorter period of time. The embodiment of this commitment is the Acquisition Center of Excellence (ACE), an institution that will serve as a test bed and development site for the Navy's simulation-based acquisition (SBA) effort. The SBA initiative is expected to revolutionize the design and procurement of major systems, thus reducing total life-cycle cost and acquisition time.



Acquisition Work Force: Today's acquisition workforce is approximately half the size it was in 1989, numbering 95,895 as defined in the FY 98 DoD Authorization Act at the end of FY 97. Reducing the work force has been steady and controlled, accomplished largely through retirement incentives, base realignment and closure actions, and organizational restructuring. At the same time, procurement has become more technologically complex and the expectations of the fleet even greater. As we further reduce manpower levels to 86,868 by the end of FY 03, it is imperative that the acquisition force structure be composed of the right people, with a balanced education, training, and skill mixture.

The Department has had difficulty over the past several years bringing young people into the acquisition field. To meet this challenge, the Department implemented a plan during the past year that triples the acquisition intern program. This initiative should help to ensure the availability of highly qualified people to fill senior acquisition positions.

Acquisition Reform Success Stories: The Department's bold approach is reflected in many successes. Some examples include:

F-14 Precision Strike Fighter Team: This program has demonstrated what teamwork and innovative thinking can accomplish. Partnering with Lockheed Martin, the team used the LANTIRN targeting system to give the F-14 a night and precision-guided munitions delivery capability. The first fully operational system was deployed 223 days after contract award, two years ahead of schedule. By using commercial off-the-shelf technology, the team realized significant savings estimated as more than $173 million.

Chemical Biological Incident Response Force: The Marine Corps Systems Command rapidly procured and fielded a suite of equipment to support Marine Corps Chemical Biological Incident Response Force (CBIRF) requirements. Using an abbreviated acquisition program (AAP) strategy, commercial-off-the-shelf (COTS) and non- developmental items (NDI) were examined. Equipment for the CBIRF was acquired to fulfill mission-critical and mission-essential requirements. Procurement and delivery of equipment to CBIRF was accomplished in less than nine months time.

Joint Maritime Communications Strategy (JMCOMS): JMCOMS will provide an extensive communications infrastructure to meet tactical and support communications requirements. Capabilities range from real-time transmission of intelligence and weapons targeting data to the ability of our men and women at sea to communicate directly with loved ones at home. The Navy has reduced system acquisition time from 4-7 years to less than 2 years. Using innovative architecture, one key subsystem — the UHF miniaturized digital assigned multiple access (mini-DAMA) terminal — achieved savings estimated at 50% of acquisition costs and 30% of total life cycle costs, compared to previous terminals.

Multifunctional Information Distribution System (MIDS): This multinational cooperative development program is aggressively using open systems architecture, commercial products, innovative acquisition streamlining techniques, and cost as an independent variable. The terminal architecture implements nonproprietary open commercial standards that will facilitate technology insertion throughout the life cycle of the program. The average recurring unit cost of MIDS has been reduced from an early estimate of $428,000 to well below $250,000. The technical and costs management success of the program has attracted the attention of numerous European nations.

Tactical Air Moving Map Capability (TAMMAC): The TAMMAC team developed an integrated acquisition and logistics concept that emphasized current technology, standardized unit configuration for all aircraft, minimized use of military specifications and maximized use of commercial-off-the-shelf hardware and organization-to- commercial depot maintenance. Traditional internal configuration control responsibility for system components was transferred to the original equipment manufacturers, improving the visibility of manufacturing resource and industrial base issues. The TAMMAC cost savings estimates are more than $360 million over the life of the system, with an 83% reduction of required spares.

Infrastructure Reform

Infrastructure reductions have not kept pace with force-structure reductions. Previous reductions in infrastructure as a result of the Base Realignment and Closure (BRAC) process have proved helpful in bringing fleet and force support costs down. Additional reductions under a similar program are needed to bring our infrastructure in line with our smaller force. To this end, the Department is conducting an ongoing review of our organizations and our policies for operations, maintenance, personnel, and training. We must run our "businesses" much as the private sector does — with a minimum of duplication and red tape, and a maximum of service and responsiveness. Any efficiencies gained through a leaner infrastructure can be invested in force modernization and readiness.

Two issues are critical to our efforts to increase efficiency: our regional maintenance strategy and the application of state-of-the-market business practices to reduce infrastructure costs.

Regional Maintenance Strategy: The regional maintenance strategy implements a fundamental restructuring and consolidation of our shore maintenance capabilities. During the past 3 years, the Navy has established 7 regional maintenance centers. These new maintenance organizations have contributed significantly to maintaining high deployed fleet readiness despite a challenging operational tempo, base realignments and closures, repair ship decommissionings, and decreased resources.

By aggressively executing the Navy's regional maintenance strategy, our industrial resources are more fully utilized, particularly in the repair and maintenance depots. Regional repair centers are moving into depots and are jointly manned by civilian and military technicians. Consequently, regional facility footprints and associated expenses are being reduced. Job planning, coordination, material support, and information distribution improvements and integrations are well under way. For example, the most recent pilot initiative at Pearl Harbor, Hawaii, provides a methodical, phased approach to integrate completely the resources of the Naval Intermediate Maintenance Facility and Pearl Harbor Naval Shipyard into a new maintenance organization. The resulting consolidated workforce forms a common manpower resource pool that can be efficiently and effectively assigned as required. A project management strategy will be used that is both responsive and cost efficient for all types of repair and maintenance work.

State-of-the-Market Business Practices: The first step to implement new business practices is to create an organizational structure that accelerates positive process changes. Second, we need to improve installation management by focusing on business perspectives of efficiency, price competition, and customer satisfaction. Some examples include:

- **Marine Corps Continuous Process Improvement Program**: The Marine Corps Continuous Process Improvement Program (MCCPIP) is the agent for reengineering key business processes of the combat development system (CDS). The CDS translates concepts and requirements into integrated capabilities, which in turn constitute the building block elements of Marine air-ground task forces.

- **Cruise Missile Command and Control Program Office**: This program office teamed the Department of the Navy with the Defense Logistics Agency and Federal Express to build a logistics support system that increased material readiness while reducing logistics costs. The initiative has been a success: the average transit time for material being requested by ship has been reduced from 32 to 6.5 days, and overall cost avoidance to date is nearly $13 million.

Other examples of initiatives which are expected to improve operational or administrative efficiencies and reduce costs include:

Outsourcing: In 1996, the National Performance Review (NPR), the Commission on Roles and Mission (CORM), the Defense Science Board (DSB), the CNO's Executive Panel and the Center for Naval Analysis (CNA) recommended outsourcing non-core functions as a means of reducing overall costs of operations, improving business processes across the Department of Defense infrastructure, and recapitalizing those savings for modernization. The Department of the Navy has incorporated a comprehensive plan to reduce infrastructure costs through competition, privatization, and outsourcing. An estimated 80,500 full-time equivalents (FTEs) from the Navy and 5,000 FTEs from the Marine Corps have been programmed for study over the future years defense plan. The Navy initiated studies in FY 97 on over 10,500 FTEs and plans to study more than 15,000 FTEs in FY 98, with more in successive years.

Activity Based Costing (ABC): ABC properly allocates all direct and indirect costs for identified services and enabling management. ABC also identifies and improves processes for reducing costs, raises cost consciousness, justifies budgets, satisfies informational requests from higher headquarters, and facilitates outsourcing cost comparisons. The Marine Corps has implemented ABC throughout the facilities maintenance organizations at continental U.S. (CONUS) installations and will expand this capability to logistics and supply organizations over the next 2 years.

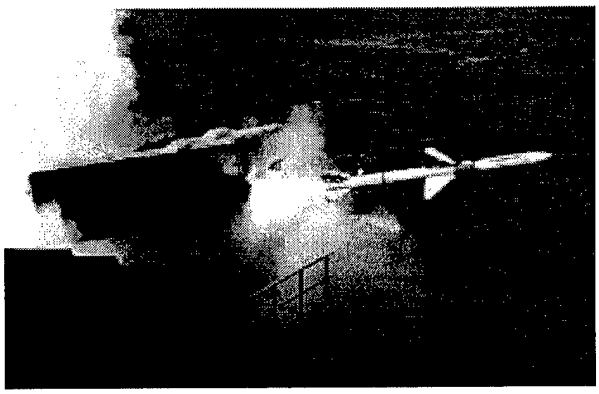
Marine Corps Force Structure Review Groups: For years, the Fleet Marine Forces have been operating below targeted manpower levels as we struggled to balance structure requirements against available Marines. Using the Quadrennial Defense Review as an opportunity for a self examination of roles, missions, and capabilities, the Marine Corps focused on how best to organize for the challenges of the 21st century. The major objective of the active duty and reserve force structure review groups was to identify and make recommendations to remove force structure which no longer contributed significantly to the Marine Corps' warfighting capability. The successful attainment of the objective led to reductions in supporting establishment billets and an increase to a 90% manning level in the Fleet Marine Forces.

In addition to the review groups, the Total Force Structure (TFS) Division was formed at Marine Corps Combat Development Command in June 1997. This organization is continuing the evaluation of Marine Corps organizational posture as it relates to available billet structure and equipment. The review process involves a close examination of the mission of each combat or supporting establishment element, its organization, equipment, and the manpower required to accomplish that mission.

Regionalization: The Navy has embarked on an aggressive effort to reinvent the operation and management of our shore establishments to free resources for readiness and modernization. The Chief of Naval Operations, fleet commanders, major claimants, and naval base commanders are conducting detailed analyses in Navy concentration areas to consolidate installation management functions. The goal of regionalization is to reduce base operating support costs through the elimination of unnecessary management layers, duplicative overhead, and redundant functions. Regionalization also facilitates better work force utilization, opportunities to outsource across an entire region, standardization of processes, and regional planning and prioritization.

In another effort, Department of Defense components were directed to regionalize base- level civilian personnel functions and reduce manpower to a 1:100 ratio between personnel specialists and the serviced population. Attainment of this servicing ratio requires reducing (by approximately 45%) the number of employees providing base-level civilian personnel services by the year 2001. Regionalization provides a return on investment by standardizing human resource services and eliminating duplication.

Challenge of International Programs



Through international programs, the Department of the Navy provides assistance to America's allies and partners . Such diverse programs as Foreign Military Sales (FMS), leases, and grants of defense articles and services; cooperative programs, which promote bilateral interaction on a broader scale; protection of key technologies while facilitating release authority for transferable technologies; and training and education, produce mutually favorable relationships.

Examples of the benefits produced by participation in international programs include:

- **Cooperative research and development (R&D) projects** reduced Navy R&D costs by more than $1.6 billion since 1987;
- **FMS reduces unit costs**: Foreign sales of F/A-18 reduced the per unit cost by $2.1 million,

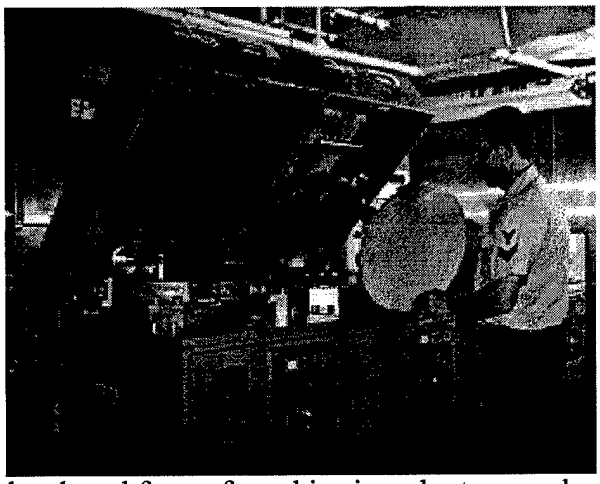
saving $2.3 billion since 1979;

- **Foreign comparative testing leverages foreign non-developmental items**: Existing systems and platforms—like the F-14 Tomcat—are modernized with digital flight control systems;

- **Security assistance helps sustain industrial base**: Numerous production lines are sustained by foreign sales.

Supporting U.S. industry and obtaining maximum results from increasingly constrained national resources are key challenges. The Department must join more efficiently and flexibly with allied nations to accomplish critical technology advances. The core element necessary to meet this challenge is early engagement of allies, during the missions needs analysis stage, to identify common mission problems and acceptable performance requirements.

Recognizing the benefits as well as challenges, the United States and its allies are increasing efforts to achieve desired efficiencies and improved warfighting effectiveness through international programs.



Environmental Issues

Effective environmental planning to meet the requirements of environmental statutes, executive orders, and regulations is essential for facilities management, acquisition programs, and military operations. Department strategies for establishing partnerships with regulators, stabilizing funding, and reducing the cost of cleanup at active and closing bases are paying dividends. The cleanup program cost-to-complete estimate continues to show reductions.

In the area of environmental protection, the Department has made substantial progress with respect to shipboard pollution control. A solid-waste plan was developed for surface ships in order to comply with the Act to Prevent Pollution from Ships. A submarine addendum to this plan is in development. Meanwhile, the Department is coordinating with the Environmental Protection Agency (EPA) and coastal states to create uniform national discharge standards for military vessels. At shore installations, the Department continues to serve as the Department of Defense executive agent for Clean Air Act and Clean Water Act implementation. The Department works closely with EPA and states to ensure both compliance and protection of the military mission. The Department is achieving its natural resources conservation goals by emphasizing stewardship of natural resources, preserving biological diversity, and developing partnerships for conservation.

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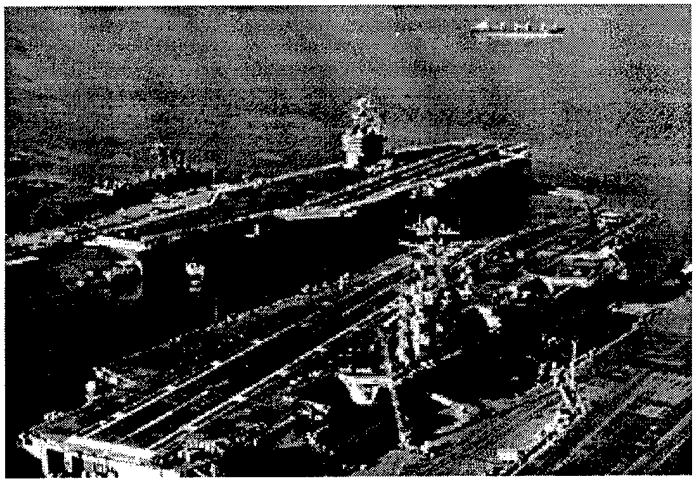
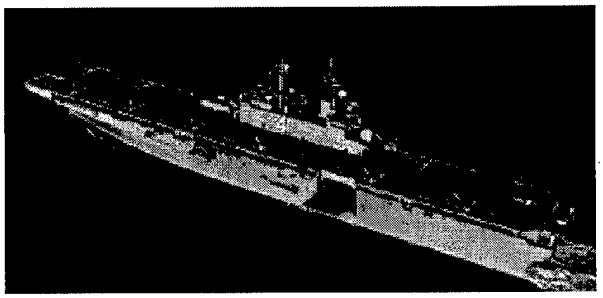
VIII. Programs



The following paragraphs describe the key programs involved in building the naval forces that support and defend U.S. interests. These programs represent an integrated — although unprioritized — snapshot of the diverse capabilities necessary for the Navy-Marine Corps team to conduct a wide range of missions.

Shipbuilding and Naval Weapons Programs

Aircraft Carriers: Twelve aircraft carriers form the centerpiece of naval global forward presence and striking power. *Harry S Truman* (CVN 75) currently under construction at Newport News Shipbuilding, is expected to be commissioned in FY 98. At that time, the Navy's oldest active commissioned carrier, *Independence* (CV 62), will transition to the inactive fleet. The keel for *Ronald Reagan* (CVN 76) has been laid for a FY 02 delivery, and CVN 77 will enter the fleet in FY 08, as the two remaining *Kitty Hawk*-class carriers are retired. CVN 77 is being designed to serve as a "transition carrier" to the CVX, incorporating new technologies and process design changes that will move naval aviation to a future carrier design. The CVX will be commissioned in 2013, in time to replace *Enterprise* (CVN 65), which will reach the end of its service life at 52 years. CVX will be the most technologically advanced nuclear-powered carrier the Navy has ever developed. It will employ technologies that reduce operating costs yet improve its warfighting capabilities. Better survivability, more flexibility through an open architecture command and control system, an advanced aircraft launch and recovery system, a state-of-the-art propulsion system, and reduced manning will be incorporated in the new design. It will facilitate joint and combined operations and will give the nation a more flexible and less costly big-deck aircraft carrier for the next century.



Amphibious Lift: The current amphibious lift modernization plan is formed around the 12 amphibious ready groups (ARGs) needed to meet the nation's forward-presence and contingency requirements. The plan includes the FY 98 delivery of *Bon Homme Richard* (LHD 6) and *Pearl Harbor* (LSD 52) — the final *Harpers Ferry* (LSD49)-class ship — and the FY 01 delivery of *Iwo Jima* (LHD 7). The *San Antonio* (LPD 17) class of ships, another critical piece of our future amphibious force, will begin delivery in FY 02. The LPD 17 class incorporates major improvements in command-and-control and ship self-defense systems,

which will increase its ability to operate independently of the ARG when required. This class is the critical link in achieving the goal of a modern 12-ARG force. LPD 17 is the functional replacement for aged amphibious platforms including: LPD 4, LKA, LST, and LSD 36 classes of ships. This acquisition plan is key to maintaining the 2.5 Marine expeditionary brigade equivalents of lift, currently met by using marginal Naval Reserve Force and inactive ship maintenance facility assets. Construction of LPD 18, the second ship of the class, is scheduled to begin in FY 99 with procurement of two additional ships planned for FY 00.

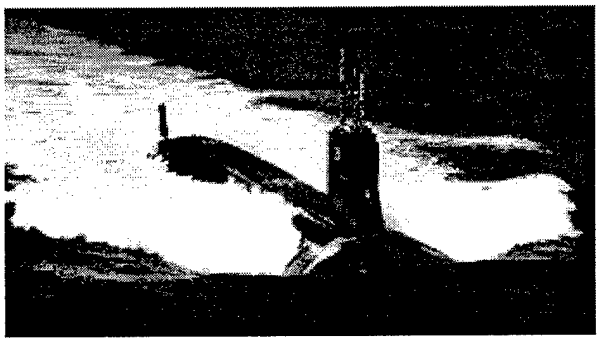
New Attack Submarine (NSSN): NSSN plays a pivotal role in the Navy's recapitalization plan. In FY 98, the Navy begins NSSN construction at a low but efficient rate in order to build adequate numbers of our next generation of quiet submarines. The NSSN counters the proliferation of advanced-capability submarines and establishes the foundation for better technology insertion into the submarine force. New modular-construction techniques and a contract-teaming plan combine with an innovative design process to fundamentally enhance the production quality and the affordability of this ship. Features include:

- **Open Systems Architecture**. Using widely available public-domain standards, the combat, communication, and information systems will have industry-standard interfaces that offer portability and software reuse to simplify cost-effective upgrades.

- **Fiber Optic Cable Systems**. A platform-wide fiber optic cable installation will be sized for future growth. The structure of the network simplifies the attachment and integration of new equipment in a plug-in/plug-out manner.

- **Commercial-off-the-Shelf (COTS) Electronics**. Use of commercially available electronics leverages the growth in signal and information processing and display technologies occurring in industry.

- **Isolated Deck Structure**. This design facilitates ease of equipment integration, provides shock and acoustic isolation sufficient to allow the use of COTS technology, and incorporates emerging noise-control technologies.

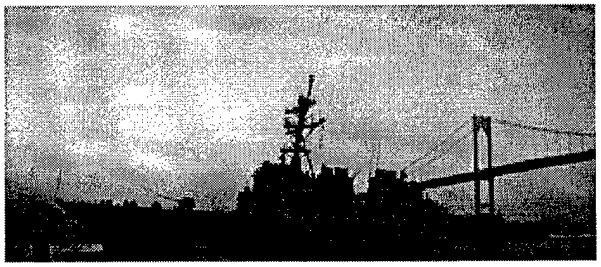


Seawolf (SSN-21)-Class Submarine: *Seawolf* performed superbly during initial sea trials in July 1996, demonstrating the fastest, stealthiest characteristics of any submarine at sea. *Seawolf* will enhance significantly U.S. undersea superiority — even against our most capable adversaries.

SSN 688 Class Submarine Modernization: SSN 688-class submarines, which will comprise 68% of the attack submarine force in 2015, must be modernized to ensure that they remain effective against increasingly sophisticated undersea adversaries. The use of COTS and open systems architecture (OSA) will enable rapid (annual) updates to both software and hardware, and the use of COTS-based processors means that sonar system computing power can grow at the same rate as commercial technology.

A-RCI is a four-phased transformation of existing sonar systems (AN/BSY-1, AN/BQQ-5, or AN/BQQ-6) to a more capable and flexible COTS/OSA-based system. It also will provide the submarine force with a common sonar system. The process is designed to minimize the impact of fire-control and sonar system upgrades on a ship's operational schedule, and will be accomplished without the need for major shipyard availabilities. Phase I, which commenced in November 1997, will enhance towed-array processing. Phase II will provide additional towed- and hull-array software upgrades. Phase III will upgrade the spherical array, and Phase IV will upgrade the high-frequency sonar system on SSN 688I-class submarines. Each phase installs improved processing and control and display workstations. The current installation plan completes all SSNs through Phase III by FY 03.

Maritime Prepositioning Force (MPF): Procurement of three additional MPF ships, known as MPF enhancement (MPF(E)), will provide Marine air-ground task forces (MAGTFs) enhanced capability in naval construction, medical support, and expeditionary-airfield construction. The first two MPF Enhancement ships, *USNS 1st Lt Harry L. Martin* and *USNS LCpl Roy M. Wheat*, are expected to be delivered in FY 99. A contract award for the third ship is expected in FY 98.



Arleigh Burke (DDG-51)-Class Destroyer: The DDG 51 class, along with its companion class of CG 47 *Aegis* cruisers, provide sea control and battlespace dominance — to include joint force air defense for carrier battle groups, surface action groups, amphibious ready groups, and joint expeditionary forces. To keep pace with advancing technologies and stay ahead of emerging threats, the Navy constructs *Aegis* destroyers in flights, to introduce improvements in combat capability in a disciplined, but expeditious process. Twenty-one destroyers already are in commission. We expect to build a total of 57 *Arleigh Burke*-class destroyers. The *Aegis* destroyers requested under the multiyear procurement plan will incorporate Flight IIA warfighting advancements, including improved surface-to-air missiles (SM2 Block IV and Evolved *Sea Sparrow*), embarked helicopters, and the battle force tactical trainer. The first Flight IIA destroyer, DDG 79, is presently under construction. Future ships will include other essential improvements such as the AN/SPY-1D(V) littoral radar upgrade, cooperative engagement capability, and theater missile defense capability. The *Burke*-class destroyers will represent the largest component of the early 21st century surface-combatant force.

Aegis Cruiser Modernization and Conversion: Capitalizing on the substantial investment made in our battle-proven *Aegis* cruisers, the Navy will modernize these highly capable ships through a series of mid-life conversions to install area theater ballistic missile defense, two 5"62 Mk 45 Mod 4 guns, area air defense commander (AADC) capability, and smart ship control systems.

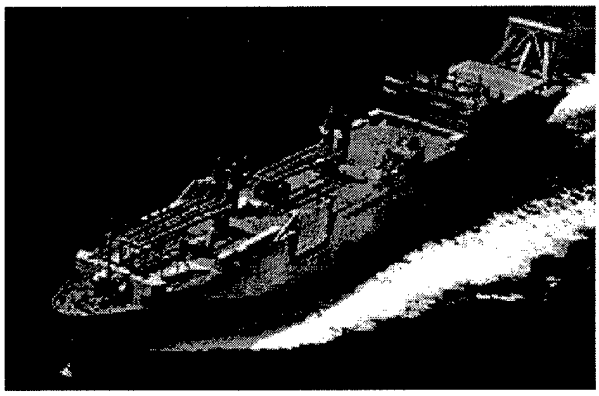
Naval Fires: Fire-support requirements for the future are being addressed by gun technologies and wedded global positioning systems (GPS) that will enable surface ships to engage targets ashore at ranges of more than 60 miles. The cornerstone of our near-term effort is the extended-range guided munitions (ERGM) and the 5"/62 MK 45 Mod 4 gun mount program. The ERGM is a five-inch projectile that incorporates a rocket motor and internal GPS coupled with an inertial navigation system (INS). The 5"/62 MK 45 Mod 4 gun mount is a modified five-inch gun mount designed to handle, load, and fire the ERGM. Initial testing of the ERGM and 5"/62 gun components proved successful in FY 97.

Other promising gun technologies for the longer term include the microminiaturization of guidance components and composite material technology. Combined, these technologies both will reduce the cost of precision-guided gun munitions and extend their range to targets up to 100 nautical miles away. Research-and-development funding has been allocated to develop these capabilities for future application to both the ERGM program and a 155MM advanced naval gun planned for installation on the next-generation surface combatant (DD-21).

The Navy is considering a variety of missiles to meet the ground forces requirements for responsive, longer-range naval surface fire support (NSFS). Two potential solutions — the Navy tactical missile systems (NTACMS), a naval variant of the Army tactical missile system (ATACMS), and the land attack standard missile (LASM), a surface-to- ground variant of the Navy's family of STANDARD Missiles — are being evaluated as options to fill the land attack missile role.

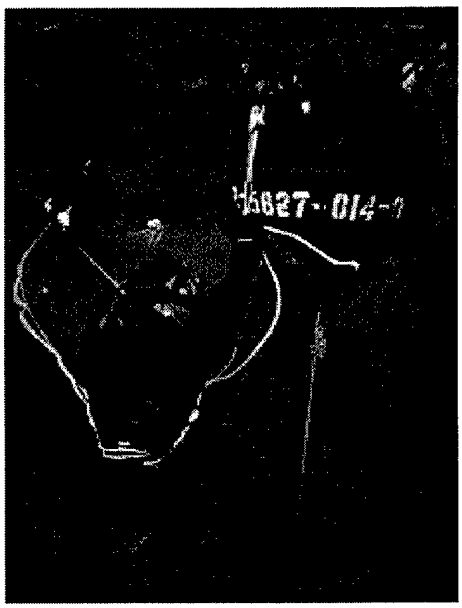
Land Attack Destroyer (DD-21) (First of the 21st Century (SC-21) Surface Combatants): The SC-21 analysis of alternatives (AoA) completed examination of future surface combatant mission requirements and alternatives for providing those requirements. The AoA found that a class of multi-mission ships focused on supporting land attack, and possessing hull and mechanical/electrical systems in common with the follow on to retiring *Aegis* cruisers, provided the required capabilities at the lowest life- cycle cost.

Key performance features identified in the AoA and reflected in the DD-21 operational requirements document (ORD) include: more vertical launch cells dedicated to long-range precision-strike and shorter range fast-interdiction missiles; guns capable of firing extended range guided munitions; improved survivability against antiship cruise missiles, torpedoes, and mines; full-spectrum signature reduction; a single, survivable, fiber-optic-based, real-time distributed computing environment, using commercial off-the-shelf (COTS) processors and user-friendly common displays; a fully joint interoperable C4ISR system; a fuel-efficient propulsion system; and significantly reduced ship manning, which lowers operating and support costs. Current acquisition plans call for DD-21 to be designed using an integrated industry/Navy team. Key production features likely will include: a more affordable hull design; COTS-based systems; design features to facilitate rapid and cost-effective system upgrades; condition-based maintenance monitoring; commercial supportability; and embedded training programs.



Surge Sealift: Surge shipping is the immediate transportation of heavy military equipment that ground forces need to meet warfighting requirements. A total of 19 prepositioning or surge large medium-speed (LMSR) roll-on/roll-off (RORO) ships will be required. Fourteen LMSRs will be acquired through new construction. Five more have been converted from existing container ships. The LMSRs will provide afloat prepositioning of an Army heavy brigade's equipment and a corps' combat support, as well as surge capability for lift of a heavy division's equipment from the United States. The LMSRs can load/offload in 96 hours, with a total lift capacity of five million square feet — three million square feet of surge sealift and two million square feet of prepositioning sealift — a significant part of DoD's overall sealift capability. Each ship can carry 300,000-400,000 square feet of unit equipment at 24 knots over a 12,000 nautical-mile range. The lead ship in the class of new construction ROROs, *USNS Bob Hope* (T-AKR 300), is scheduled for delivery in 1998. Delivery is scheduled for all remaining ships by the end of FY 01.

Mine Warfare: Mine Warfare is an essential warfare capability integral to the ability of naval forces to open and maintain sea lines of communication and to dominate the littoral battlespace. An imposing array of modern mine-countermeasures (MCM) systems continues to be developed and procured to enhance the capabilities of dedicated forces and vigorously pursue the transition to an organic MCM capability. The Navy's dedicated MCM forces, composed of active and reserve surface MCM ships, MHC ships, MCM helicopters, and explosive-ordnance-disposal divers are among the best in the world. With the addition of the MCM command-and-support ship *Inchon* (MCS12), the Navy possesses a true expeditionary mine countermeasures capability.



Aggressive development of organic MCM systems for forward-deployed carrier battle groups and amphibious ready groups is under way. Focused science, technology, and developmental efforts are producing solutions to difficult mine-warfare problems. For very shallow water, the shallow-water assault breaching system (SABRE) system and the Distributed Explosive Technology net system are in development for delivery in FY 01. These complementary systems are designed to defeat mines and obstacles in the difficult surf-zone region.

Contributions from organizations outside the traditional mine-warfare community are augmenting dedicated and organic MCM capabilities. For example, the Oceanographer of the Navy collects and disseminates environmental data essential to effective mine countermeasures. Mine warfare-relevant

emphasis in projects dealing with MCM digital-route surveys; maintenance of a global mine-like contact database; and development of mine warfare-specific environmental databases augment our ability to rapidly assess, avoid, or neutralize the sea-mine threat.

Unmanned Undersea Vehicles (UUV): The Unmanned Undersea Vehicle (UUV) program will extend knowledge and control of the undersea battlespace through the employment of clandestine off board sensors. Although significant progress is being made with on board sensors, it is clearly preferable to have off board sensors to image tethered, volume, and bottom mines accurately. Complete knowledge of the mine threat, without unduly exposing reconnaissance platforms, is vital to exploiting the tactical benefits of maneuver warfare.

The **Near-Term Mine Reconnaissance System (NMRS)** is a mine-hunting UUV launched and recovered from a SSN 688-class submarine's torpedo tube, and provides a first-time capability. The UUV, in combination with an SSN, represents a long-endurance, clandestine reconnaissance system capable of mapping the undersea environment and providing time-sensitive information on mining activities to the theater commander. The NMRS will provide an effective and much-needed capability to the fleet in FY 98.

The **Long-Term Mine Reconnaissance System (LMRS)** will leverage developing technologies and lessons learned from the NMRS. The LMRS also will be launched and recovered through a submarine's torpedo tube and will incorporate enhanced endurance, range, search rate, and total search-area coverage.

Tomahawk: The *Tomahawk* cruise missile enables surface combatants and submarines to launch attacks against land targets from long ranges in all types of weather. The FY 99 budget includes funds to procure 114 remanufactured *Tomahawk* missiles — 15 in the Block III configuration, which includes the Global Positioning System, and 99 in the Block IV (Phase I) *Tomahawk* Baseline Improvement Program configuration, providing improved terminal guidance and precision strike capabilities. Last year, the Department proposed initiating a major revision to the *Tomahawk* program, called the Tactical *Tomahawk* Initiative (TTI). Through design and construction techniques, the TTI would provide new-production missiles with enhanced capabilities at a lower unit cost than would be possible with remanufactured missiles. Although the TTI program has not been incorporated in the FY 99 budget, it remains under active consideration and may be initiated later this year or as part of the DoD FY 00 budget.

Theater Ballistic Missile Defense (TBMD): Sea-based Navy area and theater-wide TBMD systems will provide the United States, allied forces, and areas of vital national interest, defense against theater ballistic missiles (TBMs). There is a straightforward and compelling need to rapidly deploy defenses against TBMs on board naval ships at sea. First, the threat from theater-range ballistic missiles is real and growing. Second, ships take advantage of the inherent flexibility and mobility of being at sea. Ships do not require host nation permission or support which is critical to safe entry of our forces into overseas ports and airfields. This is increasingly important as more of our armed forces are becoming CONUS-based. Third, and equally important, the United States has the opportunity to capitalize on its significant investment in a fleet of highly capable *Aegis* cruisers and destroyers which deploy routinely to hot spots around the world.

Navy TBMD programs are founded on an evolutionary development strategy which leverages previous investments in the *Aegis* combat system, the standard missile, vertical launching systems (VLS), and existing communication systems to counter TBM threats. This builds on the solid foundation of *Aegis* ships, trained crews, and existing industrial and logistic infrastructure. A comprehensive review of Navy TBMD programs was recently completed,

with the aim of developing a plan to accelerate the fielding of a credible, forward deployed, sea-based TBMD capability. Key interrelated programs that form the pillars of our acceleration strategy include: (1) increased procurements to accelerate TBMD forward fit and back fit of *Aegis* DDG's and CG's; (2) phased COTS-based improvements to the *Aegis* Combat System leading to a fully distributed architecture needed for Navy Theater Wide TBMD; and (3) upgrades to battle management and C4I necessary to execute TBMD in a joint force network centric environment.

The Navy area TBMD system, which will field a user operational evaluation system (UOES) called "Linebacker," on two *Aegis* cruisers in FY 99, will provide for engagement of TBMs in the terminal phase of flight. *Aegis* ships with the tactical area TBMD capability begin delivery in FY 01. The Navy theater-wide TBMD system will build on area system capabilities, adding an ascent and mid-course intercept capability that can provide defense for an entire theater of operations. Other advantages of ship-based TBMD include high survivability, rapid relocation, and self-sustainability. Both TBMD programs, as currently designed, are antiballistic missile treaty compliant.

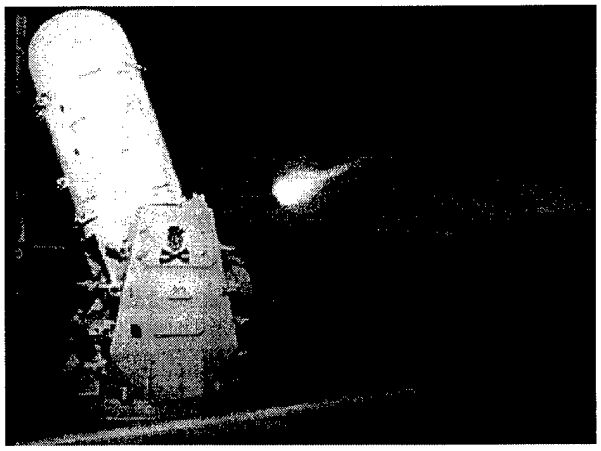
Force Protection Systems: Confining geography and the proliferation of antiship cruise missiles combine to make littoral operations particularly challenging. Force protection systems provide a layer of protection that enables battle groups to position themselves for successful mission execution. Key programs include:

- **Quick Reaction Combat Capability/ Ship Self-Defense System** is a Navy plan that integrates and automates the detect-control-engage sequence, and provides layered force protection with electronic warfare and hard-kill weapons for ships. More than 20 acquisition programs combine to provide a quick-reaction combat capability (QRCC) and integrated command-and-control system. The QRCC system architecture integrates several existing stand-alone systems. The ship self-defense system provides multisensor processing, target identification, and an automated detect-control-engage capability. Shipboard sensors are linked to establish accurate, correlated, firm-track criteria as early in the detection phase as possible. Embedded electronic warfare doctrine automates soft-kill and hard-kill weapons for a rapid, layered defensive reaction to any detected threat.

- The **Rapid Antiship Missile Integrated Defense System (RAIDS)** complements the antiship-missile defense capabilities of *Spruance* (DD 963) and *Oliver Hazard Perry* (FFG 7)-class combatants. RAIDS is in production and has been installed in *Spruance* (DD 963). Installation in *Oliver Hazard Perry*-class ships commenced in FY 97.

- The **Rolling Airframe Missile (RAM)** complements existing force protection systems, providing unique capability in adverse electronic countermeasures and advanced-threat environments. RAM is a lightweight, low-cost system that uses existing active and passive ship sensors to augment force protection firepower. RAM, a NATO-cooperative program with Germany, is in production and has been installed in the LHA amphibious assault ships. Installations are ongoing in LHD, LSD 41, and DD 963 class ships, and are planned in CG 47 through CG 73, CV/CVN, DDG 51 through DDG 78, and LPD 17 classes.

- ***Phalanx* Close-In Weapon System (CIWS)** provides a fast-reacting final force-protection capability for surface ships against low-flying and steep-diving, high-speed antiship missiles. A high order language computer upgrade increases computer capacity and provides advanced fire-control processing against maneuvering targets. The *Phalanx* surface mode, which allows engagement of surface craft and low, slow aircraft, will complete testing in FY 98.



- The **Advanced Integrated Electronic Warfare System (AIEWS)** (AN/SLY-2) program was accelerated by the CNO on 14 May 1996. AIEWS Increment 1 (advanced electronic support) is scheduled for fleet introduction in FY 02, and Increment 2 (advanced electronic attack) starts subsequent to the Increment 1 effort. AIEWS, as the replacement system for the AN/SLQ-32 shipboard electronic warfare system, will use open architecture, lowering investment costs and improving system effectiveness. Increment 1 provides improved human-computer interface, increased emitter processing capability, and precision ESM and specific emitter ID (SEI) in a new receiver package. Increment 2 will include an advanced electronic-attack subsystem and off board countermeasures.

- The **Evolved *Sea Sparrow* Missile (ESSM)** is a cooperative effort among 13 nations to improve the ability of the *Sea Sparrow* missile to counter low-altitude, highly maneuverable antiship cruise missiles. The program takes the existing RIM-7P *Sea Sparrow* missile and adds a new rocket motor and warhead. The ESSM may be installed on LHD, CVN, and DDG 51 Flight IIA-class ships.

Common Missile Development/Standard Missile: The Navy continues to build on the proven Standard missile family by adding capabilities to counter existing and emerging threats. Two new upgrades are in production:

- The **SM-2 Block IIIB**, approved for full-rate production in FY 96, incorporates a dual-mode seeker to provide an improved capability against missile countermeasures. It will be deployed on *Aegis* vertical launching system (VLS) cruisers and destroyers.

- The **SM-2 Block IV** complements earlier SM-2 medium-range variants for *Aegis* VLS cruisers and destroyers. The newest variant, SM-2 Block IVA, builds on the Block IV missile to provide improved defense against cruise missiles and theater ballistic missiles.

Trident D-5 Missile: To meet the requirement of the Nuclear Posture Review, four *Ohio*-class submarines currently equipped with the *Trident* I C-4 missile will be upgraded to carry the more capable *Trident* II D-5 missile. In addition, under the conditions of the START II treaty, the Navy's *Ohio*-class submarines will assume a role of growing importance within the strategic triad by carrying approximately one-half of the allowable strategic nuclear warheads.

Integrated Undersea Surveillance System (IUSS): IUSS is comprised of fixed, mobile, and deployable acoustic arrays that provide vital tactical cueing to ASW forces. The IUSS is a model for innovation and smart use of technology. Work stations, enhanced signal processing, and modern communication technologies enable remote array monitoring, which reduces manpower costs and improves efficiency.

The **Sound Surveillance System (SOSUS)** provides deep-water long-range detection capability. Consolidation of SOSUS by array re-termination, remoting, or closure was completed in FY 97. Recent closures include Bermuda, Adak, and Keflavik. All other arrays will remain operational.

The **Surveillance Towed-Array Sensor System (SURTASS)**, a prototype twin-line array, was tested with outstanding results in a variety of locations around the world. SURTASS is far superior to any other shallow-water passive towed-array system. SURTASS processing is being transferred to the AN/SQQ-89 towed-array sonar system, to provide an immediate increase in detection capability without the need to modify or procure additional wet-end hardware. The minimum fleet requirement of eight SURTASS ships is funded through the FYDP.

The **Fixed Distributed System (FDS)** is operational and has demonstrated successfully the ability to detect, classify, and track quiet submarines. These results validate that acoustic ASW remains feasible against advanced-capability nuclear and diesel-electric submarines. New fiber-optic technologies, algorithms, and enhanced signal processing enable exploitation of weak signals in high background noise environments and provide timely and accurate detection and track data to tactical assets.

The **Low-Frequency Active (LFA)** system has detected submarines at long ranges. The first LFA ship, TAGOS 23, is under construction. In the interim, a leased ship, *Cory Chouest*, is being used to test and validate LFA technologies. Compact acoustic source technologies are also under development and will provide a 50% reduction in weight and power requirements. Successful maturing of these technologies will allow LFA-type arrays to be deployed from existing TAGOS 19-class vessels.

The **Advanced Deployable System (ADS)** is a theater-deliverable acoustic-surveillance system that provides continuous acoustic coverage over vast ocean areas for extended periods. This system can detect quiet nuclear submarines, diesel-electric submarines operating on battery, ships exiting or entering port, or minelaying operations. The importance of portability will intensify as our surveillance requirements increase because of a greater focus on the littorals and the growing popularity of diesel submarines, and the downsizing of our own force.

Ground Weapons Programs

Advanced Amphibious Assault Vehicle (AAAV): The AAAV gives the Marine Corps a weapon system fully capable of implementing ship-to-objective maneuver (STOM). Currently in the demonstration and validation phase, the AAAV will allow rapid, high-speed transportation of Marine combat units as they emerge from amphibious assault ships located well beyond the visual horizon. It is designed for greater crew survivability and maneuverability than the current AAV-7A1, and will incorporate a nuclear-biological-chemical protective system. The AAAV is targeted for fielding during FY 06.

Assault Amphibious Vehicle (AAV) RAM/RS: A portion [64%] of the AAV fleet will undergo a reliability, availability, and maintainability (RAM) upgrade, and a rebuild to standard (RS) retrofit, to ensure Marine AAVs remain maintainable until the arrival of the AAAV. The RAM/RS program will incorporate a Bradley suspension and engine, and a new transmission. The projected savings of RAM/RS —compared to the current inspect and repair only as necessary [IROAN] program — is $400 to $500 million dollars.

Lightweight 155mm Towed Howitzer (LW155): The LW155 155mm towed howitzer will be a rugged,

efficient weapon system. It will replace the aging M198 155mm towed howitzer as the only artillery system in the Marine Corps inventory. The LW155 is designed for expeditionary operations requiring light, highly mobile artillery, and for transport by the MV-22 *Osprey* aircraft. The howitzer's lighter weight (9,000 pounds versus 16,000 pounds for the current towed howitzer, the M198) and automated breech, rammer, and digital fire control computer will provide the MAGTF commander greater operational flexibility, while increasing the responsiveness and efficiency of artillery units. The program is in the engineering and manufacturing development (EMD) phase of the DoD systems-acquisition process. Initial operational capability is planned for FY 02.

Medium Tactical Vehicle Replacement (MTVR): The Marine Corps MTVR will provide the backbone of future Marine Corps wheeled combat support and combat service support. The MTVR will be a quantum improvement over existing trucks, incorporating an electronically controlled engine and transmission, central tire-inflation system, antilock brakes, and a 22-year corrosion control package. Payload capacity will increase from 5 tons to 7 tons off-road and to 15 tons on-road. The MTVR program is in the engineering and manufacturing development phase of the DOD systems-acquisition process. Initial operational capability is expected in FY 00.

Third Echelon Test Set (TETS) AN/USM-657: The Marine Corps faces unprecedented challenges in maintaining the current inventory of aging electronic ground weapon systems while simultaneously fielding new sophisticated systems. The Marine Corps has adopted the TETS to satisfy this requirement. TETS is a diagnostic-testing and fault-isolation system for communication-electronic and ground-weapon systems. This portable test set can be mounted on the tailgate of a high-mobility, multipurpose wheeled vehicle (HMMWV) or housed within maintenance shelters. Contract for the TETS was awarded in FY 97 and fielding will begin in FY 99.

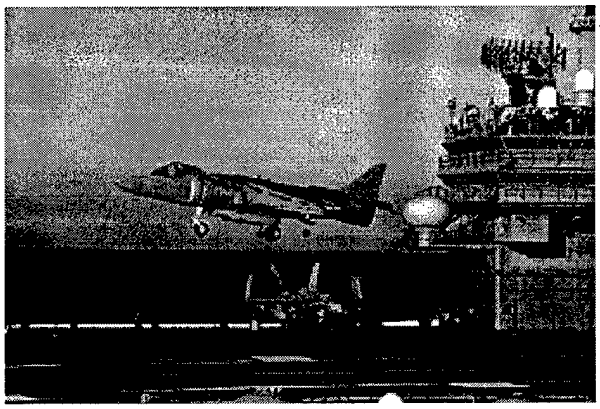
Javelin: *Javelin*, a joint Marine Corps and Army program, is a soft-launch, medium-range, fire-and-forget anti-armor weapon system. Capable of being fired from enclosed structures, the *Javelin* offers greater protection for the gunner and greater lethality against armor targets at medium ranges than previous anti-armor weapons. The *Javelin* consists of a reusable command launcher unit, which can be employed as a stand-alone thermal sight, and a missile. Initial fielding is planned for FY 99.

Predator: *Predator*, a short-range assault weapon (SRAW), is a Marine Corps anti-armor program with fielding scheduled to begin in FY 01. It will fulfill the Marine Corps' requirement for a lightweight, man-portable, disposable, short-range weapon. The missile has a soft-launch rocket motor for firing from enclosed spaces, and the flyover, shoot-down profile facilitates warhead penetration into the vulnerable top of the target.

Aviation Weapons Programs

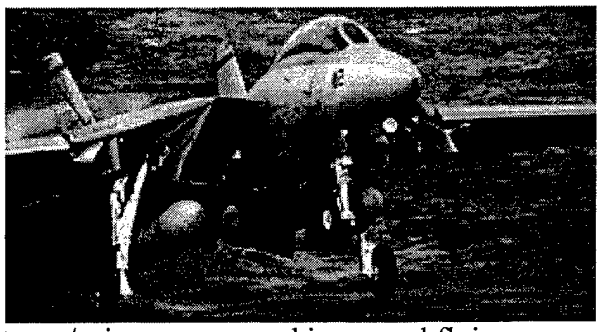
F/A-18E/F Super Hornet: The F/A-18 *Hornet* is the cornerstone of naval aviation strike warfare. The newest and most capable naval aircraft, the F/A-18E/F *Super Hornet*, combines the outstanding characteristics of earlier F/A-18 models with cutting edge technology resulting in an affordable aircraft with significantly improved performance and endurance. F/A-18E/F is designed to execute the missions and meet the threats through 2015, with greater range and payload flexibility, an ability to return to the carrier with more unexpended ordnance capability, room for avionics growth, and enhanced survivability features. It will increase the capability for naval aviation to conduct night strike warfare, close air support of ground forces, fighter escort, air interdiction, and fleet air defense. The *Super Hornet* is in the flight test phase of engineering and manufacturing development, and has amassed over 2100 flight hours. Initial sea trials were completed in January 1997. Approval for the low-rate initial-production (LRIP) of 62 aircraft was received last year. Procurement of LRIP aircraft will begin the orderly transition from the Navy's F/A-18C and F-14A aircraft to this improved strike-fighter. The *Super Hornet* will comprise most of the carrier-based strike-fighter assets by 2008.

MV-22 Osprey: The MV-22 *Osprey* is a tilt-rotor, vertical-take-off-and-landing aircraft designed to replace the Marine Corps' CH-46E and CH-53D helicopters. The *Osprey* has accrued more than 1,000 flight hours, and has entered the developmental and operational test phase. Its performance has been impressive, and its test envelope continues to expand. Increased reliability and maintainability were part of the MV-22 initial design process. All aspects of the MV-22 have been tested for human factors such as adequate access, reduction of MV-22 unique tools, and use of on board monitoring systems that determine when components need replacement. Its construction incorporates many features that enhance its combat survivability, including composite structural components that provide increased ballistic tolerance, triple redundant digital fly-by-wire flight controls, and a cabin overpressurization system that provides chemical and biological protection for crew and embarked troops. Aircraft deliveries are scheduled to begin in FY 99.



AV-8B Remanufacture: The AV-8B remanufacturing program continues on track. Refurbished aircraft with better engines, COTS technology, and improved avionics have been joining the fleet since 1996. These aircraft will effectively conduct the close air support mission until the arrival of the Joint Strike Fighter. The Marine Corps now has three variants of the AV-8B *Harrier* in service: the day attack, night attack, and radar/night attack aircraft. The night attack *Harrier* improves on the original AV-8B design by incorporating an improved navigation system with a forward-looking infrared sensor, a moving map display, and night-vision-goggle compatibility. The radar/night attack *Harrier* (*Harrier* II+) incorporates these improvements and the AN/APG-65 multimedia radar. The fusion of night and radar capabilities makes the *Harrier* responsive to the Marine air-ground task force requirements for expeditionary, night-and-adverse- weather, offensive air support.

F-14 Update: The F-14 *Tomcat* is now being configured as a potent precision-strike fighter. Incorporation of the low altitude navigation and targeting infrared for night (LANTIRN) system gives the *Tomcat* an accurate autonomous designation and targeting capability for delivery of laser-guided bombs. Beginning in 1997, all forward-deployed carrier air wings had LANTIRN capability. In addition to LANTIRN, two major flight-safety improvements for the *Tomcat* also are under way. The digital flight control system (DFCS) has demonstrated significant improvements in departure resistance/spin recovery and improved flying qualities during shipboard recovery. Installation of the DFCS will begin in June 1998. The TF30 engine breather-pressure modification consists of an engine sensor that detects an abnormal condition to allow the pilot time to take action to prevent engine failure. With these warfighting and safety improvements, the F-14 *Tomcat* will give battle group commanders a proven warfighting aircraft with added flexibility for attack missions until the F/A-18E/F enters the fleet.



EA-6B Prowler Block 89A Upgrade: The EA-6B *Prowler* is the sole provider of airborne electronic warfare jamming support to the Department of the Navy, and recently was designated a national asset. The Block 89A upgrade program addresses structural and supportability problems associated with the aging aircraft fleet. Numerous avionics improvements for safety of flight and joint operability — including the ICAP-III program update — are included.

Navy Helicopter Master Plan: The Navy's Helicopter Master Plan reduces the Navy's types of helicopters from eight to two, reducing manpower and logistics-support costs. The Navy is procuring a U.S. Army UH-60L *Blackhawk* derivative, the CH-60, to replace current logistics and combat helicopters. The Navy's current inventory of SH-60B/SH-60F/HH-60H helicopters will be remanufactured into a single multimission helicopter, the SH-60R.

AH-1W Super Cobra/UH-1N Huey: A commonality upgrade titled the H-1 Upgrades Program (4BN/4BW) replaces the current two-bladed rotor system on the AH-1W and UH-1N aircraft with a four-bladed, all-composite rotor system, and also adds a performance-matched transmission, drive system, and upgraded landing gear. The 4BW also will incorporate a new, fully integrated cockpit and six weapons stations. The 4BN maximizes commonality and supportability with the 4BW and returns the required aircraft power margin, while providing adequate mission-payload and warfighting-capability growth potential. The upgrade program will reduce life-cycle costs, significantly improve operational capabilities, resolve existing safety deficiencies, and extend the service life of both aircraft.

CH-53D/E Sea Stallion: The CH-53D *Sea Stallion* is used to transport personnel, equipment, and supplies during expeditionary operations ashore. Operational safety improvement programs, including the global positioning system, improved radios, and night-vision goggle heads-up display, will ensure that the aircraft remains capable until retirement. In addition to the funded operational-safety-improvement programs of the CH-53D, the CH-53E *Super Stallion* will be provided a service-life extension program that extends the *Super Stallion*'s service life past 2025 and will include a forward-looking infrared system.

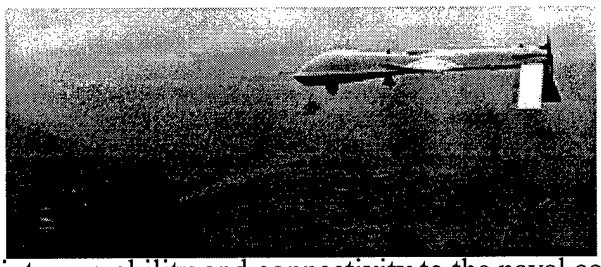
Joint Strike Fighter (JSF): The joint strike fighter program will develop and field a tri-service family of next-generation strike aircraft, with an emphasis on affordability. The family-of-aircraft concept allows a high degree of commonality, while still satisfying unique service needs. For the Navy, the JSF will provide a multirole stealthy strike fighter, to complement the F/A-18E/F. For the Marine Corps, the JSF will replace both the AV-8B and the F/A-18A/C/D, completing the Marine Corps' neck-down strategy of an all short-take-off- and vertical-landing fixed-wing force. Using cost as an independent variable, a primary objective of the JSF program is the reduction of costs associated with development, production, and ownership.

In November 1996, designs from two contractors were selected to compete in the JSF concept demonstration phase. This phase features flying concept demonstrators (X-32 and X-35), concept-unique ground and flight demonstrations, and continued refinement of the contractor's preferred weapon systems concepts. Transition to engineering and manufacturing development begins in 2001. Significant savings are anticipated from the joint approach to development. The United Kingdom's participation as a collaborative partner in the concept demonstration phase provides additional savings. Denmark, Norway and the Netherlands are associate partners in the program. Participation by other allied countries is anticipated.

Air-to-Ground Weapon Programs: The most significant joint air-to-ground weapon development programs are the joint standoff weapon (JSOW), joint direct attack munitions (JDAM), and standoff land attack missile expanded response (SLAM-ER). JSOW is a family of air-to-ground glide weapons, designed to attack targets from beyond enemy point defenses. JSOW is a Navy-led program and will be effective against many targets during day, night, and adverse weather conditions. It will replace a variety of weapons in the current inventory. JDAM is an Air Force-led program to develop an all-weather capability for general-purpose bombs through the use of strap-on global positioning system (GPS) guidance kits. SLAM-ER meets the Navy's requirement for a standoff outside area defense (SOAD) weapon. SLAM-ER is an adverse weather, precision-guided weapon that simplifies mission planning, increases penetration, and nearly doubles the range of the original SLAM. The SLAM-ER+ will add autonomous capability and automatic target acquisition (ATA) to the SLAM-ER. The Navy also is planning to increase the inventory of laser-guided bombs through the Skipper conversion program.

Area Air Defense Commander Capability (AADC): The area air defense commander requires an advanced planning and execution capability that integrates force planning and tactical operations functions. The Navy envisions the AADC embarked in an *Aegis* cruiser supported by a joint staff of 40 personnel or less. AADC systems are planned for installation on 12 *Aegis* cruisers, with 2 additional systems designated for training. A prototype system will be installed on an *Aegis* cruiser in FY 99 in conjunction with Navy area theater missile defense development. The cruiser conversion plan calls for an initial operational capability in FY 03, with full operational capability for 12 cruisers in FY 06.

Air-to-Air Weapon Programs: The AIM-9X *Sidewinder* and the AIM-120 advanced medium range air-to-air missile (AMRAAM) continue to be the foremost joint air-to-air-weapon programs of the Navy and Marine Corps. The Navy-led AIM-9X program upgrades the current missile with an advanced guidance-control section, a highly maneuverable airframe, and signal processors that significantly upgrade its infrared counter-countermeasures capabilities. The Air Force-led preplanned product improvements to the currently deployed AIM-120 weapon include enhanced electronic counter-countermeasures and improved kinematics. The AIM-9X and AMRAAM missiles will serve Navy, Marine Corps, and Air Force aircraft well into the future.



Unmanned Aerial Vehicles (UAVs): Naval forces are employing the Pioneer UAV system in support of a broad array of expeditionary operations, such as reconnaissance and intelligence support in Bosnia. Outrider is Pioneer's potential replacement as the naval tactical UAV. Outrider is in the advanced concept technical demonstration phase of development. A new tactical control system will enable broad UAV interoperability and connectivity to the naval command, control, computers, communications, and

intelligence (C4I) architecture.

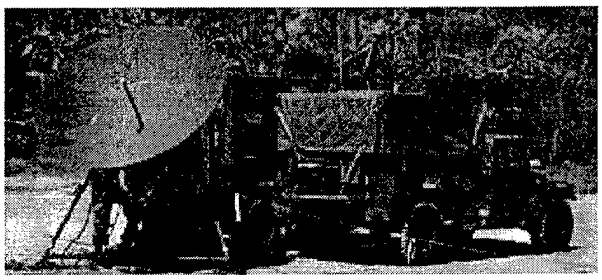
Advanced Tactical Airborne Reconnaissance System (ATARS): ATARS is the only manned tactical-reconnaissance system for naval combat aircraft presently under development, and will greatly increase the timely dissemination of imagery-intelligence information to theater, operational, and tactical commanders. The system's digital data-link capability will allow all levels of command to receive time-sensitive imagery simultaneously, enabling accurate intelligence preparation of the battlefield and pre-strike planning and post-strike analysis. ATARS is a suite of sensors and data-link pods that will be installed in the F/A-18D and associated ground stations. When fully operational in FY 99, ATARS will be joint-data-link capable and will provide support to all services. It will provide high-resolution, near-real-time digital imagery, day and night, in all-weather conditions through infrared, electro-optical and synthetic-aperture radar sensors. The imagery will be digitally linked via the joint services imagery processing system (JSIPS) and tactical exploitation groups.

Information-Superiority Programs

Navy-Marine Corps C4ISR: The Joint Vision *C4I For The Warrior (C4IFTW)* challenged the services to develop "a global C4I system that satisfies the total information requirements of warriors when they fight as a team with a common mission." For the Navy and Marine Corps, the challenge of C4IFTW became a key element in the development of our Naval vision for the future, known as *COPERNICUS.* This common vision enables the Navy and Marine Corps to adapt, evolve, and fully integrate their command and control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) capabilities to conduct joint naval expeditionary force operations in the 21st century.

COPERNICUS is the unifying vision to ensure C4ISR systems respond to the warfighter, are fielded quickly, capitalize on technological advances, and support warfighting concepts. *COPERNICUS* enables Navy C4ISR development and implementation, such as the Global Command and Control System (GCCS), Global Command Support System, Defense Information Systems Network, and the Marine Air-Ground Task Force C4I (MAGTF C4I).

The joint maritime communications system (JMCOMS) and Information Technology 21 (IT-21) are two implementation strategies which will leverage commercial technologies to achieve the *COPERNICUS* vision. JMCOMS will improve communication bandwidth utilization whereas IT-21 will install an integrated communications suite at shore sites and on ships at sea.



The following are programs being implemented under the JMCOMS and/or IT-21 strategy;

- **Automated Data Network System (ADNS)** is a secure, interoperable, multimedia intelligent network management system for data transfer. The development of ADNS is based on commercial and government off-the-shelf hardware and software. ADNS is currently fielded on 25 surface ships and submarines and will be installed on all ships and submarines by the end of FY 03.

- **Global Broadcast Service (GBS)** is a revolutionary advancement in joint communications, providing high-speed one-way broadcast video and data service. GBS becomes operational in February 1998, with the launch of the UFO-8 satellite.

- **Challenge Athena** is a program to lease commercial communications satellites and facilities to provide wideband connectivity, including intelligence imagery, to ships at sea.

- **Joint Maritime Command Information System (JMCIS)** is the Navy's designated command-and-control (C2) system for the future global command-and-control system (GCCS). JMCIS follows an evolutionary acquisition process to meet emerging fleet requirements. This

system supports C2 and tactical intelligence warfighting requirements for afloat, ashore, and tactical/mobile units. JMCIS provides timely, accurate, and complete all-source C4ISR information management and develops a common operational picture for warfare mission assessment, planning, and execution. JMCIS incorporates the Marine air-ground task force (MAGTF) command, control, communication, computer, and intelligence (C4I) software. The next version of the system software will be defense information infrastructure common-operating-environment (DII COE) compliant and will finalize naval implementation of GCCS, known as GCCS-Maritime (GCCS-M). GCCS-M will avoid the year 2000 problem, greatly improve network centric warfare, and be integral to information technology for the 21st century.

- **Navy Tactical Command Support System (NTCSS)** is the afloat system that brings existing logistical support systems into a single communications database. This effort mirrors the strategy utilized by afloat tactical systems. NTCSS provides the afloat commander key maintenance, supply, medical, and administrative information through the shipboard non-tactical automated program (SNAP), the naval aviation logistics command management system (NALCOMIS), and the maintenance resource management system (MRMS). This NTCSS information will be used to complete the tactical picture for the commander. NTCSS systems are currently interoperable with worldwide logistics systems inventory control and stock points. Standard data elements exist through the use of standard military requisition format, national stock numbers, and other common Department of Defense data elements. The NTCSS initiative is vital to the rapid improvement of afloat logistics systems. By the end of 1997, 65% of the NTCSS shipboard installations will be complete, providing the fleet with a wide-area networked-based logistics system.

Copernicus: As stated earlier, *Copernicus* is the vision of complete integration of C4ISR systems in support of the warfighter. It provides the technical infrastructure that enables the sensor-to-shooter process. This system links targeting information provided by the sensor directly to the shooter. Some programs key to supporting the *COPERNICUS* vision for seamless connectivity of an operational picture are provided below:

- **Global Command-And-Control System (GCCS)** is the over-arching command-and-control system for the armed services. It is the single most important initiative in the joint C2 arena today, forming the backbone of the C4I for the warrior concept. Since achieving initial operating capability, GCCS has expanded beyond its initial force deployment, planning, and execution capability with applications across all functional areas of command-and-control. In FY 98, existing GCCS functions will become defense information infrastructure (DII) common operating environment (COE) compliant. Future upgrades will include intelligence, meteorological and imagery information on a common operational picture (COP), as well as better crisis action tools.

- **Mobile Satellite Services (MSS)** are leased commercial systems that allow mobile users access to specifically tailored and wider-band, low-earth-orbit satellite services.

- **AN/PSC-5 Enhanced Manpack UHF Terminal**

(EMUT) is a lightweight, demand-assigned multiple access (DAMA), portable, line-of-sight and tactical-satellite-communications terminal that will serve as a primary command-and-control single-channel radio for MAGTFs. Employed at battalion level and higher, this radio provides increased range and reliability. EMUT will be used to transmit intelligence traffic, to interface with SINCGARS waveforms, and to transmit/receive command-and-control traffic. Initial operational capability will be in early FY 98.

- **Enhanced Position Location Report System (EPLRS)** provides MAGTF C4I users a dedicated data communications network and also serves as the primary source for automated friendly position-location information (PLI) and navigation information. EPLRS is a computer-based, time-ordered, spread-spectrum radio system, operating in the Ultra-High Frequency (UHF) band. Integral error detection and correction, cryptographic security, and frequency hopping features provide resistance to electronic countermeasures (ECM). EPLRS data communications capability will be used by the tactical data network (TDN), tactical combat operations (TCO) system, advanced field artillery tactical data system (AFATDS), and the digital automated communications terminal (DACT) to improve data distribution below the regimental level. In addition to position location/reporting features, EPLRS provides the capability to transmit/receive data. EPLRS will be used for data transmission at the regimental level and below.

Cooperative Engagement Capability (CEC): The increasingly complex threats in the air-defense arena make it necessary to link geographically dispersed sensors, of differing capabilities, with all potential firing platforms. CEC uses sensor netting to make this possible. With CEC, it appears to each shooter's combat system as if every asset in the data link is that unit's own sensor. Engagements using remotely provided track data are possible for the first time. In addition, the ability to develop composite tracks means that every participating unit has an identical, real-time picture of the battle space, including identification information. With the addition of the airborne element of CEC in the E-2C *Hawkeye*, the reach of CEC will be dramatically increased. It will greatly enhance our ability to conduct overland engagement of cruise missiles, as well. In August 1997, CEC successfully passed initial operational test and evaluation. During the all-service combat identification evaluation team (ASCIET) 97 exercise, CEC's contribution to the establishment of a single integrated air picture was showcased in the successful integration of *Cape St. George* (CG 71) and a shore-based Marine Corps TPS-59(V)3 radar. Further CEC demonstrations included a Marine Corps HMMWV-launched missile that received its initial target data from the cruiser's radar. Currently,

Army and Air Force are each continuing studies aimed at determining potential application of CEC to their service-unique systems.

To take advantage of the benefits of CEC, the Marine Corps has developed a prototype CEC lab to evaluate the integration potential of CEC. The focus of the lab is to fuse real-time attributes of CEC with the battle management information afforded by such non-real-time systems as Link-11 or Link-16. The CEC lab takes advantage of commercial-off-the-shelf (COTS) equipment, Internet protocol, and capitalizes on commercial technology to distribute the air picture to the operator. Future demonstrations of the Marine Corps land-based CEC lab and node include the Atlantic Command's theater missile defense initiative (TMDI) exercise in the spring of 1998. The Marine Corps also will continue support for the Navy's operational evaluation of CEC.

Marine Corps Aviation C4I Improvements: Quantum improvements continue in systems that support the aviation combat element of the MAGTF. Phase one's initial operational capability of the advanced tactical air command central (ATACC) occurred in FY 96, and is the integrating link between the aviation element command and control (C2) and the MAGTF's C2. The ATACC provides planners and operators with the automated assistance needed to supervise, coordinate, and direct the execution and planning of all MAGTF tactical operations. Also operational this year is the improved direct air support central (IDASC) product improvement program (PIP) and the tactical air operations center (TAOC). The ATACC provides great enhancements to interoperability with the Navy's joint maritime command information system and the Air Force's contingency theater automated planning system.

Marine Corps Fire Support C4 Improvements: The fire support command-and-control system (FSC2S) is an interim system for providing semi-automated tactical fire support and technical artillery fire-control for MAGTF operations. The follow-on advanced field artillery tactical data system (AFATDS), which will automate fire-support command-and-control, will commence fielding of 51 systems in FY 99. The approved acquisition objective (AAO) is 677 units through FY 02.

- The target location, designation, and hand-off system (TLDHS) is a man-portable tool for fire-support observers and controllers to locate targets with GPS accuracy, designate them with a coded laser as appropriate, and pass them to the appropriate fire support system for resolution. This is a key enabling capability that will maximize the effectiveness of supporting fires, accommodating laser-seeking precision-guided munitions. The TLDH will provide the interface with the AFATDS and with digital delivery systems on board aircraft, and will use existing and planned communications assets for message transmission and receipt. The TLDS is scheduled for initial fielding in late FY 00.

Information Warfare (IW)

The gathering and dissemination of information has emerged as perhaps the most rapidly evolving, technology-based area of all the Warfare disciplines. Its effective implementation will be critical to securing the battle space that allows the other warfare commanders to perform their missions. In both platform-centric and network-centric warfare, IW remains a critical warfare element by itself, and a central supporting element to the other warfare commanders. The availability of advanced communication technologies in world markets increases the likelihood that they will be employed by potential adversaries in advanced automated command-and-control systems and as components of advanced weapons systems. The adversarial use of these technologies and capabilities provides a clear challenge that must be countered.

COPERNICUS enhances the ability of Naval personnel to successfully conduct information operations (IO) and employ information warfare (IW). In an age of dynamically evolving command-and-control technology, the Navy has found that fleet needs cannot always follow the extended, formal requirements and procurement process. In response, the Navy has leveraged the dynamic operational interface of the fleet information warfare center (FIWC) with the technical expertise provided by the Naval information warfare activity (NIWA) to develop advanced technology

systems to meet rapidly emerging needs. FIWC and NIWA form a team uniquely able to recognize, define, build, and deploy equipment to meet rapidly evolving IW needs.

FIWC and NIWA also have been instrumental in expanding communications electronic attack capabilities within the Navy. Two initiatives include the advanced support pod (an airborne communications jamming pod) and the surface communications jamming capability (SCJC).

- **FIWC's Naval Computer Incidence Response Team (NAVCIRT)** serves as the Navy's single point of contact for reporting, identifying, assessing, and recovering from computer attacks and viruses. A dramatic increase in the number of computer intrusions, probes, viruses, and denial of service complaints were reported in 1997. To combat these attacks, the number of operational intrusion detection sensors under FIWC's analytical control were doubled. Similarly, FIWC conducted nearly 100 computer network vulnerability assessments, more than doubling the FY 96 total. A recent at-sea exercise included FIWC as an opposing force intent on disrupting information networks.

The **Surface Cryptologic Systems** program is modernizing shipboard information warfare to operate in the modern threat environment. Ships with Outboard, combat direction finding (Combat DF), and ship's signals exploitation equipment (SSEE) will provide that capability in the near term, and future ships will incorporate highly automated, open architecture, modular IW systems to maintain this dominance.

Information Warfare (IW) Education and Training: Education and training are critical to IW awareness and the Navy is the lead service for formalizing IW training. IW education and training is conducted at the Naval Telecommunications Training Center, at the Fleet IW Center, and at the Naval Postgraduate School.

Navy/Marine Corps Intelligence Systems

Joint Deployable Intelligence Support System (JDISS): JDISS provides common intelligence, communications, and office automation applications for U.S., NATO, and coalition operations. JDISS provides a responsive, secure information network between intelligence centers and operational commanders, including access to national databases.

Battle Group Passive Horizon Extension System (BGPHES) is a ship-based system for the remote operation of airborne signals intelligence collection systems and control of local receivers on board the host ship. It extends the signal collection range up to 700 miles depending upon the altitude of the aircraft. BGPHES completed its first operational deployment aboard *John F Kennedy* in 1997, operating with Navy ES-3A aircraft and Air Force U-2s.

Common High Bandwidth Data Link (CHBDL): A wideband data-link for the transfer of signal and imagery intelligence data from reconnaissance aircraft to shipboard processing systems is a reality. CHBDL is the Navy's implementation of DoD's joint common data link (CDL) standard. It will initially be used with the battle group passive horizon extension system (BGPHES) for tactical SIGINT and the joint service imagery processing system-navy (JSIP-N) for tactical imagery. This point-to-point duplex link gives real-time control of airborne sensors with direct downlink of collected data to afloat commanders.

CHBDL completed a successful first deployment with the *John F Kennedy* (CV 67) battle group in 1997. CHBDL is programmed for installation on board all aircraft carriers, large-deck amphibious ships, and fleet flagships.

Marine Corps Intelligence Programs: The Marine Corps' research, development, and acquisition of tactical intelligence systems continue to improve intelligence support to MAGTF commanders. Upgrades to tactical intelligence capabilities are being addressed through programs within the joint

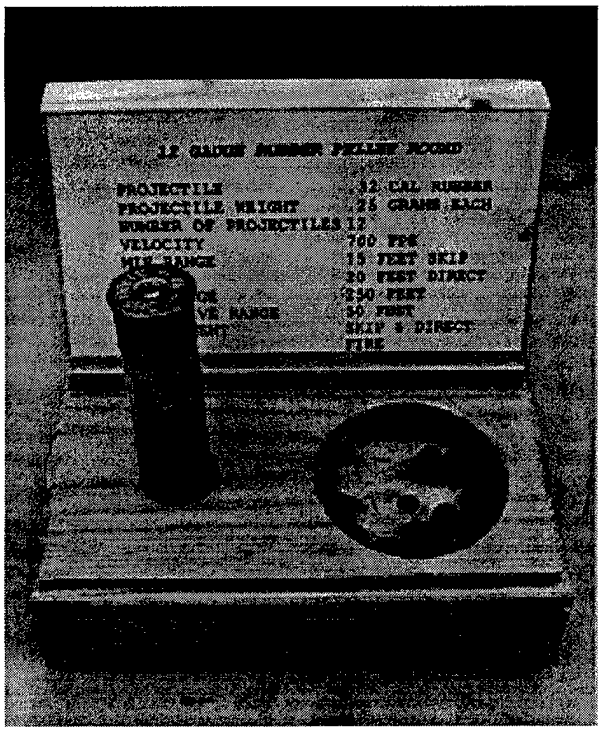
military intelligence program (JMIP) and tactical intelligence and related activities (TIARA).

Improvements to imagery intelligence capabilities are being accomplished through the joint services imagery processing system (JSIPS) national-input segment, which provides deployed Marine forces with national imagery support. Beginning in FY 98, each Marine expeditionary force will receive a tactical exploitation group to receive, process, and disseminate imagery from F/A-18D ATARS-equipped aircraft, and other theater and national collectors. Marine Corps signals intelligence (SIGINT) improvements include the radio reconnaissance equipment program SIGINT suite-1, the technical control and analysis center (TCAC), the team portable communication intelligence system (TPCS), and the testing of improvements to the mobile electronic warfare support system (MEWSS). Additionally, the Marine Corps participates in the ongoing, congressionally-mandated tactical exploitation of national capabilities (TENCAP) program, designed to exploit national overhead reconnaissance systems and explore emerging technologies. Other program initiatives to enhance Marine Corps intelligence capabilities include:

- **Intelligence Analysis System (IAS)** provides the backbone for tactical intelligence fusion in support of the Marine expeditionary force (MEF) command element down to the squadron. The MEF IAS configuration is a mobile system with multiple analyst workstations in a client-server LAN. Lower echelon configurations can range from individual to multiple workstations. IAS is capable of communication with other intelligence systems at the national, theater, and tactical levels.

- **Manpack Secondary Imagery Dissemination System (SIDS)** enables the MAGTF commander to collect, store, display, manipulate, and transmit digital reconnaissance imagery in near-real-time. SIDS consists of digital cameras and palmtop processors, which allow reconnaissance units to take pictures and immediately transmit them back to a base station for exploitation and dissemination. SIDS is programmed to be fully operational by FY 98.

- **Counterintelligence and Human Intelligence Equipment Program (CIHEP)** provides equipment to conduct controlled, surreptitious, and tactical intelligence gathering operations that directly support antiterrorism and force protection. CIHEP integrates audio, video, photo, communications, and automated data processing to report and disseminate counterintelligence information.



Non-Lethal Weapons

The DoD-wide non-lethal weapons (NLW) program, directed by the Commandant of the Marine Corps as executive agent, encompasses a broad range of nonlethal technologies. These systems, which include 14 multiservice projects currently receiving joint research-and-development funds, provide the field commander more options for response to contingencies, especially those dealing with military operations other than war. Although Marine expeditionary units currently have NLW-capability sets and deployed U.S. Army units have been trained in some basic (40mm and 12 gauge) NLW munitions, these items provide only a modest non-lethal capability. They do, however, provide the ground commander an ability to disperse or discourage crowds and seize or temporarily incapacitate individuals. Ongoing NLW projects range from stingball munitions to acoustics and other directed-energy systems. The fielding of these systems is planned over the next 7-10 years, with the more basic munitions expected to be in the inventory by the year 2000.

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IX. Conclusion: Charting a Course for Future Success

In the ...*From the Sea* revolution, the Department of the Navy has begun to lay out its transformation strategy and to chart a course into the 21st century. Our challenge is clear: to be the best Navy-Marine Corps team in the world today, tomorrow, and in the decades to come. We are moving aggressively to meet that challenge on all fronts.

We recognize that forward, balanced, flexible naval forces will be a key part of implementing our national security strategy of engagement, and that they will play a unique role in shaping a stable and prosperous future. Accordingly, we must sustain our current operational primacy in a rapidly evolving strategic landscape. We have already laid the foundation for our future primacy, but know that we must go much further. We must explore still more ways of serving our nation's changing needs and we must expand the revolution in naval affairs that has already begun.

We recognize, too, that new concepts, in themselves, are not enough. We will transform our forces with the technologies of a new age, and make rapid technological change our ally. That will mean streamlining — revolutionizing — the way we do business. We will balance carefully our investments in people, readiness, technology, force structure, and modernization, to ensure that our people have the tools they need, when they need them.

Finally, we recognize that our success ultimately depends on dedicated, innovative personnel. Our naval forces are blessed with the world's finest Sailors and Marines. They are our "secret weapon." We will nurture that core intellectual capital of our revolution and encourage the new thinking that will keep our Navy and Marine Corps team great.

The future of our Naval Service is bright. We will meet the challenges of a new world, and we will thrive on them. We will ensure that this nation has a decisive impact from the sea, today and tomorrow — anytime and anywhere.

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In the ...*From the Sea* revolution, the Department of the Navy has begun to lay out its transformation strategy and to chart a course into the 21st century. Our challenge is clear: to be the best Navy-Marine Corps team in the world today, tomorrow, and in the decades to come. We are moving aggressively to meet that challenge on all fronts.

We recognize that forward, balanced, flexible naval forces will be a key part of implementing our national security strategy of engagement, and that they will play a unique role in shaping a stable and prosperous future. Accordingly, we must sustain our current operational primacy in a rapidly evolving strategic landscape. We have already laid the foundation for our future primacy, but know that we must go much further. We must explore still more ways of serving our nation's changing needs and we must expand the revolution in naval affairs that has already begun.

We recognize, too, that new concepts, in themselves, are not enough. We will transform our forces with the technologies of a new age, and make rapid technological change our ally. That will mean streamlining — revolutionizing — the way we do business. We will balance carefully our investments in people, readiness, technology, force structure, and modernization, to ensure that our people have the tools they need, when they need them.

Finally, we recognize that our success ultimately depends on dedicated, innovative personnel. Our naval forces are blessed with the world's finest Sailors and Marines. They are our "secret weapon." We will nurture that core intellectual capital of our revolution and encourage the new thinking that will keep our Navy and Marine Corps team great.

The future of our Naval Service is bright. We will meet the challenges of a new world, and we will thrive on them. We will ensure that this nation has a decisive impact from the sea, today and tomorrow — anytime and anywhere.

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