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Christopher B. Earls
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IN HARM'S WAY: THE CONTINUED RELEVANCE OF THE
U.S. NAVY'S FORWARD PRESENCE MISSION
IN THE POST-COLD WAR WORLD

A Thesis

Presented to

the Graduate College of
Southwest Missouri State University

In Partial Fulfillment

of the Requirements for the Degree
Master of Science in Defense and Strategic Studies

by

Christopher B. Earls

May 1999

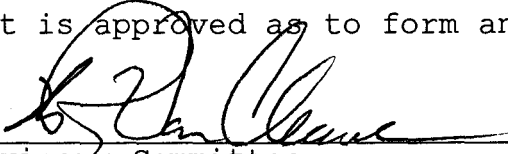
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A B S T R A C T

With the breakup of the Soviet Union, the United States Navy has seen the fleet shrink from nearly 600 ships in 1988 to 320 ships in 1999, with a planned reduction to 305 ships by 2004. While the fleet has been reduced by nearly 50 percent over the last decade, the deployment of U.S. naval forces has continued at near-Cold War levels. The result is a mismatch between the national security requirements that naval forces are called on to support, and the forces available to meet those requirements. Some have suggested that the traditional forward presence mission of the Navy-Marine Corps team is no longer relevant in the post-Cold War environment. Others suggest that "virtual presence" through space surveillance and global air power can replace the physical presence of naval forces. Still others have advocated a return to an isolationist policy, forgoing military presence altogether. Although U.S. naval forces are no longer required to counter the threat of Soviet aggression, possible peer or near-peer competitors, such as Russia and China, combined with emerging regional powers, require that the United States maintain forces in areas near U.S. interests. This thesis will examine the continued importance of maintaining a strong naval presence in the three principal areas of U.S. interest--the Mediterranean Sea, the Persian Gulf, and Northeast Asia--and the inability to meet U.S. national security requirements with proposed alternatives to forward presence. Also covered will be new systems and operational concepts of the Navy-Marine Corps team, and their importance to the forward presence mission.

This abstract is approved as to form and content


Chairman, Advisory Committee
Southwest Missouri State University

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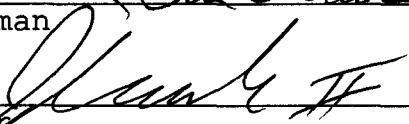
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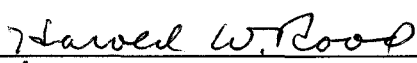
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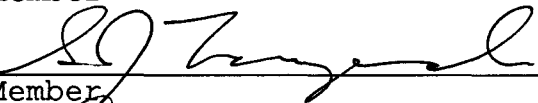
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TABLE OF CONTENTS

ACKNOWLEDGMENTS.....	iv
LIST OF ABBREVIATIONS.....	ix
Chapter	
I. INTRODUCTION.....	1
II. AMERICAN NATIONAL INTERESTS AND THREATS.....	18
U.S. National Interests.....	18
Freedom of the Seas.....	24
Access to Resources.....	30
Safety of U.S. Allies.....	35
Deterring Regional Conflict.....	39
Specific Interests in the	
Mediterranean Sea.....	42
Freedom of the Seas.....	43
Access to Resources.....	46
Safety of U.S. Allies.....	47
Deterring Regional Conflict.....	49
Specific Interests in the	
Persian Gulf.....	52
Freedom of the Seas.....	52
Access to Resources.....	54
Safety of U.S. Allies.....	56
Deterring Regional Conflict.....	57
Specific Interests in	
Northeast Asia.....	59
Freedom of the Seas.....	59
Access to Resources.....	61
Safety of U.S. Allies.....	61
Deterring Regional Conflict.....	65
Threats to U.S. Interests.....	67
Peer or Near-Peer Competitors.....	67
Regional "Bad Actors".....	71
Summary.....	74
III. THE NAVAL FORWARD PRESENCE MISSION.....	78
Why Forward Presence?.....	79
Why Naval Forward Presence?.....	83
Naval Diplomacy.....	91
Deterrence.....	97
Signaling U.S. Interest/ Supporting U.S. Allies.....	105

Limited Use of Force.....	111
Enforcement of Economic Sanctions.....	116
Enforcing and Protecting Freedom of the Seas.....	118
Maintaining Interoperability with Allies.....	122
Familiarizing U.S. Forces with Regional Conditions.....	126
Crisis Response.....	128
Non-Combatant Evacuation Operations (NEO).....	130
Political/Military Special Operations.....	136
Responding to a Short- or No-Warning Invasion.....	140
Enabling the Deployment of Follow-On Forces.....	143
Summary.....	150
IV. IMPLICATIONS FOR SYSTEMS AND CAPABILITIES....	158
The Shift to a Littoral Focus.....	158
ARG Component Systems.....	162
Naval Surface Fire Support.....	173
Aircraft Carriers: Their Future Prospects.....	184
FA-18E/F Super Hornet.....	191
DD-21/Arsenal Ship/ Ohio-class SSGN Conversion.....	195
Mine Countermeasures (MCM).....	201
Anti-Submarine Warfare (ASW).....	213
Theater Missile Defense.....	221
Defenses Against Chemical and Biological Weapons (CBW).....	231
Network-Centric Warfare (NCW).....	251
Summary.....	265
V. PROPOSED ALTERNATIVES TO FORWARD PRESENCE....	273
The "Pull-Back" Strategy: A Smaller, CONUS-Based Military.....	274
"Virtual Presence:" Global Air Power and Space Surveillance.....	290
Return to an Isolationist Security Policy.....	305
Summary.....	314
VI. CONCLUSIONS.....	321

V. BIBLIOGRAPHY.....	340
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Appendix

A. TABLES AND FIGURES.....	376
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B. IRAN: A CASE STUDY OF THE KEEP-OUT STRATEGY.....	397
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LIST OF ABBREVIATIONS

AAAV	Advanced Amphibious Assault Vehicle
AAW	Anti-Air Warfare
ACDS	Advanced Combat Direction System
AEF	Air Expeditionary Force
ALMDS	Airborne Laser Mine Detection System
AMNS	Airborne Mine Neutralization System
ARG	Amphibious Ready Group
ASDS	Advanced SEAL Delivery System
ASEAN	Association of Southeast Asian Nations
ASW	Anti-Submarine Warfare
BAT	Brilliant Anti-Tank
BIDS	Biological Integrated Detection System
BW	Biological Weapons
C ³ I	Command, Control, Communications, and Intelligence
C ⁴ ISR	Command, Control, Communications, Computers, Intelligence, Sensors, and Reconnaissance
CBW	Chemical and Biological Weapons
CEC	Cooperative Engagement Capability
CENTCOM	Central Command
CEP	Circular Error Probable
CinC	Commander in Chief

CONUS	Continental United States
CV	Aircraft Carrier (Conventional)
CVBG	Aircraft Carrier Battle Group
CVN	Aircraft Carrier (Nuclear)
CVW	Carrier Air Wing
CW	Chemical Weapons
CIWS	Close-In Weapons System
DIAL	Differential Absorption Lidar
DMZ	De-Militarized Zone
DoD	Department of Defense
EOD	Explosive Ordnance Disposal
ERGM	Extended Range Guided Munition
FAC	Fast Attack Craft
FACT	Force AAW Coordinating Technology
FBE	Fleet Battle Experiment
FON	Freedom of Navigation
GAM	GPS-Aided Munition
GAO	General Accounting Office
GCC	Gulf Cooperation Council
GPS	Global Positioning System
IAEA	International Atomic Energy Agency
ICDS	Integrated Combat Direction System
INS	Inertial Navigation System
IT-21	Information Technology for the 21st Century

JDAM	Joint Direct Attack Munition
JSF	Joint Strike Fighter
JSOW	Joint Stand-Off Weapon
LAN	Local-Area Network
LASM	Land Attack Standard Missile
LAV	Light Armored Vehicle
LCAC	Landing Craft Air Cushion
LHA	Amphibious Assault Ship (Tarawa-class)
LHD	Amphibious Assault Ship (Wasp-class)
LMRS	Long-term Mine Reconnaissance System
MCM	Mine Counter-Measures
MEU(SOC)	Marine Expeditionary Unit (Special Operations Capable)
MIF	Multinational Intercept Force
MIO	Maritime Intercept Operations
MIRACL	Mid Infra-Red Advanced Chemical Laser
MMS	Marine Mammal System
MPS	Maritime Prepositioning Squadron
MRC	Major Regional Conflict
MSPF	Maritime Special Purpose Force
MTW	Major Theater War
NBC	Nuclear, Biological, Chemical
NCA	National Command Authority
NCW	Network-Centric Warfare
NEO	Non-combatant Evacuation Operation

NMD	National Missile Defense
NMRS	Near-term Mine Reconnaissance System
NMS	National Military Strategy
NSFS	Naval Surface Fire Support
NSS	National Security Strategy
OMFTS	Operational Maneuver From The Sea
OPTEMPO	Operational Tempo
OVL	Operations in the Vicinity of Libya 1986
PERSTEMPO	Personnel Tempo
PGM	Precision Guided Munition
PRC	People's Republic of China
RAMICS	Rapid Airborne Mine Clearance System
RMA	Revolution in Military Affairs
RMS	Remote Minehunting System
ROF	Ring Of Fire
RPV	Remotely-Piloted Vehicle (aircraft)
SAG	Surface Action Group
SAM	Surface-to-Air Missile
SBIRS	Space-Based Infra-Red System
SEAL	Navy Special Forces: <u>Sea</u> , Air, Land
SLAM	Stand-off Land Attack Missile
SLEP	Service Life Extension Program
SLOC	Sea Lines Of Communication
SS	Submarine (Conventional)
SSBN	Ballistic Missile Submarine (Nuclear)

SSGN	Guided / Cruise Missile Submarine (Nuclear)
SSM	Anti-ship Missile
SSN	Attack Submarine (Nuclear)
THAAD	Theater High-Altitude Air Defense
THEL	Tactical High-Energy Laser
TLAM	Tomahawk Land Attack Missile
TMD	Theater Missile Defense
TRAP	Tactical Recovery of Aircraft or Personnel
UAE	United Arab Emirates
VGAS	Vertical Gun for Advanced Ships
VLCC	Very Large Crude (oil) Carrier
VLS	Vertical Launch System
VSWMCM	Very Shallow Water Mine Countermeasures

Their strength lay in the greatness of their navy, and by
that and that alone they gained their empire.

--Alcibiades

Without a respectable Navy--alas America!

--John Paul Jones

Navies are not all for war.

--Matthew Fontaine Maury

Navies do not dispense with fortifications or armies, but
when wisely handled they may save a country the strain
which comes when these have to be called into play.

--Alfred Thayer Mahan

The whole principle of naval fighting is to be free to
go anywhere with every damned thing the Navy owns.

--Admiral Sir John Fisher

Thank God for the U.S. Navy!

--Major General "Gee" Gerow, Commander, U.S. V Corps,
message to General Bradley,
evening of 06 June 1944

Any man who may be asked what he did to make his life
worthwhile can answer with a good deal of pride and
satisfaction: I served in the United States Navy.

--John F. Kennedy

CHAPTER I

INTRODUCTION

The United States Navy has long been the principal guardian of American security beyond the nation's borders. While the United States Army and Air Force play vital roles in America's defense, the Navy has been protecting American interests abroad since the earliest days of the Republic, and is uniquely capable of fulfilling this vital role today. From sending a squadron to the Mediterranean in 1801 to deter the Barbary states from preying on U.S. commerce, to escorting the tools of war across the Atlantic in World War Two, to escorting Kuwaiti tankers in 1987, the Navy has always been a global force, capable of projecting American power into any area of the world accessible by sea.

For most of the post-World War Two era, the Navy was focused, as were all branches of the U.S. military, on the threat posed by the Soviet Union. From 1947 until 1991, the Soviet Union drove virtually every aspect of U.S. defense planning. The Red Banner Fleet formed the overriding concern of the Navy, which would be tasked primarily with keeping the sea lanes to Europe open in the event of a Warsaw Pact-NATO war. With the disintegration of the Soviet Union, the United States has (happily) found itself without

a plausible challenger. However, the importance of the Navy's traditional forward presence mission has not declined in the post-Cold War environment. If anything, the importance of naval forward presence has grown.

U.S. interests are global in scope. Interests range from vital, including such interests as access to energy and the associated freedom of the seas, to very important, such as protecting U.S. allies from significant external aggression, to just important, including preventing or terminating conflicts that do not threaten the United States directly.¹ Almost all of America's interests have one common feature, however: they are not to be found, nor can they be protected, within the borders of the United States. It follows naturally that threats to U.S. interests also are global, as threats occur in proximity to interests.

Instead of a readily identifiable threat, such as was posed by the Soviet Union, the nation and the Navy in the post-Cold War world face uncertainty as to the origin of threats to U.S. interests. Accordingly, the United States has adopted a security strategy focused on specific regions in which U.S. interests are to be found. The National Military Strategy (NMS) focuses on regional security, most

¹The interests of the United States differ from author to author or from committee to committee. The examples listed here come from Robert Ellsworth et al., eds., America's National Interests, a report by the Commission on America's National Interests, July 1996.

notably in the Persian Gulf and Northeast Asia. The strategy--Shape, Respond, Prepare Now--attempts to *shape* events in order to maintain regional security, while *responding* to crises when they occur.² It is in meeting these two aims of the NMS--shaping and responding--that forward-deployed U.S. naval forces, consisting of the Navy and Marine Corps, are uniquely capable.

In order to protect global national interests, the military forces of the United States must be global as well. That is, they must be capable of deploying to and operating from any location on Earth where American interests are threatened. It is in these criteria--global mobility, along with global sustainability--that forward-deployed naval forces render the greatest utility to defense planners. Despite arguments to the contrary, the importance of the forward presence mission of U.S. naval forces has not diminished since the breakup of the Soviet Union--nor will it. As long as U.S. interests are located overseas, the forward presence mission of the Navy-Marine Corps team will remain an inherent feature of U.S. defense planning.³

²National Military Strategy of the United States of America 1997 (Washington, D.C.: Government Printing Office, 1997).

³Colin Gray, The Navy In the Post-Cold War World (University Park, PA: Pennsylvania State University Press, 1994), 163. "Relative decline or not, it is the case that the U.S. role as the essential leader for the undertaking of international peace and security duties is as plain as it

The forward presence of U.S. naval forces serves to protect global U.S. interests in both the near-term and the long-term. In the near-term, the presence of U.S. naval forces serves to deter aggression, promote lawful behavior on the seas, and provide a signal of U.S. preparedness to protect interests. Many nations around the world view U.S. naval forces as a valuable and appreciated instrument of regional security, embodying the concept of "benevolent hegemony." In the long-term, the presence of U.S. naval forces serves to strengthen ties with allies, at both the military and diplomatic levels. Annual exercises such as COBRA GOLD (U.S.-Thailand) and RIMPAC (U.S.-Japan, South Korea), as well as port visits by U.S. ships, serve both to maintain military interoperability and to strengthen the political ties between the United States and allies around the world.

Why is naval forward presence superior to that of land-based forces, whether Army or Air Force? The attractiveness of naval forward presence derives from the salient features of naval forces in general, and of forward-deployed naval forces in particular. Naval forces are less obtrusive to other nations that may desire U.S. presence, but have

ever was. . . . The detail of naval power, deployment, and action varies dramatically from era to era; but the structure of the strategic demand for effectiveness at and from the sea does not alter from decade to decade, or even from century to century."

political or religious reasons for avoiding large numbers of U.S. servicemen on their territory. The physical occupation of Kuwait by Iraq was required to overcome Muslim-Christian friction in Saudi Arabia's security thinking, for example.⁴

Also, because naval forces operate in international waters, they are free to come and go without the host nation permission needed for land-based forces. With the ability to sustain themselves at sea for extended periods, naval forces can be moved to a crisis area and maintained there, free from basing or transit constraints, allowing U.S. policy-makers time to attempt peaceful resolution. Naval forces are inherently quick to respond to crises, due to proximity to problem areas and the speed with which normal peacetime operations can transition to combat operations.

Because naval forces have a lower profile among the populations of regional actors, the political impact of their arrival or departure may be less than that of ground-based forces. American troops or aircraft often are magnets for local attention. The Khobar Towers bombing is a tragic example of the animosity sometimes caused by the presence of U.S. troops on another nation's territory. By virtue of their location offshore, naval forces can avoid many of the political problems of land forces, and can adjust their

⁴The Future of U.S. Sea Power. U.S. Army War College Report of the Fourth Annual Conference on Strategy, May 1993: 27.

level of visibility as dictated by the situation. Naval forces can take position close to the twelve-mile limit of international waters, or remain over the horizon, "out of sight but not out of mind." For this same reason, their departure may be less traumatic to local nations than the departure of land-based forces.

Additionally, two emerging features of the international environment dictate the need for forces that can be on-scene anywhere, and respond quickly to protect U.S. interests. The first feature is the increasing incidence of emergency evacuations of U.S. or allied civilians from areas of impending or occurring violence. Known as Non-combatant Evacuation Operations (NEO), this mission demands the attributes possessed by the Marine Corps: ability to deploy in close proximity to crisis areas, mobility overland from the sea, forcible entry capability, and organic firepower support if needed.

The second emerging feature is the growing emphasis on ballistic missiles in world militaries, particularly the militaries of potential adversaries. Iran, Iraq, and North Korea, the three nations mentioned in the National Security Strategy (NSS) as potential sources of regional conflict, have advanced ballistic missile capability.⁵ If used to

⁵William Clinton, A National Security Strategy of Engagement and Enlargement 1995-1996 (Washington, D.C.: Brassey's, 1995); The Proliferation Primer. Report by the Subcommittee on International Security, Proliferation, and

attack regional port or airfield facilities, especially with chemical or biological weapons, ballistic missiles could prevent U.S. forces from deploying into a region in the event of a major, short-warning crisis, such as the 1990 invasion of Kuwait.

By providing theater missile defense (TMD) capability, forward-deployed naval forces would be positioned to defend regional facilities, U.S. and allied forces, and regional populations at the outset of a crisis, rather than having to be flown into the region. This TMD capability would be independent of host nation access, since it would be based at sea. The two naval TMD programs currently underway, Upper Tier and Lower Tier, are designed around the Aegis radar system on existing Ticonderoga-class cruisers and Arleigh Burke-class destroyers. These Aegis ships are constantly deployed around the world, as part of carrier battle groups (CVBG), amphibious ready groups (ARG), or surface action groups (SAG). As such, they would allow constant TMD coverage of critical regional facilities, with the ability to increase the number of Aegis ships quickly in times of crisis.

Finally, the inherent mobility of naval forces, which are able to come and go as they please in international

Federal Services, January 1998.

waters, means that the deployment and re-deployment of naval forces requires nothing more than the orders of the National Command Authority (NCA). No agreements are needed with host nations prior to the deployment of naval forces, nor are political or military negotiations required for their removal.

When naval forces arrive on station, their organic logistics and ability to replenish at sea provide long endurance. This mobility and sustainability allowed Amphibious Squadron 4 (PhibRon Four) to maintain station off the coast of Liberia from 2 June 1990 to 6 August 1990, at which time the embarked 22nd Marine Expeditionary Unit (MEU) conducted an emergency evacuation of over sixteen hundred American, Spanish, Swiss, and German civilians from the U.S. Embassy in Monrovia.⁶

For all of the reasons provided here, naval forward presence is the preferred method of using military capability to protect American global interests. The qualities of mobility, flexibility, sustainability, independence from host permission to come and go, ability to increase or decrease visibility as required, ability to transition from peacetime operations to combat operations on short notice, and ability to respond rapidly to crises make

⁶Lt. Colonel T.W. Parker, "Operation Sharp Edge," Proceedings (May 1991): 102.

forward-deployed naval forces one of the most important features of U.S. defense planning.

As important as the naval forward presence mission is, it is important to be clear about what it is not intended for. Naval forward presence is neither capable of protecting every U.S. interest, nor resolving every crisis. Preventing genocide in the former Yugoslavia, for example, or preventing the proliferation of weapons of mass destruction within a region are interests that naval forces have little ability to influence. Also, naval presence forces are not meant to fight regional wars by themselves, as they lack the sustained land power of the Army or the sustained high sortie rates of Air Force land-based aircraft.⁷

Instead, forward presence forces serve a function similar to the policeman walking a beat. Keeping a watchful eye on conditions in a region, maintaining law and order on the seas, deterring aggression through physical presence, re-assuring regional allies of U.S. interest in their

⁷Land-based forces, whether Army or Air Force, are required in Korea and Europe as much for political reasons as military reasons. In Korea, the Eighth Army provides an unambiguous signal of U.S. commitment to an important ally, while U.S. Army forces in Europe serve to maintain the United States' leadership position in NATO. See Bradford Dismukes, National Security Strategy and Forward Presence: Implications for Acquisition and Use of Forces (Alexandria, VA: Center for Naval Analyses, 1994), 4.

safety, responding quickly when U.S. or allied civilians are in danger, maintaining the capability to head off many crises before they erupt into war--these are the primary functions of forward-deployed naval forces.⁸

A second, and equally important, function of naval forward presence is to enable the introduction of land and air power into a region if deterrence fails, and the United States must employ military force. The Navy has the ability to conduct strikes ashore, but cannot seize or hold territory. The Marines can seize discrete pieces of territory, but lack the heavy equipment necessary to engage in sustained heavy fighting. Thus the Army must be transported into the region if significant ground combat is anticipated. Likewise, Navy carrier air wings are limited in their ability to generate sortie rates, resulting in fewer missions per plane over time than land-based aircraft. For a sustained air campaign, the Air Force is the service of choice, and must be transported into the region.

⁸Jan Breemer describes these short-of-major-war activities as "The U.S. Navy and Marines' specialty." See "Naval Strategy Is Dead," Proceedings (February 1994): 49; Bradford Dismukes provides a similar commentary: "Presence--deploying and operating forces forward to influence, short of war, what foreign governments think and do--plays a crucial role in a national security strategy of 'engagement and enlargement'." See Bradford Dismukes "The U.S. Military Strategy Abroad," Strategic Review (Spring 1995): 49.

This comprises the second function of forward presence: "holding the door open" for the deployment of land-based combat power from the continental United States (CONUS) to a region of crisis. Although soldiers can be flown in from CONUS, their heavy equipment and supplies must be delivered by ship.⁹ Before this can happen, the sea lines of communication (SLOCs) must be rendered safe for the passage of sea lift ships. Air Force aircraft can fly in to regional airfields, but must have air cover until they have built up sufficient assets and logistics to protect themselves. Finally, in the future it will be necessary to protect regional facilities from ballistic missile attack, requiring TMD capability at the outset of a crisis. Naval forward presence satisfies the conditions needed for the deployment of CONUS-based land and air power, and can do so without the need for foreign permission or access.

If naval forces are to continue to meet the national security requirements of the forward presence mission, the force structure of the Navy and Marine Corps will require careful assessment and adjustment. While the size of the Navy's fleet has nearly been halved since 1988, the tempo of normal peacetime operations has hardly decreased at all,

⁹During the build-up for Desert Storm, for example, approximately 95 percent of all equipment and supplies were delivered to the Gulf region by sea. See Greg Weaver and David Glaes, Inviting Disaster: How Weapons of Mass Destruction Undermine U.S. Strategy for Projecting Military Power (McLean, VA: AMCODA Press, 1997).

while crisis interventions have increased over the last decade. The result is easy to predict: a heavy strain on Navy and Marine Corps personnel and equipment, as operational tempo (OPTEMPO) and personnel tempo (PERSTEMPO) continue to produce wear and tear on servicemen and their equipment. Correcting this imbalance between mission requirements and force structure represents one of the greatest challenges facing the sea services.

Additionally, the Navy and Marine Corps are at a transition period in terms of modernizing their equipment. The Marine Corps in particular suffers from rapidly approaching obsolescence of many of its systems, such as the CH-46E helicopters used for vertical insertion of MEU forces and the AAV7 amphibious landing vehicle. The Navy has begun work on the next-generation surface combatant, as well as a new class of amphibious ship, the LPD-17. As mentioned previously, two TMD programs are underway, with a projected deployment of the more crucial Upper-Tier system slated for 2006. Lower-Tier, which is a point defense system, will begin a User Operational Evaluation System in 1999.¹⁰

Finally, the Navy is in the beginning stages of developing Network-Centric Warfare (NCW), an information-based warfighting concept similar to the Army's Task Force

¹⁰Vision, Presence, Power: A Program Guide to the U.S. Navy 1998 Edition (Washington, D.C.: Department of the Navy, 1998), 74.

XXI.¹¹ When combined with the current austere defense budget, continuing uncertainty about the international setting, and the need to replace aging systems, both the Navy and Marine Corps clearly face challenges in maintaining an appropriate force structure.

It should not be surprising that alternatives to forward presence have been proposed as strategies for U.S. national security. For reasons of financial constraint, inter-service rivalry, differing philosophies of international relations, and other reasons, many different proposals have been advanced in the past. Three alternatives will be addressed in this thesis. The first is a withdrawal of most U.S. forces to CONUS, with the ability to deploy those forces overseas in a crisis. The second alternative is the use of long-range air power, embodied in the B-2 bomber, combined with space-based surveillance to monitor threats. The third alternative is a return to a 1940-style isolationist policy, in which American forces would be responsible for little more than the physical integrity of the United States.¹²

¹¹Mark Hanna, "Task Force XXI: The Army's Digital Experiment," Strategic Forum 119 (July 1997): 1-4; Vice Admiral Arthur Cebrowski and John Gartska. "Network-Centric Warfare: Its Origin and Future," Proceedings (January 1998): 28.

¹²William Odom, "Transforming the Military," Foreign Affairs (July/August 1997): 55; James Canan, "Airpower From Home Base," Air Force Magazine (June 1994): 20; Patrick

Each of the alternatives has champions that advocate reducing or eliminating naval forward presence as a means of protecting American interests. Especially among Air Force proponents, the alternative of global air power combined with space surveillance has great currency. However, it is the position of this thesis that none of the alternatives satisfy the requirements of protecting global interests, while simultaneously shaping the security environment in the manner that naval forward presence does.

This thesis will examine the continued relevance of the Navy-Marine Corps team's forward presence mission in the post-Cold War world. Chapter II will examine and classify the interests of the United States as the twenty-first century approaches. It is not the purpose of Chapter II to debate and develop a comprehensive list of U.S. interests, but rather to provide a broad description of U.S. interests, from which will be drawn the specific interests supported by naval forward presence. Special emphasis will be given to the three "hubs" of major significance to the United States: the Mediterranean, the Persian Gulf/North Arabian Sea, and Northeast Asia.¹³

Buchanan, "America First--and Second, and Third," The National Interest (Spring 1990): 77.

¹³Dismukes, National Security Strategy and Forward Presence: Implications for Acquisition and Use of Forces, 26. "The presence of U.S. forces forward in East Asia, Europe, and the Gulf--and not elsewhere--is a reflection of

After presenting the national interests supported by naval forward presence, this chapter will examine existing and possible future threats to the security of those interests. Again, the primary focus will be on the Mediterranean, the Gulf, and Northeast Asia.

Chapter III will examine the nature of the forward presence mission. Specific force postures and/or operational plans are not intended. Rather, the advantages provided by constant naval presence in areas of interest will be described. The enabling function of naval power, which makes possible all military strategies outside CONUS, will be examined, as will the visual signal provided to friends and foes alike of U.S. interest in the region. The concept of conventional deterrence, and the age-old practice of naval ("gunboat") diplomacy will be covered, with emphasis on the flexibility and scalability of naval forces.

Crisis response is one of the most important tasks of forward-deployed forces, and accordingly will receive in-depth treatment. Finally, the ability to re-assure allies

the primacy of these regions in the national strategy today." Jerome Kahan and Jeffrey Sands, Alternative Naval Deployment Concepts: Demand for Deployed Naval Forces 1992-1999 (Alexandria, VA: Center for Naval Analyses, 1991), 1-2. "In the mid-1990s, despite the fact that the Soviet threat has largely receded, the traditional crucial deployment areas or "hubs" where U.S. interests will lie remain essentially where they have been for decades--the Mediterranean, the Persian Gulf/North Arabian Sea, and the Northern Pacific."

of our intention to support them, the opportunities provided for training with allies, and the familiarization of U.S. forces with the theater will conclude Chapter III.

Chapter IV will examine the various issues of force structure and systems, from which capabilities derive. Included will be the new littoral focus in Navy-Marine Corps thinking, concepts for new surface combatants, the possible future (or lack of a future) of aircraft carriers, the new LHD-1 and LPD-17 amphibious ships, emerging mine countermeasures ships and capabilities (MCM), and emerging naval surface fire support (NSFS) programs, which are increasingly important in the new littoral focus. Theater missile defenses are perhaps the most important conventional system in the Navy's immediate future. Lower Tier, a relatively short-range endo-atmospheric point defense system, and Upper Tier, a long-range exo-atmospheric system, will be addressed. Completing Chapter IV will be coverage of Network-Centric Warfare.

Chapter V will examine in turn the alternatives to naval forward presence. A CONUS-based military, with deployments only in times of crisis, is the first such alternative. Global air power combined with space surveillance--Billy Mitchell rides again--is the second alternative, and will receive somewhat more emphasis due to the wealth of literature extolling its virtues. The option

of withdrawing from the events of the world, and adopting a policy of isolationism, will conclude Chapter V.

Finally, conclusions will be drawn from the information presented in the body of the thesis, with observations on the Navy-Marine Corps team and the forward presence mission in the twenty-first century.

CHAPTER II

AMERICAN NATIONAL INTERESTS AND THREATS

This chapter will address U.S. national interests, and threats to those interests. After examining the broad range of U.S. interests, the individual interests that can be protected with naval forward presence will be described, including interests specific to the Mediterranean, the Persian Gulf/North Arabian Sea, and Northeast Asia. Finally, existing and projected threats to American interests will be presented.

U.S. National Interests

U.S. defense policy derives from national interests, and the need to protect U.S. interests. After interests are identified and ranked, the kinds of protection required can be determined. Finally, from a determination that military capabilities are required to protect an interest, the specific military capabilities and missions needed can be established. The forward presence mission is no different in this regard than any other mission of the armed forces. The national security requirement for forward presence arises from the need to maintain military force in proximity to far-flung U.S. interests.

The process of identifying and ranking U.S. interests is subject to different perspectives on the U.S. role in the world, differing theories of international relations, personal preference, political preference, and a variety of other factors. In reading several different works on U.S. national interests, the nature and order of interests likely will differ from one work to the next, as different authors place different value on interests. Accordingly, the national interests set forth in the following pages represent a combination of several different works, as well as this author's judgment.¹⁴

When considering national interests, it is natural that interests should occupy differing positions of importance. In this thesis, U.S. interests will be categorized as *Vital*, *Very Important*, and *Just Important*. Vital interests represent interests that are fundamental to the safety and prosperity of the nation, and for which the United States should be willing to go to war if threatened. Very Important interests are not fundamental to the safety and prosperity of the nation, but do have a significant impact

¹⁴The specific sources used to produce the national interests set forth in this thesis are: Ellsworth et al., America's National Interests; Kim Holmes and Thomas Moore, eds., Restoring American Leadership: A U.S. Foreign and Defense Policy Blueprint (Washington, D.C.: The Heritage Foundation, 1996); William S. Cohen, Report of the Quadrennial Defense Review (Washington, D.C.: Department of Defense, 1997).

on American safety and prosperity. While military force may not be the preferred method of dealing with threats to Very Important interests, nonetheless the nation may decide that these interests are worth fighting for. Finally, Just Important interests are interests that have a noticeable impact on American safety or prosperity, but often are not worth resorting to military force to protect. The result of threats to Just Important interests may be inconvenient for American prosperity, or may impinge on American moral sensibilities, but likely will not affect U.S. safety or prosperity in any lasting way. The decision on how to resolve threats to Just Important interests will depend on the specific circumstances of the situation, but often will not involve the use of military force.

The Vital Interests of the United States include:

- Maintaining the physical safety of American territory.
- Protecting the lives and safety of U.S. citizens.
- Maintaining freedom of the seas.
- Preventing the emergence of a hostile peer or near-peer competitor in Europe or Asia.
- Maintaining access to resources.
- Preventing the emergence of a regional hegemon in the Persian Gulf or in Asia.
- Preserving the safety and security of strategically important allies.

These Vital interests are presented only in a general order of priority, except for the first two interests, which must take priority over all others. Freedom of the seas likewise must come third, but the remaining Vital interests are sufficiently interrelated that ordering them is not necessary.

The Very Important Interests of the United States include:

- Deterring regional conflict in the Persian Gulf.
- Deterring regional conflict in Northeast Asia.
- Deterring regional conflict in Europe.
- Maintaining the U.S.-Japan security relationship.
- Maintaining the U.S.-South Korea security relationship.
- Maintaining U.S. access to and use of space.¹⁵
- Promoting international adherence to law and order.

¹⁵It is worth noting, although beyond the scope of this thesis, that access to space may soon be elevated to a Vital interest. Indeed, among military planners of all services, the level of dependence on space assets for surveillance, communications, early warning, and positional information is so high that many likely would place access to space in the list of Vital interests today, let alone in the future. See George and Meredith Friedman, The Future of War: Power, Technology, and American Dominance in the 21st Century (New York: Crown Publishers, Inc., 1996); Gray, The Navy in the Post-Cold War World; Daniel Goure and Christopher Szara, eds., Air and Space Power in the New Millennium (Washington, D.C.: Center for Strategic and International Studies, 1997); Cohen, Report of the Quadrennial Defense Review, section 3; Commander Randy Bowdish and Commander Bruce Woodyard, "Space Is An Ocean," unpublished U.S. Navy briefing produced by OPNAV N513, Strategy and Concepts Branch, 1998.

- Preventing the proliferation of nuclear, biological, and chemical (NBC) weapons.
- Stopping or reducing the flow of illegal drugs into the United States.

The Very Important interests also are presented without regard to relative order, as no one interest can easily be judged more important than another. However, deterring regional conflict strongly suggests itself as an interest *primus inter pares*.

Finally, the Just Important Interests of the United States include:

- Promoting democracy abroad, especially among U.S. allies.
- Preventing or stopping conflict in regions of lesser importance.
- Undertaking humanitarian relief operations.
- Promoting and following sound environmental policies.

Just Important interests are more likely than Vital or Very Important interests to be removed from considerations of employing military force. Sound environmental policy, for example, is very unlikely as a cause of U.S. military involvement.¹⁶ Nonetheless, the interests listed are valid security concerns, albeit only Just Important.

¹⁶But not to be ruled out completely. For example,

As mentioned in Chapter I, naval forward presence forces are not intended to protect every U.S. national interest. For example, maintaining the physical safety of American territory is the mission of all of the armed forces, and cannot be apportioned to naval forces alone. While naval forward presence supports maintaining the physical safety of the United States, this interest is too broad to be assigned to a single military mission. Similarly, stopping or reducing the flow of illegal drugs into the United States, while primarily a naval mission, is not a naval forward presence mission.

Which of the national interests advanced in this chapter are protected by naval forward presence? While other interests may gain some form of protection or indirect benefit from naval forward presence, the interests that naval forward presence is tailored for are: freedom of the seas, maintaining access to resources, preserving the safety

wholesale destruction of the Amazon rain forests with the approval of the local governments is a possible future cause to resort to military force. Another might be actions that degrade or destroy U.S. fishing grounds, a possibility demonstrated in 1998 by the 900-mile pursuit and forced boarding of a Chinese fishing boat, caught using illegal drift nets by the U.S. Coast Guard. Another possibility is actions that lead directly to unacceptable air pollution or acid rain affecting the United States. The recent forest fires in Indonesia and Florida are suggestive of the impact such air pollution can have on a society, necessitating the inclusion of environmental safety as a security interest of the United States. See James Thach III, "Prepared for Any Eventuality at Sea," Sea Power Almanac Issue (January 1999): 23.

and security of strategically important allies, and deterring regional conflict, especially in the Persian Gulf, the Mediterranean, and in Northeast Asia.

Freedom of the Seas

From the earliest days of the United States, use of the sea has been crucial to American prosperity and security. It is not by chance or whim that the Constitution of the United States directs the Congress to "provide and maintain a Navy."¹⁷ The United States has always been a maritime trading nation. Even before the colonies declared their independence from Great Britain, sea-borne commerce formed the foundation of American life, and the Royal Navy served to protect trade upon the Atlantic ocean.

The unalterable facts of geography compel the United States to look to the sea for trade with any nations other than Canada and Mexico. This was true in 1799, and it remains true in 1999. The ability to transport goods across the sea, in safety from capture or damage from hostile parties, has been the principal mission of the Navy since its birth:

The interests of this nation demand free and unfettered use of the seas and its [sic] resources subject to the rule of law. The ultimate purpose of the Navy is to gain, protect, or permit that use, and

¹⁷Constitution of the United States of America, Article I, Section 8.

the roles and missions go about achieving that purpose.¹⁸

Free and unfettered use of the seas remains as important today as at any time in the past. The great majority of American trade comes from imports or exports between the United States and overseas countries. Of the top fifteen destination countries for U.S. exports, thirteen lie across the Atlantic or Pacific oceans. Together these thirteen countries account for 266 billion dollars' worth of goods, representing 45.5 percent of all U.S. exports. The same is true of imports to the United States, which amount to 387 billion dollars' worth of goods and 52.1 percent of all imports.¹⁹

Although trans-oceanic aircraft have made possible air delivery of goods, the cost of air transport makes this delivery method suitable only for high-value, time-sensitive products. 95 percent of all U.S. foreign trade in terms of tonnage travels by sea, representing 51 percent of foreign trade by value.²⁰ Until and unless the laws of gravity and aerodynamics undergo dramatic change, U.S. commerce will continue to be overwhelmingly maritime in nature. Ensuring

¹⁸Harlan Ullman, In Harm's Way: American Seapower and the 21st Century (Silver Springs, MD: Bartley Press, 1991), 135.

¹⁹Holmes and Moore, Restoring American Leadership, 112-113. See Appendix A, Tables 1 and 2 for a complete list of the top 15 importers and receivers of exports.

²⁰*Ibid.*, 20.

freedom of the seas through forward presence thus is of tremendous importance to U.S. markets.

In addition to U.S. commerce, the Navy has undertaken the protection of essentially all sea-borne trade since 1945. Both through presence on and near the trade routes, and through a system of maritime and military alliances, U.S. naval protection of commercial shipping has helped to develop a global trade network. Linked globally to other nations by trade, with the gray hulls of American ships protecting their goods, both Western and Asian nations have developed closer and more peaceful ties through commercial interaction. North America, Western Europe, and East Asia today account for 75 percent of the world's gross product, and 80 percent of all international trade moves by sea, a situation made possible by the U.S. Navy's focus on freedom of the seas.²¹

The Earth's geography provides several locations that serve to constrict movement by sea. Some are natural features, while others are man-made. Freedom of passage through these chokepoints is of critical importance for merchant and military shipping. The five major chokepoints for maritime movement are the Strait of Gibraltar, the Strait of Hormuz, the Strait of Malacca, the Panama Canal,

²¹Lt. Col. Thomas C. Linn, "Naval Forces in the Post-Cold War Era," Strategic Review (Fall 1992), 19.

and the Suez Canal.²² Of these, three--Hormuz, Malacca, and the Suez Canal--have strategic importance for the United States coupled with proximate and plausible threats of closure or interference.

The Strait of Hormuz holds perhaps the greatest strategic significance to the United States of any body of water, large or small. Through this long, narrow channel passes 43 percent of the world's oil supply.²³ The Strait is bordered on the north by Iran for all of its approximately one hundred-mile length, and shrinks to just thirty-three miles at its narrowest point. Iran also has possession of several islands in the Strait proper.²⁴

Abu Musa, the Greater and Lesser Tunbs, and Sirri Island provide Iran ideal interdiction positions among the shipping lanes, and all have been fortified with bunkers, anti-aircraft batteries, surface-to-air missiles (SAMs), and launching facilities for anti-ship missiles. The main

²²While these obviously are not all of the world's chokepoints, the five listed in this thesis represent chokepoints at or near the middle of major trade routes, involving time and cost penalties upon closure. The English Channel is perhaps the busiest confined seaway in the world, but is at the end of the major trans-Atlantic routes, allowing quicker and easier diversion to alternate European or English ports if the Channel were closed.

²³The Strait of Hormuz: Global Shipping and Trade Implications in the Event of Closure. Report by the Office of Naval Intelligence, 1997, 11.

²⁴See Appendix A, Figure 1.

shipping channel through the Strait passes sufficiently close to these islands that even 155mm artillery would have enough range to be effective, and such "unconventional" weapons have indeed been deployed to Abu Musa.²⁵ Not surprisingly, the Strait of Hormuz has been the scene of recent conflict between U.S. Navy ships enforcing freedom of the seas, and Iranian forces attempting to restrict passage.²⁶

The Strait of Malacca is the second-busiest seaway in the world, trailing only the English Channel in annual transits. In 1993 over one-half of the world's merchant capacity, consisting of one-third of the world's merchant ships, passed through this very confined passage.²⁷ Malacca sits in the middle of the shipping route from the Middle East to East Asia, and sees particularly heavy shipment of

²⁵For a detailed depiction of the fortifications and emplacements on Abu Musa, including a schematic diagram and aerial photographs, see Harold Hough, "Iranian Intentions: The Strait of Hormuz or Beyond?" Jane's Intelligence Review (October 1995): 454.

²⁶See Dexter Smith, "GCC Regional Security," marketing supplement in Defense News, 3-9 March 1997, 6; Anthony Cordesman and Abraham Wagner, The Lessons of Modern War, vol. 2, The Iran-Iraq War (San Francisco: Westview Press, 1990), 281; Admiral (Ret.) Wesley McDonald, "The Convoy Mission," Proceedings Naval Review (May 1988), 36; Ronald O'Rourke, "The Tanker War," Proceedings Naval Review (May 1988), 30.

²⁷John Noer, Chokepoints: Maritime Economic Concerns in Southeast Asia (Washington, D.C.: NDU Press, 1996).

crude oil to Japan, South Korea, Taiwan, and Hong Kong.²⁸ The importance of the sea lines of communication passing through the Strait of Malacca and surrounding waters was demonstrated in 1995 by then-Secretary of State Warren Christopher, who warned China and the Philippines that interruption of merchant shipping arising from a quarrel over the Spratley Islands would not be tolerated.²⁹

The Suez Canal is a man-made chokepoint, connecting the Mediterranean Sea and the Red Sea, thus providing an important shortcut between the Middle East and Europe. Although no longer a major trade route for Persian Gulf oil, the Suez Canal does carry a high proportion of time-sensitive bulk cargoes destined for Europe.³⁰

The Suez Canal retains strategic importance to the United States for the movement of Atlantic Fleet naval forces from their East Coast ports to the Persian Gulf, a trip shortened by about three thousand nautical miles (or

²⁸See Appendix A, Figure 2.

²⁹Noer, Chokepoints, 1.

³⁰For example, chemicals and machinery parts commonly transit the Suez Canal, due primarily to new "just-in-time" business logistics. Also, the emergence of very large crude carriers (VLCC) has seen much of Middle East oil shipments diverted around the Cape of Good Hope due to draft restrictions in the Canal. See The Suez Canal / SUMED Complex: Global Shipping and Trade Implications in the Event of Closure. Report by the Office of Naval Intelligence, 1997, ix, 7-8.

about six days' steaming time at twenty knots) compared to the route around Africa.³¹ In 1974 the United States agreed to support both the financial and manpower costs of clearing the Suez Canal of mines, removing ten sunken blockships, and removing unexploded ordnance left from the 1973 Yom Kippur War. The operation lasted from April through December 1974, with a small U.S. contingent remaining in the area until the formal re-opening on 5 June 1975.³²

Maintaining freedom of the seas through these chokepoints, which are important for both commercial and military movement, is a difficult task given the location of potentially hostile forces directly astride the waterways. Nonetheless, the ships of the U.S. Fifth, Sixth, and Seventh Fleets can be found preserving the right of free passage every day of the year.

Access to Resources

As a major industrialized nation, the United States has massive resource requirements. Most of America's industrialized trading partners have similar if smaller

³¹John Collins, Military Geography for Professionals and the Public (Washington, D.C.: NDU Press, 1998), 240. Also, naval forces already deployed in the Mediterranean would see their normal 11-day transit time to the Persian Gulf increased to 26 days if forced to sail around Africa. The Suez Canal / SUMED Complex, 4.

³²Captain J. Huntly Boyd, "Nimrod Spar: Clearing the Suez Canal," Proceedings (February 1976): 18.

requirements. Also, the emerging economies of East and South Asia have rapidly growing resource demands. Since the U.S. economy is affected by the economic status of our global trading partners, ensuring access to resources is important not just for the United States, but for much of the world.

Among the resources needed for major industrial economies, oil is the primary requirement. Other resources, such as iron, chromium, and coal, are important to maintaining industrial nations' production, but oil holds unique status as a strategic resource.³³ The Quadrennial Defense Review acknowledges the lasting importance of petroleum to the United States: "Access to oil will remain a U.S. national interest for the foreseeable future."³⁴

American interest in maintaining access to oil is well-established. The United States is the world's leading consumer and importer of oil, rendering America vulnerable to interruptions in oil supply. In the past, American economic recessions have followed closely behind increases in oil prices, most notably in 1974, 1980, 1981-82, and 1990-91.³⁵ Immediately following Iraq's 1990 invasion of

³³Strait of Hormuz, ii: "Oil stands alone among the primary commodities in its ability to cause disruptive and costly economic consequences."

³⁴Cohen, Quadrennial Defense Review, Section 2, page 1.

³⁵Holmes and Moore, Restoring American Leadership, 22.

Kuwait, the cost of oil jumped from nineteen dollars per barrel to forty-two dollars per barrel, eventually costing the United States nearly 200 billion dollars in lost productivity over the next year. Worldwide economic losses over the same year are estimated at over one trillion dollars.³⁶

The Persian Gulf is the principal location of recoverable oil, with more than two-thirds of known oil reserves and 43 percent of world oil production concentrated in the Gulf area.³⁷ Additionally, over 90 percent of the world's spare production capacity resides in the Gulf, as most non-Gulf oil producers operate at or near 100 percent capacity today. With projected increases in oil demand among Asian nations, and with other oil-producing regions unable to increase production to satisfy demand, Persian Gulf oil is predicted to provide 64 percent of world oil supply by 2010, representing 81 percent of the growth in oil consumption over the next decade.³⁸

The 1973 Arab oil embargo drove oil from \$2.50 per barrel to over \$10 per barrel, while the 1979 Iranian revolution resulted in a jump from \$13 per barrel to \$34 per barrel.

³⁶Maj. Gen. Edward Hanlon Jr., "Naval Expeditionary Warfare: Opening the Door," Surface Warfare (July/August 1997), 7.

³⁷Strait of Hormuz, 11, 61.

³⁸Ibid., 65, 27.

One-half of Persian Gulf production goes toward Asian oil demands, representing 83 percent of all Asian oil imports, while one-quarter of Persian Gulf oil goes toward European oil demands, representing 42 percent of all European oil imports.³⁹ With such high dependence on Persian Gulf oil among world economic powers, closure or restriction of the Strait of Hormuz would be economically devastating:

Any prolonged oil supply disruption caused by the closure of the Strait of Hormuz will have global economic consequences and cause severe disruption to the growing economies of East Asia as oil in the distribution system is exhausted. Except for Japan, they maintain no strategic security stockpile to guard against supply disruptions.⁴⁰

Clearly the Gulf will continue to hold strategic importance to the United States in the future. While Caspian Sea oil appears to offer a possible new major supply of petroleum, the proven reserves of easily-extracted, high-quality oil in the Persian Gulf will keep it foremost in importance, as indicated in Strategic Assessment 1997: "The Persian Gulf will retain its preeminent status as the major source of excess oil capacity."⁴¹ President Jimmy Carter

³⁹Ibid., iii.

⁴⁰Ibid., 24.

⁴¹Hans Binnendijk and Patrick Clawson, eds., Strategic Assessment 1997 (Washington, D.C.: NDU Press, 1997), 88.

made clear the United States' interest in the Gulf in his State of the Union speech on 23 January 1980:

Any attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America and such an assault will be repelled by any means necessary, including military force.⁴²

Emphasizing the continued importance of access to the Gulf's resources in U.S. strategic planning was the 1 July 1995 recommissioning of the U.S. Fifth Fleet, stationed at Bahrain.⁴³

In addition to oil, the U.S. defense industry is dependent on chromium, cobalt, and manganese, metals that are used in the production of high-quality alloys needed for military jet aircraft components. Although the United States is the leading consumer of these metals, none are produced by American mines. Instead, imports from South Africa, Zaire, and Zambia supply most U.S. demand for these metals.⁴⁴ Transported to the United States by ship, these strategic resources are available to the U.S. defense industry by virtue of freedom of the seas.

⁴²Cited in First Lt. Philip Wasielewski, "Sea Power and Counterinsurgency," Proceedings (December 1986): 63.

⁴³Vice Admiral John Scott Redd, "Fifth Fleet, Arriving," Proceedings (July 1997): 48.

⁴⁴Holmes and Moore, Restoring American Leadership, 22.

Safety of U.S. Allies

One of the central concepts of U.S. security policy is to promote and protect the safety of U.S. allies, whether treaty allies such as the NATO nations, or informal allies such as Israel and Taiwan. In the past such protection has included the active defense of South Korea in 1950, assistance to Israel in 1973, escorting Kuwaiti tankers and policing the Strait of Hormuz in 1987, restoration of Kuwaiti sovereignty in 1991, and support for Taiwan in 1996. Absent a clear military threat to the United States itself, threats to allies are a major focus of U.S. thinking:

The foremost regional danger to U.S. security is the continuing threat that hostile states with significant military power pose to allies and friends in key regions. Between now and 2015, it is reasonable to assume that more than one such aspiring regional power will have the motivation and the means to challenge U.S. interests militarily.⁴⁵

Key allies requiring U.S. military support today include Japan, South Korea, Israel, and the Gulf Cooperation Council (GCC) members.⁴⁶ Not surprisingly, the United States maintains military forces in or near each of these nations.

⁴⁵William Cohen, Secretary of Defense Annual Report to the President and the Congress 1998 (Washington, D.C.: Department of Defense, 1998), 2.

⁴⁶Binnendjik and Clawson, Strategic Assessment 1997, 57-68, 83-96, 97-106, 107-116.

The U.S.-Japan security alliance is judged by U.S. military leaders as, "the linchpin of our security strategy in Asia."⁴⁷ The disappearance of the Soviet threat to Japan has been replaced by China's emergence as a potential Asian power, making the continued defense commitment to Japan necessary.⁴⁸ Japan also is a top trading partner of the United States, trailing only Canada in annual import and export value.⁴⁹

In South Korea, the threat of North Korean aggression has kept American forces present since 1950. North Korea's large Army, well-developed ballistic missile capability, and NBC weapons make the North Korean-South Korean border one of the most likely sites of future armed conflict. In addition to the United States' long-standing political commitment to South Korea's safety, the South's growing economic strength and movement toward the principles of democratic government make defending South Korea a lasting U.S. interest.⁵⁰

⁴⁷The United States Security Strategy for the East Asia-Pacific Region 1998. Report by the Department of Defense, last updated 25 November 1998. Downloaded from Defenselink at <http://www.defenselink.mil/pubs/easr98/>.

⁴⁸Peter Rodman, America Adrift (Washington, D.C.: Nixon Center for Peace and Freedom, 1996), 30.

⁴⁹Holmes and Moore, Restoring American Leadership, 111-112; Binnendjik and Clawson, Strategic Assessment 1997, 66.

⁵⁰*Ibid.*, 104.

In the Persian Gulf, the members of the GCC all require U.S. assistance, as their populations are too small to support large standing armies.⁵¹ Even with the advanced modern arms purchased by the GCC states from Western nations over the last two decades, the threat posed by Iran and Iraq mandates that U.S. military forces be present to protect these allies.

Israel occupies a unique position among U.S. allies. Although Israel provides little of the market value common to most other U.S. allies, and has shown itself more than capable of self-defense in the past, nonetheless Israeli security has remained a focus of U.S. foreign policy for decades. The United States' historical willingness to defend democratic states from aggression, combined with a powerful Jewish-American lobby, have kept Israel a close ally for over thirty years.⁵² President Richard Nixon did not shy away from a possible U.S.-Soviet confrontation during the 1973 Yom Kippur War, when elements of the Sixth Fleet were ordered to take positions from which they could

⁵¹See Appendix A, Table 3 for a breakdown of the different Persian Gulf force levels.

⁵²See Charles Dittmer, "The United States and the State of Israel: A Critical Examination of U.S.-Israeli Relations Since 1981," master's thesis, Southwest Missouri State University, 1995.

block Soviet sea lift to Egypt, underscoring the importance placed on Israeli safety in U.S. foreign policy.⁵³

In both South Korea and the GCC states of Saudi Arabia and Kuwait, the immediate threat posed by large, armor-heavy forces on these nations' borders requires the permanent presence of U.S. land forces, both to send the strongest possible signal of U.S. commitment and to back up that commitment with capability.⁵⁴ These nations provide excellent examples of the need for land-based forces in some cases, underscoring the point that naval forces cannot meet every U.S. security concern. In South Korea and Kuwait, clearly only heavy land forces will do to protect U.S. interests. In each instance the tension caused by a large U.S. presence on the ground is outweighed by military necessity. However, the land forces in Korea and the Gulf are intended to confront a single threat in a specific location, and cannot easily or rapidly be re-deployed to react to other crises.

⁵³Captain Kevin Jordan, "Naval Diplomacy in the Persian Gulf," Proceedings (November 1981): 29.

⁵⁴Binnendjik and Clawson, Strategic Assessment 1997, 84, 88, 100. "The GCC states on their own are no match for either of their two powerful neighbors [Iran and Iraq]. Only a sustained U.S. military presence in the Gulf can redress the inherent military asymmetry. . .Iraq still possesses a land force that is larger than and qualitatively superior to all the GCC states combined and Iran. . .The large, heavily-armed, and forward-deployed military forces of North Korea continue to pose a serious threat to South Korea and to U.S. forces stationed there."

The presence of U.S. naval forces also serves to express U.S. commitment to the safety of key allies. The fact that naval forces are routinely deployed to key areas, and therefore either present or close at hand if a crisis emerges, highlights one of the key roles of forward-deployed U.S. military forces: backing up U.S. diplomacy with capability.⁵⁵ When compared to land-based forces, naval forward presence offers the additional advantage of mobility and flexibility in supporting allies, as naval forces can move rapidly in response to crises. Naval forces, particularly carrier aircraft, would be especially vital in any military support to Israel due to access questions for land-based aircraft.⁵⁶

Deterring Regional Conflict

Possibly the most important reason for maintaining the forward presence mission in the absence of the Soviet threat is the need to maintain stability in regions where U.S.

⁵⁵Dismukes, National Security Strategy and Forward Presence, 39. "Words about forces are important, but they are a poor substitute for the forces themselves."

⁵⁶Former CNO Admiral Elmo Zumwalt: "In three of the four crises during my watch--Jordan, September 1970; India-Pakistan, December 1971; Yom Kippur War, October 1973--the U.S. Air Force was totally incapable of playing a role due to lack of access to airfields, and only carrier aviation could be brought to bear." See On Watch (New York: Quadrangle, 1976), 70.

interests are located.⁵⁷ Uncertainty about the origin of threats to U.S. interests is one of the defining features of the post-Cold War environment.⁵⁸ In order to deter regional actors from aggressive moves that could threaten U.S. interests, U.S. military forces must be present and vigilant.

Maintaining stability in key areas is important for several reasons. International trade can only continue when stability exists within a region, allowing the safe transport of goods. Conflict in Asia, the Persian Gulf, or the Mediterranean would impact on global trade, and would ripple through the U.S. economy even if U.S. forces were not involved.

Asia currently is experiencing dramatic economic growth. Asia holds 40 percent of the world's purchasing power today, and it is predicted that Asia will contain four of the five largest economies in the world by 2020.⁵⁹ As

⁵⁷Jacquelyn Davis, Aircraft Carriers and the Role of Naval Power in the Twenty-First Century (Washington, D.C.: Institute for Foreign Policy Analysis, 1991), 20.

⁵⁸Redd, "Fifth Fleet, Arriving," 51: "There always seems to be at least one additional crisis either in progress or simmering. These 'hot buttons' vary in intensity and location."

⁵⁹Daniel Goure and Dewey Mauldin, Naval Forward Presence: Present Status, Future Prospects (Washington, D.C.: Center for Strategic & International Studies, 1997), 6.

described previously, the Persian Gulf will remain a crucial location for the production and distribution of oil. Maintaining adherence to law and order, and avoiding conflict in these regions through deterrence, clearly is in the United States' best interest.⁶⁰ President Bush first recognized trade as a U.S. national security objective in 1990, and regional stability is the key to economic intercourse.⁶¹

When it comes to maintaining stability in the key regions of the world, U.S. capability is indispensable. Many nations can upset the status quo in key regions; only the United States can maintain it. The primary reason for the United States' preeminent role in maintaining regional peace and security is the perception among other nations that the United States is a "fair broker", one that can be trusted to intervene fairly and evenly in confrontations.⁶²

⁶⁰Hans Binnendjik makes the obvious but important point that deterring wars is preferable to fighting them: "Three times between 1914 and 1950, neutrality or disengagement led America to major conflict. It is better to deter two major regional conflicts than to fight them." See "The Case for Forward Deployment," Joint Force Quarterly (Summer 1995), 7.

⁶¹National Security Strategy of the United States 1990, cited in Bradford Dismukes and Commander Bradd Hayes, "The Med Remains Vital," Proceedings (October 1991): 46.

⁶²Goure and Mauldin, Naval Forward Presence: Status, Prospects, 48.

A 1993 survey of U.S. embassy personnel in Mediterranean countries confirmed this position. Each embassy's team indicated that their host nation viewed U.S. presence as a desirable feature in the Mediterranean, one that served to deter conflict.⁶³ The same holds true in the Pacific. Lee Kuan Yew, former Prime Minister of Singapore, echoes the Mediterranean opinion:

We have to accept the reality that there is no combination of forces in ASEAN that could stand up to a military confrontation with China. Unless there is an outside force, such as America, there can be no balance in the region.⁶⁴

As long as U.S. interests reside in regions far from U.S. territory, preventing conflict in those regions will remain a U.S. interest.

Specific Interests in the Mediterranean Sea

The Mediterranean Sea is one of the three major strategic hubs that this thesis addresses.⁶⁵ The U.S. Sixth Fleet has responsibility for the Mediterranean, and has been present in these waters since 1946.

⁶³Dismukes, National Security Strategy and Forward Presence, 37.

⁶⁴Goure and Mauldin, Naval Forward Presence: Status, Prospects, 49.

⁶⁵The Caribbean often is cited as another strategic hub, but its proximity to CONUS, lack of significant military threats, and accessibility to land-based air power make naval forward presence less important than in the Mediterranean, the Gulf, and East Asia.

Freedom of the Seas

The Mediterranean contains several important SLOCs, both for the United States and for the Western European NATO states. At the western end of the Mediterranean, the Strait of Gibraltar provides one of the two entrances or exits from the Mediterranean. Further east, the Strait of Sicily and the Malta Channel produce a chokepoint near the center of the Mediterranean. The Gulf of Sidra, which lies to the north of Libya, provides maneuvering room both for merchant shipping and military traffic. Libya's attempt to claim the Gulf of Sidra as territorial waters led to a series of military confrontations in 1981 and again in 1986 between units of the U.S. Navy and Libyan air and surface units.⁶⁶ At the eastern end of the Mediterranean lies the Suez Canal and its associated SUMED pipeline complex, providing the only alternative to Gibraltar for passage into or out of the Mediterranean.

Merchant shipping through the Mediterranean connects the United States and Europe to the Middle East and Asia.

⁶⁶An often-overlooked motivation for the 1986 Operations in the Vicinity of Libya (OVL-I, -II, and -III), which challenged Libya's claim to the Gulf of Sidra as territorial waters, was the need for operational space in which to conduct naval exercises, without the interference and hazards involved in the main shipping channels. Both the U.S. Navy and the Soviet Navy commonly used the Gulf of Sidra for such exercises. See Colonel W. Hayes Parks, "Crossing the Line," Proceedings (November 1986): 42.

For the United States, the economies of Italy, Greece, Turkey, and Israel represent growing markets. While still small in comparison to U.S.-Asia trade, the volume of trade with Turkey and Greece has grown at an annual rate of 9 percent over the last decade, while trade with Israel has grown at an annual rate of 12 percent.⁶⁷

In addition to merchant traffic, the Mediterranean-Suez SLOC provides a crucial route for moving military equipment from Europe to the Persian Gulf in times of crisis. During the 1990-91 Desert Shield/Storm operations, 90 percent of U.S. air lift and sea lift traveled through or over the Mediterranean, including all of the supplies and equipment transported to the Gulf from Europe.⁶⁸ As described earlier, the transit from U.S. East Coast bases to the Persian Gulf via the Mediterranean is shortened by about six days compared to the route around Africa.

Within the Mediterranean, several nations have military forces capable of interfering with the passage of maritime traffic.⁶⁹ Most notable among the regional forces is

⁶⁷Goure and Mauldin, Naval Forward Presence: Status, Prospects, 52.

⁶⁸Dismukes and Hayes, "The Med Remains Vital," 47.

⁶⁹The forces of the various NATO nations clearly have the capability to interfere with Mediterranean traffic. However, as the likelihood of any of these nations interfering with merchant traffic is remote absent a regional war, their respective forces will not be addressed in this thesis. Israel's close alliance with the United

Algeria's possession of two Kilo-class submarines, purchased from the Soviet Union prior to 1991.⁷⁰ Capable of deploying mines while submerged, and armed with 533mm torpedoes, the Algerian Kilos could allow interdiction in the Strait of Gibraltar or in the Strait of Sicily. Libya and Egypt also possess ex-Soviet Foxtrot and Romeo-class submarines, although most if not all are believed to be non-operational due to maintenance problems. Syria possesses three Romeo-class boats, whose operational status is unknown.⁷¹

In addition to submarines, every nation on the North African coast from Morocco to Syria possesses patrol craft armed with anti-ship missiles. Some are fairly modern, such as Tunisia's French-built La Combattante III-class boats, while others are older ex-Soviet Osa or Nanuchka-class boats. However, all are armed with effective anti-ship missiles, including Exocets (Morocco), Otomats (Egypt, Libya, Morocco), and SS-N-2 Styx (Algeria, Egypt, Libya, and Syria), making these small craft extremely dangerous to both merchant and naval ships.⁷²

States likewise exempts Israeli forces from threat assessments in the Mediterranean.

⁷⁰Terence Taylor, The Military Balance 1997/98 (London: International Institute for Strategic Studies, 1997), 122; Francis Tusa, "The Maghreb Cauldron," Armed Forces Journal International (October 1994): 55.

⁷¹Taylor, The Military Balance 1997/98, 124, 133, 141.

⁷²Ibid., 121-141.

Access to Resources

The Suez Canal and SUMED pipeline provide a vital energy lifeline for industrialized European nations, who depend on Persian Gulf oil for nearly half of their energy needs. In 1994, for example, over forty million metric tons of oil passed through the Suez Canal, while over eighty million metric tons were pumped through the SUMED pipeline.⁷³ Without the ability to move Persian Gulf oil through the Canal or pipeline, oil shipments would have to pass around Africa, adding time and additional cost to European oil imports.⁷⁴

Within the Mediterranean, shipments of oil are no less important. For example, Algeria provides over 70 percent of Spain's oil requirements. Also, it is expected that the majority of Caspian Sea oil destined for Europe in the future will be pumped through Turkish pipelines, and then shipped throughout the Mediterranean.⁷⁵ Maintaining the

⁷³The Suez Canal / SUMED Complex, 16. The SUMED pipeline travels from Ain Sukhna on the Gulf of Suez to Sidi Kerir on the Mediterranean, just west of Alexandria, a distance of 320 kilometers.

⁷⁴See Appendix A, Table 4 for a comparison of the time difference between Suez and the Cape of Good Hope.

⁷⁵Leah McAnally, "NATO's Post-Cold War Internal Adaptations" (master's thesis, Southwest Missouri State University, 1997), 97.

flow of energy to America's major trading partners is of great importance to the U.S. economy, and the Mediterranean is the route for the majority of Europe's oil needs.

Safety of U.S. Allies

The principal U.S. ally requiring protection in the Mediterranean is Israel. Surrounded by Arab neighbors, Israel has had to fight for its existence on several occasions. Egypt and Syria, Israel's traditional security concerns, last mounted a conventional military assault on Israel in 1973, but terrorist activity has continued to plague Israel.

The Camp David peace agreement has kept relations between Israel and Egypt peaceful if not friendly since 1976, but tensions still exist.⁷⁶ Continued trouble arising from the Palestinian problem could lead to renewed hostilities, including war, between Israel and Egypt.

Syria, on the other hand, has been unmistakably hostile towards Israel since 1948, and continues so today. Syria's animosity towards Israel exists independent of the Middle East "Peace Process", and likely will continue as long as President Assad is alive. Syrian claims to the Golan Heights, claims to the water rights in and around the Golan, and Assad's desire for Syrian hegemony in the eastern

⁷⁶Benjamin Netanyahu, A Place Among The Nations: Israel and the World (New York: Bantam Books, 1993), 254.

Mediterranean will maintain Syria as a mortal threat to Israel in the future. Syria has continued to purchase new military equipment from former Soviet states, including modern tanks, aircraft, and artillery systems, thus increasing the size and quality of the Syrian armed forces.⁷⁷

Egypt, notwithstanding possible aggression towards Israel, is an important U.S. friend in the Mediterranean, although falling short of the criteria of being an ally on the order of Israel or Japan. Both as a primary means of maintaining peace between Arab nations and Israel, and as the guardian of the Suez Canal, Egypt likely will remain on good terms the United States. Egypt could see its security threatened by terrorism or para-military activity from Libya, Sudan, or Ethiopia. In the recent past, Iran has attempted to establish a military presence, including a submarine base, in Sudan. The presence of submarines, anti-ship missiles, or minelaying capability astride the Red Sea would be a direct threat to Egypt, and could be beyond Egypt's ability to respond to militarily.⁷⁸

⁷⁷Gregory Rublee, "Prosecuting the Syrian Threat to Israel: Motive, Means, and Opportunity" (master's thesis, Southwest Missouri State University, 1995), 200-214.

⁷⁸Yossef Bodansky, "The Grand Strategy of Iran," Global Affairs (Fall 1995): 27.

Turkey and Greece are both NATO members, and their continued membership in NATO is judged very important in the current international security environment.⁷⁹ Turkey in particular may encounter external difficulties with Russia, Iran, and even China, as the Caspian Sea oil fields are developed.⁸⁰

Detering Regional Conflict

Responding to crises in the Mediterranean has been a frequent occurrence for U.S. forces over the last twenty-five years. In fact, the Mediterranean has been the focus of more crises requiring naval forces than any other region since 1970.⁸¹ Continued animosity between Israel and Syria, Iranian efforts to establish a military presence in Sudan, a coup by fundamentalist Muslim militants in Algeria--any of these, and a host of other catalysts, could provide the

⁷⁹Turkey is described as, "the linchpin of NATO's southern strategy by virtue of its geographic position near the new southern states that border Russia." See Binnendjik, Strategic Assessment 1997, 36.

⁸⁰Ahmed Rashid, "A New 'Great Game'-for Fuel," Far Eastern Economic Review, cited in World Press Review (June 1997): 32; Richard Pipes, "Is Russia Still An Enemy?" Foreign Affairs (September/October 1997): 74. Umit Enginsoy, "Russian Moves in Armenia Heighten Regional Tensions," Defense News, 01 February 1999, 4.

⁸¹Kahan and Sands, Alternative Naval Deployment Concepts, 3-4. See Appendix A, Table 5 and Table 6 for a depiction of the frequency and nature of U.S. military operations in the Mediterranean from 1970-1989.

spark for a regional conflict.⁸² Such a conflict would have the potential to disrupt the economic stability of the Mediterranean, and thus the economies of Europe and the United States.

The most serious regional conflict, although perhaps not the most likely, would involve another Arab attempt to attack and destroy Israel. Such a conflict could spill over into the Persian Gulf, where other Islamic states might provide aid to Syria or Egypt. Thus one U.S. interest, protection of Israel, could be directly at odds with another U.S. interest, maintaining the flow of oil from the Persian Gulf.

An Arab-Israeli war also could see the employment of NBC weapons, delivered by ballistic missiles. Both Egypt and Syria possess SCUD and other ballistic missiles capable of striking any part of Israel.⁸³ Iran has several long-range ballistic missiles under development, some in advanced stages, that could be targeted on Israel.⁸⁴ Israel in turn

⁸²Tusa, "The Maghreb Cauldron," 55.

⁸³Taylor, The Military Balance 1997/98, 124, 141.

⁸⁴Barbara Opall, "Israelis Say Russia Aids Iran's Quest For Missiles," Defense News, 10-16 February 1997, 1; Steve Rodan, "Iran Missile Program Is Nearly Complete," Jerusalem Post, 4 October 1997, 1, "Iran's Missiles Able to Hit Israel in 18 Months," Jerusalem Post, 11 October 1997, 1, "Secret Israeli Data Reveals Iran Can Make Missiles in Year," Defense News, 6-12 October 1997, 4.

might be motivated to respond to a successful chemical or biological attack with a nuclear weapon, using its own Jericho missiles or F-15 aircraft. Such nuclear retaliation could transform a small regional conflict into a much larger conflict, involving Muslim countries throughout North Africa and the Middle East.

Turkey and Greece, while both important NATO members, have a long history of acrimonious relations. Most recently a dispute over Russian S-300 SAMs, purchased by Greek Cypriots, led Greece and Turkey into confrontation, with Russia threatening to join in to protect its customer after Turkey threatened to block the missile shipment.⁸⁵ Greek-Turkish issues go back for centuries, making conflict between them a constant possibility.⁸⁶

The NATO nations understandably view conflict in the Mediterranean as a threat to their national interests:

Because of the unstable environment and vital resources in these areas, many NATO nations (France, Greece, Italy, Portugal, Spain and Turkey) see threats emanating from this region as dangerous to their vital interests.⁸⁷

⁸⁵John Roos, "Ersatz Allies: Misstep By Greece Or Turkey Could Trigger War Over Cyprus," Armed Forces Journal International (May 1997): 44.

⁸⁶James Pasley, "Cold Turkey No More: Security Perspectives for the Republic of Turkey in the Post-Cold War Era," (master's thesis, Southwest Missouri State University, 1994), 121-141 provides a good treatment of the myriad issues of contention between Greece and Turkey.

⁸⁷McAnally, "NATO's Post-Cold War Internal

Deterring conflict in the Mediterranean, or ending regional conflict quickly if deterrence fails, remains one of the primary reasons for the continued presence of Sixth Fleet ships.

Specific Interests in the Persian Gulf

The Persian Gulf is an area of great strategic importance to the United States, and to most of the industrialized world. Oil is the overriding factor in all U.S. interests in the Gulf. Freedom of the seas (to get the oil out), the protection of allies (allies only because of their possession of oil), and preventing regional conflict (which could interrupt oil shipments) all relate back to oil, and the need to keep Persian Gulf oil flowing to the economies of the world.

Freedom of the Seas

Freedom of the seas means one thing in the Gulf: providing safe passage through the Gulf and the Strait of Hormuz for tankers loaded with oil. While over fourteen million barrels of oil and natural gas pass through the Strait every day, no other commodity of any importance originates in the Gulf. The supertanker, or very large crude carrier (VLCC), was designed for the transport of Persian Gulf oil, and over 90 percent of the world's VLCCs

pass through the Strait at least once each year. Of the twenty-eight ships entering the Gulf daily, half are tankers.⁸⁸

The Strait is the point most vulnerable to interdiction, a vulnerability made even greater due to Iran's position astride the full length of the Strait. Iran's ongoing military buildup is focused on the Strait, and includes mines, Kilo-class submarines, anti-ship missiles, fast patrol craft, and small gunboats capable of attacking merchant ships and tankers. Iran's mining operations in the Strait from 1986 to 1988 resulted in the sinking of several ships, and the near-sinking of USS Samuel B. Roberts (FFG-58).⁸⁹ In addition to the Strait and the Gulf tanker routes, the oil terminals and associated facilities must be protected and kept open for the loading of oil.⁹⁰

In the future, Caspian Sea oil may be distributed to world oil users via the Gulf. Iran is the logical location for a pipeline connecting the Caspian to the ocean, which

⁸⁸The Strait of Hormuz, i, 5, 9.

⁸⁹Smith, "GCC Regional Security," 6; Binnendjik and Clawson, Strategic Assessment 1997, 92.

⁹⁰Uri Ra'anani, Robert Pfaltzgraff, and Geoffrey Kemp, eds., Projection of Power: Perspectives, Perceptions, and Problems (Hamden, CT: Archon Books, 1982), 96.

could elevate the need to maintain freedom of the seas in the Gulf and the Strait to even higher importance.⁹¹

Access to Resources

Oil is the only resource of any importance in the Gulf, but its importance is paramount in the strategic outlook of the United States, as described by Colin Gray:

No subject for statecraft and private commercial concern could be more geoeconomical than is access to, and the price of, oil, and no geoeconomical subject is more obviously dominated by the threat and use of force.⁹²

The importance of Persian Gulf oil was recognized as far back as 1933, when the Standard Oil Company launched its first Saudi oil venture. President Franklin Roosevelt established a rapport with the Saudi kings of the day, and American oil workers have been present in the area ever since.⁹³

As described previously, world oil demand is expected to grow enormously in the future, with Asian economies in particular increasing their demand for energy. Without the presence of U.S. forces, a regional hegemon, most likely

⁹¹Michael Dunn, "Mideast Turnaround," Armed Forces Journal International (November 1997): 22.

⁹²Gray, The Navy in the Post-Cold War World, 170.

⁹³Amos Jordan, William Taylor, Jr., and Lawrence Korb, American National Security: Policy and Process (Baltimore: The Johns Hopkins University Press, 1993), 385-390.

Iran or Iraq, could establish control of all Gulf oil. Control by a single entity would be extremely serious due to Saudi Arabia's unique spare production capacity. No other world oil producer could increase production to make up for lost Persian Gulf oil, allowing monopolistic manipulation of the world oil market.⁹⁴

Even without a monopoly over Gulf oil, the disruption of the oil flow from the Gulf would have serious, possibly even crippling, results for world economies. A serious disruption of Gulf oil flow could drive the cost of oil beyond fifty dollars per barrel, entailing catastrophic results for many economies.⁹⁵ While the U.S. economy likely could survive a prolonged interruption of Gulf oil, the economies of Japan and Western Europe would suffer complete collapse, the effect of which would surely be felt in the U.S. economy.⁹⁶

⁹⁴Eugene Gholz, Daryl Press, and Harvey Sapolsky, "Come Home America," in Michael Brown, Owen Cote, Sean Lynn-Jones, and Steven Miller, eds., America's Strategic Choices (Cambridge, Mass.: The MIT Press, 1997), 220-222.

⁹⁵Joseph Hoar, "Continuous Forward Presence of Naval Forces Vital to Maintaining Middle East Stability," Sea Power (January 1995): 44.

⁹⁶Jordan et al., American National Security, 391. "In all likelihood, a prolonged interruption in their [Japan and Europe] imports would literally bring about their economic collapse."; The Strait of Hormuz, 18. "The economic repercussions of a closure of the Strait of Hormuz will ripple through the global economy."

Safety of U.S. Allies

The safety of U.S. allies in the Persian Gulf poses one of the biggest challenges faced by U.S. defense planners. Even in South Korea, where the North's large forces are only twenty-five miles from Seoul, the difficulties of defending against aggression are less than in the Gulf. Kuwait and Saudi Arabia, small in population and with no natural defensive positions, are the allies most at risk in the Gulf. Their preeminent status as oil producers makes their survival crucial to the sustained flow of oil to the world, requiring U.S. military presence on a daily basis.

Both Kuwait and Saudi Arabia border on Iraq, where Saddam Hussein remains in power. If Saddam regains full control of Iraq in the future, he might decide to attack his southern neighbors, both to control their oil reserves and to exact revenge for the Gulf War and its resulting sanctions against Iraq.⁹⁷ Saudi Arabia has additional importance as the leader of the Arab world. Failure to protect Saudi Arabia, or to restore Saudi sovereignty after an invasion, would harm U.S. standing throughout the Arab world.⁹⁸

⁹⁷Binnendjik and Clawson, Strategic Assessment 1997, 88.

⁹⁸Rodman, America Adrift, 38.

While Iraq is viewed as an immediate threat to Kuwait and Saudi Arabia, Iran is viewed by most observers, including the full membership of the GCC, as the most significant long-term threat.⁹⁹ Continued Iranian insistence that Bahrain is the "14th Province of Iran", threats to the United Arab Emirates, including the seizure and militarization of several islands in the Strait, and a historical sentiment of Iran's place in the region make Iran a serious and lasting threat to U.S. allies in the Gulf.¹⁰⁰

Detering Regional Conflict

As shown from 1980-88, and again in 1990-91, the Gulf is a region full of potential for major conflict. The Gulf is only slightly less likely than the Korean Peninsula as a possible site of future conflict, as indicated by Vice Admiral Redd:

Even as we debate the number and size of contingencies facing our military, we know that as far as we can see into the future, the Gulf will be on our screen. Indeed, the potential for the use of

⁹⁹Smith, "GCC Regional Security," 4; Redd, "Fifth Fleet, Arriving," 50; Hoar, "Continuous Forward Presence," 45.

¹⁰⁰Philip Collins, "Iran: An Emerging Military Threat to U.S. National Interests in the Middle East," (master's thesis, Southwest Missouri State University, 1994), 134; Ahmed Hashim, The Crisis of the Iranian State (Oxford: Oxford University Press, 1995), 43; Rodman, America Adrift, 43; Binnendjik and Clawson, Strategic Assessment 1997, 91.

U.S. military power arguably is higher in the Gulf than anywhere else on earth.¹⁰¹

A future conflict could arise from any of the "persistent instabilities" in the Gulf.¹⁰² The lasting hatred between Iran and Iraq could lead to a repeat of their eight-year war. Iran's threats to various GCC members, especially the UAE, could flare into open conflict. The disputes between Saudi Arabia and Qatar, or between Qatar and Bahrain, also could lead to armed conflict.¹⁰³

The most likely and dangerous possibility would arise from Iran or a resurgent Iraq attacking one or several of the smaller GCC states. The involvement of the large Iranian or Iraqi armed forces would require the commitment of U.S. forces, whereas a conflict between the smaller GCC militaries would tend to contain itself. Both Iran and Iraq have large numbers of modern weapons, and neither nation has shown any reduction in its desire for hegemony over the Gulf.¹⁰⁴ Most significantly, both Iran and Iraq have aggressively pursued a full range of NBC capabilities, along with ballistic missile capability. Iran is believed to be

¹⁰¹Redd, "Fifth Fleet, Arriving," 49.

¹⁰²Jordan et al., America's National Security, 417.

¹⁰³Binnendjik and Clawson, Strategic Assessment 1997, 84-85.

¹⁰⁴Holmes and Moore, Restoring American Leadership, 80; Dismukes, National Security Strategy and Forward Presence, 25.

within a few years, possibly one or two years, of having nuclear weapons, while Iraq undoubtedly will resume its hidden nuclear program when UNSCOM is removed.¹⁰⁵

Preventing a regional conflict that could interfere with world oil flow is important enough to justify the continued presence of U.S. forces in the Gulf. Especially if the belligerents have NBC capability, avoiding conflict in the Gulf through conventional deterrence must remain a high priority for the United States.

Specific Interests in Northeast Asia

Northeast Asia is a region of great importance to the United States, ranking at least as high as Europe, if not higher. Two of the longest-standing U.S. defense commitments are in Korea and Japan, while the emerging economies of the "Asian Tigers"--South Korea, Hong Kong, Taiwan, and Singapore--represent a growing percentage of U.S. foreign trade.

Freedom of the Seas

In the North Pacific Ocean, the flow of economic goods is the primary basis of freedom of the seas. Asian economic might is becoming ever more important to the U.S. economy,

¹⁰⁵A CIA report cited in Smith, "GCC Regional Security," estimates that Iran could have nuclear weapons production capability, far more serious a threat than mere possession of a handful of weapons, by the year 2000. For a thorough examination of Iran and Iraq's ongoing efforts in the area of NBC/M, see The Proliferation Primer.

and is projected to grow enormously in the future. In 1995, seven of the top fifteen U.S. trade partners were located in East Asia: Japan (number two), China (number five), South Korea (number seven), Taiwan (number eight), Singapore (number nine), Malaysia (number eleven), and Hong Kong (number thirteen).¹⁰⁶ Together, these seven nations combined for an aggregate of 427 billion dollars in trade, or 33 percent of all U.S. foreign trade. Protecting the SLOCs over which this trade travels is a lasting interest of the United States.

Disputes among Asian nations over the Spratley Islands are often cited as a possible threat to the SLOCs and merchant traffic. China and the Philippines already have clashed over possession of Mischief Reef, and further struggles for possession could interrupt the flow of shipping, especially the shipment of Persian Gulf oil on its way to Japan and South Korea.¹⁰⁷

The South China Sea and the Strait of Malacca also represent an important military SLOC, as the alternate routes via the Sunda Strait, the Ombai-Wetar Straits, or the Torres Strait are all limited in maximum draft, preventing aircraft carriers and some large auxiliary ships from

¹⁰⁶Holmes and Moore, Restoring American Leadership, 114.

¹⁰⁷Rodman, America Adrift, 28.

passing through.¹⁰⁸ The Strait of Malacca itself is uncomfortably narrow in places, but has an average depth of seventy-two feet.¹⁰⁹ It also is the shortest route between East Asia and the Middle East or Europe.

Access to Resources

There are no significant amounts of raw resources transiting the East Asian SLOCs to the United States. The flow of oil to the Asian economies is vital to their continued prosperity and economic strength, but it is mostly finished consumer products that pass over the Pacific destined for the United States. Oil from the Persian Gulf, as well as from Brunei on the island of Borneo, makes the South China Sea the most important SLOC in terms of resources destined for important U.S. trading partners, but not for U.S. resource needs.

Safety of U.S. Allies

The safety of regional allies is a major consideration in East Asia, where several small nations with robust economies reside in close proximity to militarily threatening neighbors. Most also are truly democratic or

¹⁰⁸Noer, Chokepoints, 3. See Appendix A, Figure 3.

¹⁰⁹The author passed through the Strait of Malacca onboard the Abraham Lincoln (CVN-72) in 1991, and can testify to the confined nature of this waterway. Due to the heavy traffic and number of large vessels passing through Malacca, precise seamanship is required during the transit.

moving towards democracy, and are threatened by non-democratic enemies, adding to the imperative of preserving their security.

Japan is the indispensable U.S. ally in Northeast Asia, for economic as well as military reasons. In addition to being the United States' number two trading partner, Japan is the base for the U.S. military presence in East Asia, both for land and sea forces, and therefore the foundation of U.S. efforts to protect national interests in East Asia.¹¹⁰ Maintaining close ties with Japan, and assisting in Japan's security calculus, also is seen as important in order to keep Japan from expanding its armed forces, which could easily produce anxiety and an arms race among Asian states fearful of a large, well-armed Japan.¹¹¹

¹¹⁰Jason Ingebrigtsen, "The U.S.-Japan Security Alliance: Current Status, Future Prospects," (master's thesis, Southwest Missouri State University, 1996), 153; Daniel Chiu, The Politics of Overseas Bases and Access Facilities: Prospects for the Future (Alexandria, VA: Center for Naval Analyses, 1993), Appendix A, page A-4; Kahan and Sands, Alternative Naval Deployment Concepts, 3-15;

¹¹¹Josef Joffe, "Bismarck or Britain?" in Brown et al., America's Strategic Choices, 116. Ullman, In Harm's Way, 133: "Although the presence of U.S. military forces in the Pacific has provoked some controversy and criticism, this presence has unmistakably [sic] and unambiguously contributed to regional peace and stability. The U.S. assumption of the larger military burden has allowed regional states to forgo acquiring additional military capability that could have proved threatening to the region."

South Korea is, without question, the U.S. ally most at risk in East Asia, and indeed anywhere in the world. While U.S. ground forces remain present in Europe to bolster NATO against an uncertain threat, and remain in Kuwait to hedge against possible Iraqi aggression, the threat faced by South Korea is easily identified and close at hand. North Korea's large standing army, its hard-line communist regime, its unrelenting animosity towards Seoul, and its continued pursuit of nuclear weapons make the Korean Peninsula the single most likely and most dangerous location for an attack on a U.S. ally.¹¹² In addition to the constant state of tension along the de-militarized zone (DMZ), the current dire economic situation in North Korea makes the outbreak of a second Korean War possible at any time.¹¹³

Taiwan presents another difficult security consideration for the United States. Taiwan is a democratic state, is the United States' number eight trading partner worldwide, and is threatened by a non-democratic China across the Formosa Strait. Defending Taiwan thus is clearly

¹¹²Ernest Lefever, America's Imperial Burden: Is the Past Prologue? (Boulder, CO: Westview Press, 1999), 126; Holmes and Moore, Restoring American Leadership, 54; Jordan et al., American National Security, 368; Chiu, The Politics of Overseas Bases, Appendix A, page A-2

¹¹³Binnendjik and Clawson, Strategic Assessment 1997, 97.

a U.S. interest.¹¹⁴ However, Taiwan's proximity to China, and its distance from U.S. bases in Japan or the Philippines, would make Taiwan difficult to defend in the face of a determined Chinese attack.

A fourth U.S. ally in East Asia, often overshadowed by Japan, South Korea, and Taiwan, is the Republic of Singapore. Located at the southeast end of the Strait of Malacca, Singapore is the Pacific equivalent of Gibraltar. One of the "Four Dragons" of the Pacific, Singapore is a top U.S. trading partner despite a population of less than three million citizens.¹¹⁵ When the Philippines demanded the removal of U.S. forces and installations in the early 1990s, Singapore moved quickly to replace Subic Bay as a primary maintenance and refueling station for the U.S. Navy, including a pier capable of receiving aircraft carriers.¹¹⁶ Frequent joint training and good military-to-military

¹¹⁴Ted Carpenter, "Managing a Great Power Relationship: The United States, China and East Asian Security," The Journal of Strategic Studies (March 1998): 8; Jordan et al., American National Security, 373-374; Kahan and Sands, Alternative Naval Deployment Concepts, 3-15;

¹¹⁵In 1995, trade with Singapore exceeded trade with France, and equaled 60 percent of trade with the United Kingdom. Holmes and Moore, Restoring American Leadership, 114.

¹¹⁶The United States Security Strategy for East Asia, 7.

contacts have kept Singapore a solid U.S. ally in the region.

Detering Regional Conflict

The North Korea-South Korea standoff will continue to be the number one threat of regional conflict in East Asia, barring the unlikely event of a peaceful reunification.¹¹⁷ The Korean theater is especially troublesome due to the possibility of a conflict erupting with little or no notice. An event as small as an accident at the DMZ could escalate into war, due to the North's "propensity for brinkmanship", the lack of any military-to-military communications links, and the close proximity of large troop formations that are always on a war footing.¹¹⁸

A war in Korea could easily involve chemical or biological weapons use by North Korea, as well as the use of any existing nuclear weapons. Japan would be threatened by North Korean ballistic missiles, and in the not-too-distant

¹¹⁷Thomas Ricks, "Nightmare Prospect of Nuclear Rogue State Makes North Korea the Hot Spot That Worries U.S. Most," Wall Street Journal, 3 February 1999, A24.

¹¹⁸Binnendjik and Clawson, Strategic Assessment 1997, 101-102. The United States Security Strategy for East Asia, 13, provides the following commentary: "Along the DMZ, just 24 miles from Seoul, the North Korean Peoples' Army has nearly 600,000 troops, more than 2,400 tanks, and over 6,000 artillery pieces. It is an area where hostilities could erupt with little or no warning."

future so could Hawaii, Alaska, and even the West Coast of the United States.

As threatening as North Korea is to South Korean and American forces on the ground, as well as to nearby nations, most Asian countries view China as the more serious long-term threat. China's current economic and military growth, its insistence that Taiwan is a "renegade province", its aggressive claims to the Spratley Islands, its clumsy attempts to intimidate Taiwan with a military show of force in 1996--all are disquieting to the much smaller nations of East Asia that must live in the shadow of China's 1.3 billion population.¹¹⁹

All of the East Asian nations, except North Korea, see U.S. presence in the region as a stabilizing influence. Given the small size of most East Asian states, and "the major power animosities not far beneath the surface," stability likely will continue to depend on U.S. military presence in East Asia.¹²⁰

¹¹⁹Carpenter, "Managing a Great Power Relationship," 10; Lefever, America's Imperial Burden, 126; Goure and Mauldin, Naval Forward Presence: Status, Prospects, 49; Holmes and Moore, Restoring American Leadership, 64.

¹²⁰Ra'anani et al., Projection of Power, 103; Rodman, America Adrift, 26; Dismukes, "The U.S. Military Presence Abroad," 52.

Threats to U.S. Interests

Just as U.S. interests are global in nature, so are the threats to U.S. interests global. The most pressing threats to U.S. interests will come from peer or near-peer major power competitors, such as the former Soviet Union, and from regional states that can challenge the United States within their respective regions.

Peer or Near-Peer Competitors

Only two nations can realistically be considered as potential peer competitors to the United States: China and Russia. Arguments are sometimes made that India may become a major power, or that the European Union could transform itself into a political and military power, instead of just an economic power. However, only China and Russia have the combination of population size, resources, technology, military forces, and motivation to challenge the United States. Not surprisingly, both China and Russia are mentioned in the first pages of the National Security Strategy, as well as being mentioned in other defense documents such as the Quadrennial Defense Review and Secretary of Defense Report to Congress.¹²¹

¹²¹In fact, China and Russia are the only "great powers" mentioned by name in the NSS.

Neither China nor Russia can be described as a peer competitor today, and it is by no means clear that they will be in the future, but only China and Russia are credible threats to become peer competitors. Even so, it is unlikely that either nation could build itself into a true peer competitor, able to compete globally with the United States, in less than twenty-five years, if not longer.

China is often pointed to for its rapidly-growing economy and third-largest GDP in the world. However, China's growth must be measured from its low starting base, which can distort the significance of economic figures. For example, even with the number three GDP worldwide and growth rates approaching 10 percent annually, China's per capita GDP is a meager four hundred dollars. Given China's population size, it is estimated that China could require as long as 150 years to match the United States in economic might.¹²² Russia remains in the throes of severe economic problems, with no relief in sight, and so is even less likely than China to match the United States in world standing any time soon. These problems notwithstanding, both China and Russia are advanced as twenty-first century major power threats by many sources.¹²³

¹²²Hon Lee, "China in the 21st Century: America's Greatest Strategic Challenge," in Mary Sommerville, ed., Essays on Strategy XIII (Washington, D.C.: NDU Press, 1996), 83.

¹²³Chinese and Russian nuclear weapons clearly make

A more likely possibility for China and Russia would be their development into near-peer threats in a regional context, able to employ defensive "keep-out" strategies against the United States near their own territory, but unable to project power far from home. Russian exertions in the Caspian Sea region, or Chinese efforts to dominate the East and South China Seas, are examples of possible regional peer strategies for China and Russia.¹²⁴

China is viewed as the more serious threat to American interests in the foreseeable future. In as little as ten years, given its current military expenditures, China could take up the role of a regional peer.¹²⁵ China continues to purchase advanced jet aircraft, nuclear powered and conventional submarines, air-to-air refueling planes, SAMs,

these nations threats to the United States, but not in the context of a global competitor able to exert influence in opposition to U.S. interests through power projection. It may be that China and Russia are identified as potential peer threats simply because no other nation can credibly be substituted for them. However, describing China as an impending "juggernaut" in world affairs, or as "an emerging great power" seems to be exaggerating the strength of available evidence. See America's National Interests, 29, and Restoring American Leadership, 55.

¹²⁴A recent U.S. Navy war game, "U.S. Navy RMA Revolution in Military Affairs Wargame," 21-23 April 1998, postulated a 'Red' (Chinese) strategy built around sea denial capability in the China Sea, allowing China to invade a unified Korea and consolidate its gains before sufficient U.S. power could be brought to bear to stop the invasion.

¹²⁵Binnendjik and Clawson, Strategic Assessment 1997, 55.

and other high-tech hardware from Russia.¹²⁶ Although today China is incapable even of projecting military power across the Formosa Strait, a mere one hundred miles wide, in sufficient strength to contemplate invading Taiwan, in twenty-five years' time China could conceivably replace Japan as the dominant regional military power.¹²⁷

Russia's future is unclear, and could as easily lead to fragmentation and civil war as to reemergence as a great power. What is clear, however, is that Russia would be challenged even to pose a regional threat to the United States today, and for at least a decade to come. Russia's ground forces are in a pitiable state, its air forces are no better despite their first-rate aircraft, and its naval forces face "irreversible" reductions in shipbuilding capacity combined with the loss of thirteen to fifteen ships monthly for lack of funds.¹²⁸

Russia's possible reemergence as a peer or near-peer competitor centers on its political situation. The current conditions in Russia have been likened to those in Weimar

¹²⁶Lee, "China in the 21st Century," 86.

¹²⁷China's inability to cross the Formosa Strait results from lack of amphibious lift capability and Taiwan's highly capable air defenses. See Binnendjik and Clawson, Strategic Assessment 1997, 52; Lee, "China in the 21st Century," 91.

¹²⁸Binnendjik and Clawson, Strategic Assessment 1997, 19.

Germany in the 1920s, with a corresponding possibility of an ultra-nationalist leader gaining power and rebuilding the former Soviet empire.¹²⁹ Another possibility would be the re-establishment of the Soviet Union or a facsimile. The fact that Russia continues to pump money into its submarine programs, giving it some capacity to deploy military power beyond its borders, and has continued to pursue an assertive foreign policy, suggest that Russian leaders still envision a great power Russia.¹³⁰

Regional "Bad Actors"

Less-than-great powers with hostile intent can also pose serious threats to U.S. interests. When these "bad actors" reside in areas close to U.S. interests, they are inherently capable of influencing and affecting those interests, even without large or modern military forces. The Gulf War provided the clearest possible example of how a small, hostile state (admittedly, in Iraq's case, one with large military forces) can imperil U.S. interests.

Commonly cited bad actors include Iran, Syria, North Korea, Iraq, and occasionally India.¹³¹ These nations

¹²⁹Lefever, America's Imperial Burden, 129.

¹³⁰Captain John Morgan, "Preparing for Tomorrow's Troubles," Proceedings (December 1996): 49; Michael Mastanduno, "Preserving the Unipolar Moment," in Brown et al., America's Strategic Choices, 139.

¹³¹Morgan, "Preparing for Tomorrow's Troubles," 49.

possess credible military forces and hostile, or at least uncertain, intentions. Smaller irritants, such as Haiti or Somalia, lack the military means to affect important U.S. interests, and so cannot be considered in the same context.

An important factor in the assessment of threats from regional bad actors is their need only to conduct operations in, or close to, their own territory. These smaller nations do not need the kinds of global power projection capabilities possessed by the United States, as their forces likely will not be operating far from home. Especially if able to take advantage of geographical "high ground", such as a maritime chokepoint, the smaller and less capable forces of regional bad actors could enjoy significant advantages over larger and more capable U.S. forces. Iran's position astride the Strait of Hormuz, and India's proximity to the Strait of Malacca, are examples of geographic equalizers that smaller states could use to their advantage.¹³²

Libya once might have been included in the list of bad actors, but has largely given up the kinds of flagrant bad behavior that resulted in the 1986 naval and air attacks by U.S. forces.

¹³²India's insistence on pursuing a nuclear-powered submarine force, at great financial cost and despite repeated setbacks, can be explained through the benefit such submarines would provide in a conflict. SSNs have the endurance and magazine capacity to interdict the Strait of Malacca, allowing India to prevent the approach of naval forces from the east. SSNs also could be employed in the Bay of Bengal to keep opposing naval forces at a distance from

Rather than engaging the United States in conventional fighting, the most logical and economical option for a smaller state to employ would be the use of a geographic chokepoint and a defensive keep-out strategy.¹³³ By attempting to restrict the ability of U.S. forces to approach a crisis area by sea, the smaller state could establish a difficult cost-vs.-interest question for U.S. planners. If the chokepoint provided sufficient leverage, such a keep-out strategy could prevent the necessary U.S. build-up of forces and materials for prosecuting a regional war.

An emerging component of such a keep-out strategy is the use of ballistic missiles, both for deterrence and long-range attacks. Chapter Six of the Secretary of Defense Annual Report to Congress, "Missile Defenses," acknowledges the impact of ballistic missiles in a regional conflict, stating that:

India's coast. The impact of a handful of Argentine diesel submarines on British operations in the Falklands War indicates the value of submarines in a defensive posture. See Andrew Koch, "Nuclear-powered submarines: India's strategic trump card," Jane's Intelligence Review (June 1998): 29; Jacquelyn Davis et al., The Submarine and U.S. National Security Strategy Into the 21st Century (Cambridge, Mass: Institute for Foreign Policy Analysis, 1997), 58; Captain Charles Wilbur, "Remember the *San Luis*!" Proceedings (March 1996): 86.

¹³³Goure and Mauldin, Naval Forward Presence: Status, Prospects, 34.

The threat of missile use in regional conflicts has grown substantially, and the potential combination of NBC weapons with theater missiles poses serious complications to the management of regional crises and the successful prosecution of U.S. strategy for major theater wars.¹³⁴

Given the current very low level of ballistic missile defenses available to U.S. forces and U.S. allies, the even lower level of defenses against chemical and biological agents among civilian populations worldwide, and the widespread possession of ballistic missiles in the inventories of various bad actors, it should be expected that future regional conflicts will involve the use, or threatened use, of ballistic missiles.

Any regional bad actor able to combine a geographical advantage with ballistic missiles (and NBC weapons, if available) into a viable keep-out strategy clearly has the potential to impinge on U.S. interests. The regional state most capable of employing this strategy today is Iran, where a vital U.S. interest--oil--coincides with a severe maritime chokepoint. Appendix B provides a case study of Iran's capabilities, and how Iran might employ a keep-out strategy in the Persian Gulf.

Summary

The United States is a maritime state, dependent on the seas for the life blood of the nation. Connected to the markets of Europe and Asia by the sea lanes crossing the

¹³⁴Cohen, Secretary of Defense Annual Report 1998, 64.

world's oceans, seaborne trade forms the backbone of the largest and strongest economy in the world.

If trade is to flow to and from the United States on the seas, protection for U.S. trade must likewise be capable of going to sea, and of offering protection without dependence on the facilities or good will of others. This has long been recognized as the primary function of the navies of maritime states. Although not the first to make the observation, Alfred Thayer Mahan's words, "The necessity of a navy springs from the existence of peaceful shipping," are as true today as when spoken by Mahan a century ago, and when spoken by others a century before him. As long as U.S. trade moves over the sea in merchant ships, warships must watch over them. The tools of naval power may change, from sail power to nuclear power, from vessels traveling on the sea to vessels traveling under or above the sea, but the need for naval power remains constant for the United States.

The sea has always been the most economical means of transporting people and goods, allowing a large volume to be conveyed over long distances at the lowest cost. Even with the emergence of large jet aircraft, capable of crossing the Atlantic or Pacific in a matter of hours, ships remain the most cost-effective method for the transport of resources, and the only viable method of transporting bulk resources. This economy of effort is extremely important in regard to raw resources, and especially the preeminent resource of the

twentieth century: oil. Without the ability to deliver oil safely to users around the world, the economies of most U.S. trading partners would collapse, probably dragging the U.S. economy down with them. More than perhaps any other commodity, oil must be transported in large quantities, and only ships can carry the millions of tons of oil used every year around the world.

The end of the Cold War was heralded as the beginning of a "New World Order." Without the threat of the Soviet Union, the world was expected to be a safer place for all concerned, and especially for the United States. To some extent this vision has come true. The prospect of global thermonuclear war has receded, as has the threat of a major invasion of Western Europe by Soviet armies. On the other hand, new threats have sprung up to take the place of the Soviet Union.

While the United States homeland may be safer than at any time since 1945, U.S. allies around the world live in an increasingly dangerous environment. Nations led by brutal dictatorships, in possession of the most modern arms and the products of malicious science--NBC weapons--can be found in many regions of the world. Old great powers, recently fallen on hard times, may resurrect themselves in the future. Often too small to field more than token armies, and often residing near unfriendly neighbors with the intent

to do them harm, allies look to the United States for protection.

One constant has remained after the demise of the Soviet Union. The United States is still a global nation, linked by trade and treaty to other nations in every area of the planet. Just as U.S. interests are found in widely-scattered locations around the world, so are threats to U.S. interests found abroad. As long as U.S. interests reside in places far from U.S. shores, protection must be provided for those interests. The next chapter will examine how naval forward presence, consisting of Navy and Marine Corps assets deployed around the world, acts to safeguard American interests.

CHAPTER III

THE NAVAL FORWARD PRESENCE MISSION

In assessing the importance of naval forward presence, it is helpful to step back and ask the question: Why does the United States need to employ a military strategy of forward presence? Not just U.S. naval forces, but U.S. land and air forces as well are in position all over the world, carrying out a multitude of diverse military tasks. Why cannot these forces meet their security obligations from CONUS? Why are U.S. servicemen required to go into harm's way around the world? Most importantly, why is naval forward presence so important in U.S. national security?

This chapter will examine the need for the forward presence of U.S. military forces. After defining the need for forward presence, the unique capabilities of naval forward presence will be advanced. Naval forces have significant advantages over land-based forces in maintaining U.S. presence abroad, advantages that derive from the characteristics of naval forces. The characteristics and capabilities of naval forward presence will comprise the bulk of this chapter.

Why Forward Presence?

First and foremost, the presence of U.S. military power is required around the world to protect U.S. interests. U.S. interests are global in scope, and U.S. military power must be prepared and positioned to defend those interests.¹³⁵ U.S. forces stationed in CONUS are limited to deterrence for the protection of interests, making them strictly reactive. If deterrence fails, CONUS-based forces can only react to an adversary's actions, and could be too late in arriving to prevent the adversary from reaching his objectives. By remaining in CONUS, instead of being on the scene in proximity to U.S. interests, U.S. forces thus would cede the initiative to adversaries.

U.S. forces present in a region send a strong message to all other states in the area. Whether land-based or sea-based, U.S. forces provide a signal of U.S. interest in the region, and in maintaining peaceful, stable conditions. Land-based forces, particularly ground combat forces, send the most specific message of where U.S. interest lies. U.S. forces in the Gulf signal our interest in the region; U.S. Army forces in Kuwait signal our very specific interest in the safety and security of Kuwait.

¹³⁵James Hessman, "Forward-Thinking and Forward-Deployed," Sea Power (November 1997): 20.

The example of U.S. Army forces in Kuwait demonstrates another important reason for forward presence. Regional allies need to have confidence that the United States is interested in their safety, and is capable of protecting them. Without this reassurance, smaller states may not be willing to take actions for their own safety, or allow U.S. actions for the common safety of both, that entail risk of reprisal. For example, Saudi Arabia might not allow U.S. forces to operate from Saudi bases against Iraq if the Saudi leadership doubted the willingness or ability of U.S. forces to defend Saudi Arabia. This apprehension is lessened by the proximity of U.S. forces. If the nearest U.S. forces are located in CONUS, and the only assurance the United States can give is to restore an ally's sovereignty after they have been attacked, allies understandably may feel nervous about any actions that provoke larger neighbors, even if the provocation occurs through actions intended for self-defense.

Through presence in a region, U.S. forces also hope to deter aggression and prevent regional conflicts. The presence of U.S. forces applies U.S. deterrence to all states in the region, and encourages observance of law and order. U.S. forces may undertake specific missions or postures intended to deter individual nations as well, as when U.S. aircraft enforce the no-fly zones in northern and southern Iraq, but the presence of U.S. forces acts to

promote lawful behavior from all the states in a region. In order to influence events and to deter credibly, U.S. forces must be visible to other states. This deterrent effect cannot be replicated from CONUS, as articulated by Colin Gray:

For a great power, let alone a would-be coalition leader, to function as a player rather than as an observer of regional security politics, it has to maintain a local military presence that is more than lightly symbolic in scale. . . . Great power must be seen to be believed.¹³⁶

In order to be convincing in the deterrent role, U.S. forces must have combat capability.¹³⁷ It is the primary task of U.S. forces to deter conflict, but the often-necessary fallback is the ability to fight.¹³⁸ Without visible combat power, U.S. forces will only fit Gray's "lightly symbolic" description. Lightly symbolic forces may serve to deter, but if deterrence fails they will be unable to defend.¹³⁹ The British experience in the Falklands, in

¹³⁶Colin Gray, "Tomorrow's Forecast: Warmer/Still Cloudy," Proceedings Naval Review (May 1990): 42.

¹³⁷Admiral William Owens, "Naval Voyage to an Uncharted World," Proceedings (December 1994): 31.

¹³⁸Rear Admiral Philip Dur, "Presence: Forward, Ready, Engaged," Proceedings (June 1994): 42.

¹³⁹Colin Gray points out that, "deterrence is useful and should be attempted," but also that, "As a general rule, conventional deterrence is destined to fail because hopes of swift victory at bearable cost spring eternal in the breasts of adventurous policy makers and bold strategists." Accepting Gray's position as true, symbolic deterrent forces should be seen as having very limited utility in most

which the on-scene garrison was symbolic rather than functional, indicates the all-or-nothing nature of attempting to deter with symbolic presence, and the much higher cost of having to fight a regional conflict that might have been deterred.¹⁴⁰

If deterrence does fail, the presence of U.S. forces often will allow a crisis to be headed off and dealt with before it blooms into a full-blown conflict. U.S. forces help to shape events before crises erupt, but they can also shape the way the crisis unfolds. By virtue of their proximity, U.S. forces are likely to be more informed about the actions taken by other players in a crisis, and should be able to take preemptive action in a much more timely fashion than CONUS-based forces.¹⁴¹

Finally, if deterrence fails and U.S. forces must fight, U.S. strategy calls for allies to fight alongside U.S. forces. Maintaining interoperability between U.S. and allied forces will be a necessity if they are to fight

situations. See "Deterrence and Regional Conflict: Hopes, Fallacies, and Fixes," Comparative Strategy (January-March 1998): 53, 56.

¹⁴⁰Commander Alan Zimm, "Deterrence: Then & Now," Proceedings (August 1996): 52.

¹⁴¹Admiral Jay Johnson and General Charles Krulak, "Forward Presence in a Violent World," Surface Warfare (July/August 1997): 4; Dismukes, National Security Strategy and Forward Presence, 49.

together, and interoperability requires constant training and exercises between U.S. and allied forces.¹⁴² Without the presence of U.S. forces around the world, training exercises likely would be limited in scope and frequency.

The requirements spelled out in the preceding paragraphs form the basis of U.S. military strategy for the twenty-first century. The guiding document for U.S. military planning, Joint Vision 2010, states the importance of forward presence clearly:

The primary task of the Armed Forces will remain to deter conflict--but, should deterrence fail, to fight and win our nation's wars. . . . To ensure we can accomplish these tasks, power projection, enabled by overseas presence, will likely remain the fundamental strategic concept of our future force.¹⁴³

Why Naval Forward Presence?

If forward presence is the enabler of power projection, what attributes make naval forward presence superior to presence via land-based forces, whether ground units or air units? Both the Army and Air Force have their own unique combat capabilities, and each will be vital in a regional war. Forward-based Army units possess the heavy forces needed for sustained ground combat, while the Air Force has the ability to conduct air superiority and strike missions

¹⁴²Owens, "Naval Voyage to an Uncharted World," 32.

¹⁴³Joint Vision 2010 (Washington, D.C.: Department of Defense, 1994), 4.

time to crises, and organic logistics. In addition, naval forces are a primary requirement for introducing Army or Air Force units into a theater.

Only naval forces combine reliable access to most regions of the world, forcible entry capability, mine-countermeasures (MCM) capability, organic logistics for combat operations, organic command and control facilities, and (in the near future) organic TMD capabilities.¹⁴⁵ More importantly, naval forces can bring their capabilities to a region without the need for host nation permission, since they operate in international waters.¹⁴⁶ With a declining availability of facilities to which the United States has reliable access, the ability to operate independent of host permission is invaluable, and allows naval forces to bring U.S. tactical air power, U.S. land power, U.S. strike power, and U.S. command, control, communications, computers, intelligence, sensors, and reconnaissance (C⁴ISR) to any area on earth that is accessible by sea.¹⁴⁷

¹⁴⁵Roger Barnett, "Regional Conflict Requires Naval Forces," Proceedings (June 1992): 31-32.

¹⁴⁶Morgan, "Preparing for Tomorrow's Troubles," 51.

¹⁴⁷Edward Luttwak, The Political Uses of Sea Power (Baltimore: The Johns Hopkins University Press, 1974), 1. Also, it is significant that 70 percent of the world's population reside within one hundred miles of the sea, allowing U.S. naval forces access to the majority of earth's strategically important locations. See Scott Gourley, "Expanding the Littoral Battlespace," Sea Power (June 1998): 45.

After naval forces enter a region, their high level of sustainability allows them to keep station for weeks or even months at a time. With the ability to take on fuel, food, ammunition, spare parts, personnel, and electronic data at sea, naval forces comprise a "sea base" for the projection of power, and can monitor events in a region without the entanglements of being stationed in a host nation. As an extreme example of sustainability, USS Eisenhower (CVN-69) and her battle group spent 247 days out of a 252-day period at sea during the 1979-1980 Iran hostage crisis.¹⁴⁸ Even on ordinary deployments in the absence of a crisis, at-sea periods of five or six weeks are common, and may involve several underway replenishment operations.

Flexibility is one of the most important characteristics of naval forces. Because U.S. naval forces are the only forces that operate across all three mediums--on land, on and under the sea, and in the air--they are uniquely flexible in responding to crises.¹⁴⁹ In addition, naval forces can respond to events at any level of the spectrum of conflict, from humanitarian operations to major

¹⁴⁸Admiral (retired) Carlisle A. H. Trost, "Maritime Strategy for the 1990s," Proceedings Naval Review (May 1990): 97.

¹⁴⁹Owens, "Naval Voyage to an Uncharted World," 33.

theater war.¹⁵⁰ The ability of naval forces to take station, monitor events, gather information, and respond when directed at an appropriate level of violence (or non-violence) to a crisis are the quintessential attributes of forward presence forces.¹⁵¹

When naval forces take station in a region, their level of visibility can be increased or decreased as the situation warrants. This scalability allows naval forces to announce their presence very plainly, for instance when USS New Jersey (BB-62) sailed within sight of the coast of Lebanon, or to remain over the horizon, out of sight but not out of mind.¹⁵² Thus naval forces can be present in crisis areas, able to monitor events and intercede if necessary, without being as provocative as land-based U.S. forces. With the emerging ability to put the Marines ashore from over the horizon, maintaining ambiguity about the location of U.S. naval forces will be a significant advantage.¹⁵³

¹⁵⁰ ...From the Sea (Washington, D.C.: Department of the Navy, 1992, 6-7.

¹⁵¹ Trost, "Maritime Strategy for the 1990s," 97.

¹⁵² Barnett, "Regional Conflict Requires Naval Forces," 33; Captain Robert Johnson, "Carriers Are Forward Presence," Proceedings (August 1996): 38.

¹⁵³ General Charles Krulak, "Projecting Combat Power Ashore: The Marine Corps in Transition," Armed Forces Journal International (March 1994): 27.

When naval forces deploy to a region, their position in international waters avoids the political issues involved in having U.S. troops on foreign soil. This is an important requirement in many Islamic countries, notably Saudi Arabia and Kuwait, as well as in smaller countries that may desire military-to-military relations and joint training with U.S. forces, but do not want to be smothered by a large U.S. presence.¹⁵⁴ Singapore, for example, is eager to train with U.S. forces and to host U.S. port calls, but wishes to avoid a large, permanent presence on its territory.¹⁵⁵ While on station, naval forces' separation from land protects them from the kinds of religious or political animosity that led to the bombing of the Khobar Towers and Beirut Marine barracks. Also, their position allows naval forces to withdraw from a crisis with far less publicity than land-based forces, and without signaling a U.S. retreat in the eyes of regional friends and adversaries.¹⁵⁶

¹⁵⁴James Lasswell, "Presence--Do We Stay or Do We Go?" Joint Force Quarterly (Summer 1995): 85.

¹⁵⁵Chiu, The Politics of Overseas Bases, Appendix B, B-26-27; Barbara Opall-Rome, "U.S., Singapore Reach Agreement Expanding Defense Ties," Defense News, 16-22 November 1998, 30.

¹⁵⁶Charles Allen, The Uses of Navies in Peacetime (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1980), 15; Kahan and Sands, Alternative Naval Deployment Concepts, 2-4.

Naval forces are quick to respond to crises due to their regular positioning in likely trouble areas, and their ability to shift locations as soon as they receive orders to do so. When Iraq invaded Kuwait, USS Independence (CV-62) and USS Eisenhower (CVN-69) were positioned in the Indian Ocean and the Mediterranean, respectively. Both carriers' battle groups immediately set course for the Gulf, while nearly a week passed before the first land-based forces began deploying to Saudi Arabia. The reason: the ground-based forces had to wait until U.S.-Saudi agreements on the size and composition of forces were completed.¹⁵⁷ In addition to their ability to re-deploy at a moment's notice, naval forces on routine deployment are essentially at full combat readiness all the time. In the words of one author, "The Navy is always mobilized, and preparedness is a service principle. M-Day is every day for ships at sea."¹⁵⁸ This high level of readiness, which allows peacetime operations to shift to combat operations in a matter of hours, adds to the quick response time of naval forces.

When a crisis does escalate into a regional war, naval forces will be the key enabler for deploying Army and Air

¹⁵⁷David Perin, Aircraft Carriers: Why Do We Have Them? How Many Do We Need? (Alexandria, VA: Center for Naval Analyses, 1993), 19.

¹⁵⁸George Baer, One Hundred Years of Sea Power (Stanford, CA: Stanford University Press, 1994), 278; Johnson, "Carriers Are Forward Presence," 39.

Force units to the theater. The Army's heavy equipment will have to come by sea, requiring that the relevant SLOCs are maintained open. Mine countermeasures (MCM), long neglected during the Cold War due to emphasis on open-ocean warfare against the Soviet Navy, have received renewed focus in recent years.¹⁵⁹ Diesel submarines, once a small threat to deep-water nuclear powered submarines and carrier battle groups, are a significant menace in shallow-water littoral environments, and must be kept away from arriving cargo ships.¹⁶⁰ Air-launched anti-ship missiles have shown their lethality to merchant ships and warships alike in the past, and must also be defended against during a build-up for regional war.¹⁶¹ Finally, the need for TMD capability from the outset of a crisis is one of the most important requirements of a future overseas deployment of U.S. forces, and will be met in the near future by the Navy's Aegis-class destroyers and cruisers.¹⁶²

¹⁵⁹Robert Holzer, "Study: Mines, Quieter Subs Pose Looming Naval Threats," Defense News, 8-14 September 1997, 38.

¹⁶⁰Commander Joseph Lodmell, "It Only Takes One," Proceedings (December 1996): 30.

¹⁶¹Mark Hewish, "The Menace Reawakens: Defense Against Cruise," Jane's International Defense Review (December 1996): 28.

¹⁶²Lt. Commander Charles Swicker, "Ballistic Missile Defense from the Sea: The Commander's Perspective," Naval War College Review (Spring 1997): 7; Weaver and Glaes, Inviting Disaster.

Naval forces possess the combat capabilities, freedom of movement, sustainability, flexibility, and quick responsiveness needed to defend against uncertain and unforeseen threats to U.S. interests. The level of U.S. dependence on the seas for safety and prosperity is unlikely to diminish in the near future, or even the distant future.¹⁶³ Thus the need for maritime forces, both Navy and Marine Corps, to be deployed around the world in the protection of U.S. interests will be an enduring requirement:

Political emphases at home and abroad may wax and wane, but it is difficult to imagine any lessening of the nation's fundamental requirement for maritime security to protect its most basic interests in the future.¹⁶⁴

Naval Diplomacy

Edward Luttwak, in his 1974 work The Political Uses of Sea Power, opens with the observation that:

The familiar attributes of an oceanic navy--inherent mobility, tactical flexibility, and a wide geographic reach--render it peculiarly useful as an instrument of policy even in the absence of hostilities.¹⁶⁵

¹⁶³Until and unless scientific advances overcome the laws of gravity and allow cheap transportation of goods by air or space, the oceans will remain the principal highways for U.S. commerce.

¹⁶⁴Joseph Alexander and Merrill Bartlett, Sea Soldiers in the Cold War: Amphibious Warfare, 1945-1991 (Annapolis: Naval Institute Press, 1995), 172.

¹⁶⁵Luttwak, The Political Uses of Sea Power, 1.

Luttwak's point is a good one, and underscores the fact that, for the majority of their existence, armed forces will not be engaged in war, but in peacetime activities. The capability to fight wars, and the pursuit in peacetime of better warfighting skills, has definite utility in U.S. diplomatic relations with others. However, the wide range of peacetime activities that naval forces are able to undertake, by virtue of their mobility, flexibility, and reach, give them preeminent status as a peacetime tool of U.S. diplomacy.

Naval diplomacy may be defined as actions short of war, possibly involving the use of limited force, intended to influence the thoughts and actions of other states or individuals. The older term "gunboat diplomacy" was well known in previous eras, especially to such famous mariners and sea-minded leaders as Admiral Horatio Nelson and President Theodore Roosevelt.¹⁶⁶ While the instruments of naval diplomacy have changed from Nelson's and Roosevelt's day, the principle of employing military force in actions

¹⁶⁶Nelson is well known for the assertion that, "The best diplomats are a fleet of English ships of war," while Roosevelt's famous "big stick" was the U.S. Navy's Great White Fleet: "If the American nation will speak softly and yet build and keep at a pitch of the highest training a thoroughly efficient Navy, the Monroe Doctrine will go far." See Robert Heintz, Dictionary of Military and Naval Quotations (Annapolis: Naval Institute Press, 1966), 88, 209.

short of war is an age-old aspect of diplomacy. Since most if not all such actions must take place far from U.S. territory, the sea services' mobility and freedom of movement is their principal advantage in supporting American diplomacy.

Naval diplomacy can include such activities and uses as deterrence, signaling of U.S. interest, providing assurance to allies, intimidation or suasion of adversaries, limited combat operations, the enforcement of international sanctions, the enforcement and protection of freedom of the seas, and humanitarian and non-combatant evacuation operations.¹⁶⁷ At times naval diplomacy takes on the appearance of "business as usual", as when Sixth Fleet ships and aircraft sail the Mediterranean on routine deployment. At other times, the latent power of U.S. naval forces is plainly visible for all to see, as when those same ships conduct strikes against Libyan facilities. In both instances, however, the intent is the same: to influence the thoughts and actions of others, and to do so in a way that safeguards U.S. interests.

An obvious but important point is that military forces cannot be employed for diplomatic purposes without risk.

¹⁶⁷An important difference between naval diplomacy and gunboat diplomacy is the implicit threat of force in the latter, whereas naval diplomacy includes non-combat aspects such as evacuations and humanitarian operations. See Sir James Cable, "Gunboat Diplomacy's Future," Proceedings (August 1986): 38.

Even in peacetime, when Sixth Fleet ships sail the Mediterranean there is the not inconsiderable risk attendant to ships at sea, and to the sailors and marines aboard those ships. Accidents during training, the dangerous environment of the flight deck, the inherent danger of handling explosive ordnance, the possibility of being mistaken as a target during a war involving other states--all combine to make daily life a dangerous affair for the Navy and Marine Corps.¹⁶⁸

When naval forces are used for naval diplomacy in areas of tension or crisis, the risk to those forces increases substantially. Naval forces are not exempt from danger when used for naval diplomacy, their other advantages notwithstanding. Particularly in light of the proliferation of modern weapons among even third-rate powers, naval forces employed in naval diplomacy may be at serious risk, as the Stark incident demonstrated.¹⁶⁹ However, the value provided by having military force on the scene in potential trouble spots warrants the continued presence of naval forces.

¹⁶⁸During the author's brief service in the U.S. Navy, each of the examples listed resulted in the loss of life of sailors and marines: mid-air collisions between jet aircraft; aviation boatswain's mates blown off the flight deck; the USS Iowa turret explosion; and the USS Stark attack.

¹⁶⁹William Smith, "As Sophisticated Weapons Proliferate, More Than Ever the Navy Needs to Be Ready," Sea Power (January 1995): 59-60.

Provided that rules of engagement are biased towards protecting American naval forces, the risks of naval diplomacy are well worth taking.¹⁷⁰

When using naval diplomacy, two forms of naval power have shown themselves to be very well-suited to a wide variety of situations. The aircraft carrier has attained premier status as the "big stick" of U.S. naval diplomacy, carrying nearly as much diplomatic impact as it does military capability. Able to conduct a wide range of military missions, and with logistical and medical facilities for the largest of humanitarian operations, the aircraft carrier is the embodiment of naval diplomacy.¹⁷¹

The second highly-suited form of naval diplomacy is the Navy-Marine Corps amphibious ready group (ARG). In fact, for operations conducted during periods when the armed forces as a whole are structured and postured for peace, the

¹⁷⁰One of the most telling facts to come out of the investigation of the Stark incident was the hazy ROE under which U.S. ships in the Persian Gulf were required to operate. While U.S. captains were authorized to warn and, if necessary, to fire on approaching aircraft, one of the two "overriding concerns" of U.S. leaders was to avoid "political incidents," such as shooting down a "friendly" Iraqi aircraft. See Michael Vlahos, "The Stark report," Proceedings Naval Review (May 1988): 65.

¹⁷¹Johnson, "Carriers Are Forward Presence," 38; Sir James Cable, "Showing the Flag," Proceedings (April 1984): 60.

Marines' constant readiness for war makes them indispensable:

The need for Marines as a ready force is paramount when the Nation is largely demobilized; it may actually recede after full mobilization. The Nations's ground shock troops must be most ready when the Nation is least ready.¹⁷²

In a study of 215 incidents from 1946 to 1975 in which U.S. forces responded, short of war, to crises around the world, the Marine Corps was found to be a principal participant in the majority of cases. The reasons for the frequent use of the Marines in crises are not hard to understand:

The sort of limited politically oriented operation which makes up most of the incidents may well constitute the essence--that is, the central self-perception or purpose--of the corps. . . . Moreover, the Marines are equipped, trained, and organized for quick reaction, limited operations, and flexible utilization. Most important, Marine Corps units have been maintained afloat in the Mediterranean, the Western Pacific, and often in the Caribbean, throughout the postwar period.¹⁷³

Events since 1975, including operations in Grenada, Somalia, Liberia, Bosnia, and Haiti, have demonstrated the lasting importance of having Navy-Marine ARGs at sea in potential trouble spots. The ability to deliver ground combat forces from the sea, with supporting air power and

¹⁷²From the report of the 82nd Congress, cited in General Charles Krulak, "An Enduring Instrument: The Force in Readiness in National Defense," Strategic Review (Spring 1997): 10.

¹⁷³Blechman and Kaplan, Force Without War, 45.

naval fire support, is a threat no adversary can ignore when U.S. naval forces are present.

Deterrence

Perhaps the most important function of naval diplomacy is conventional deterrence. Deterrence can be applied to specific target states, or to uncertain entities that might wish to do harm to U.S. forces or interests. Naval forces, due to their global mobility, combat power, and long inland reach, are powerful agents of deterrence. The Department of Defense defines deterrence as:

the prevention from action by the fear of the consequences. Deterrence is a state of mind brought about by the existence of a creditable threat of unacceptable counteraction.¹⁷⁴

In order for deterrence to work, the deterring state must present both the capability and credibility to produce "unacceptable counteraction" for the state to be deterred.¹⁷⁵ Although both are required, capability is the

¹⁷⁴From Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms, cited in Zimm, "Deterrence: Then & Now," 50.

¹⁷⁵While the model of deterrence is well established, it is very difficult to know when deterrence has worked. Usually all that can be known with certainty about deterrence is when it has failed; the absence of deterrence failure, however, does not necessarily mean that deterrence has been successful. This caveat aside, the components of deterrence are capability and credibility. See Blechman and Kaplan, Force Without War, 518; Jordan et al., American National Security, 36.

prime requirement. If the deterring state does not have (or appear to have) the capability to carry out its threatened action, it will have little if any credibility. Only after capability is present can credibility exist. In the words of Colin Gray, "Defense deters, if anything can."¹⁷⁶

Recent events surrounding the appropriately-named Mischief Reef have underscored the need for capability first and foremost. Chinese military construction on Mischief Reef, in flagrant violation of an agreement reached with the Philippines and the Association of Southeast Asian Nations (ASEAN), has found Manila without the military means to deter China, even though the reef is over one thousand miles from China and a mere two hundred miles from the Philippines. As stated by the Philippines' Defense Secretary, Orlando Mercado:

Many people now have begun to realize that we have allowed ourselves to become so weak militarily that we cannot back up our diplomatic moves with a credible force.¹⁷⁷

Credibility in turn arises from the will to act, and the belief in the minds of others that the threatened action might actually be carried out. In this regard, the level of interest involved for the deterring state is of great

¹⁷⁶Gray, "Deterrence and Regional Conflict," 58.

¹⁷⁷Steve Watkins, "Military Weakness Hampers Philippines in China Dispute," Defense News, 16-22 November 1998, 3; See also Ralph Cossa, "Mischief Reef Flashpoint," Defense News, 11 January 1999, 13.

importance. A state with a vital interest at stake should be judged more likely to carry out its deterrent threat than a state with a marginal interest. It is as much for this reason as for defensive capability that U.S. ground troops are forward-based in Kuwait and South Korea. Any attack on these countries almost certainly will cause U.S. casualties, thereby threatening the vital U.S. interest of safety and security of American citizens, and de facto involving the United States in the conflict. The placement of U.S. servicemen in harm's way signals the level of U.S. interest in the defense of these allies. The knowledge of U.S. involvement, with the full range of U.S. capabilities that involvement would entail, strengthens the credibility of deterrence in Kuwait and South Korea.¹⁷⁸

Also important for deterrence is the perception of the deterring state's willingness to resort to military force. If the state has often taken action in the past, it will be seen as more credible than a state that has only rarely taken action. Operations such as the Mayaguez rescue, the Iran rescue attempt, and the Operations in the Vicinity of Libya (OVL-I, -II, and -III) serve to create a reputation for action, even if sometimes unsuccessful.¹⁷⁹ Conversely,

¹⁷⁸Michael O'Hanlon, "Can High Technology Bring U.S. Troops Home?" Foreign Policy (Winter 1998-99): 83.

¹⁷⁹Allen, The Uses of Navies in Peacetime, 11; Parks, "Crossing the Line," 40-42.

the abrupt departure from Somalia, and repeated toleration of Saddam Hussein's violations of U.N. resolutions, serve to create a reputation for inaction. The prevailing impression of will in the mind of the target state will be crucial to the success or failure of deterrent efforts. The periodic display of will is itself an important action, as rogue states and various bad actors tend to "push the envelope" of acceptable behavior.¹⁸⁰

Important in the context of will to use force is the seemingly lower political penalty for using military force from the sea, as opposed to using land-based forces. The March 1986 attacks by Sixth Fleet carrier aircraft on Libyan patrol boats aroused little indignation among U.S. allies, or even from Arab governments in the Mediterranean. One month later, when the United States requested basing support for air strikes with land-based aircraft, only Britain obliged the request. Because U.S. allies can be distantly supportive of U.S. action taken from the sea, as opposed to actions originating from their territory, force from the sea may be less constrained than force from land.¹⁸¹ Thus it follows that the threat of military force from the sea will often be more credible than force from land.

¹⁸⁰Zimm, "Deterrence: Then & Now," 52.

¹⁸¹Cable, "Gunboat Diplomacy's Future," 40.

Perhaps the most important factor in the mind of the state to be deterred is the visibility of the deterrent capability. While some schools of thought, especially the long-range air power school, believe that forces can exert presence and deterrence from a distance, it seems more likely that visible forces, forces manifestly able to observe and intervene in a crisis, and to "produce unacceptable counteraction," will have the strongest deterrent effect on an adversary. This point is of great importance, as it is the *adversary's perception* that ultimately determines the success or failure of deterrence, not U.S. perception. Thus visibility is of paramount importance to conventional deterrence.¹⁸² U.S. naval forces, whether carriers, ARGs, or surface combatants, combine the military capability and visibility necessary to produce a strong deterrent effect. Emerging precision guided weapons (PGMs), designed for use from the sea, should make U.S. naval forces a deterrent even to large-scale ground operations in the near future, while naval TMD

¹⁸²Thankfully, even some Air Force officers have called into question the deterrent capability of forces in CONUS. See "Presence Is in the Beholder's Eye," letter to the editor, Joint Force Quarterly (Summer 1995): 112, written by Colonel Ronald Dietz, USAF. See also Lasswell, "Presence-Do We Stay or Go," 84.

capability should provide deterrence against the leverage of ballistic missiles.¹⁸³

Although it is difficult to judge the success of deterrence, several examples of deterrence success and failure highlight the need to combine capability with credibility. In the Yom Kippur War of 1973, the Sixth Fleet was able to deter the Soviet Union from conducting a sea lift to Egypt. While the United States had a vital interest in Israel's survival, and thus could credibly threaten to take action, the Soviets had at best a secondary interest at stake, and deemed it not worthwhile to risk a conflict with the United States.¹⁸⁴ In the 1987-88 convoy operations in the Persian Gulf, Iranian attempts to mine the Strait and conduct commando attacks on passing ships largely ceased after U.S. forces demonstrated the capability to intercept Iranian forces, even at night.¹⁸⁵ In contrast to these successes, naval operations in the Bay of Bengal in 1971 had little or no effect on India, since the credibility of the United States taking military action on the Indian

¹⁸³Glenn Goodman, "Nowhere To Hide," Armed Forces Journal International (October 1997): 64; Willard Fallon, "Combating the Ballistic Missile Threat," Proceedings (July 1994): 31.

¹⁸⁴Jordan, "Naval Diplomacy in the Persian Gulf," 29.

¹⁸⁵Ronald O'Rourke, "The Tanker War," Proceedings Naval Review (May 1988): 32.

subcontinent was marginal.¹⁸⁶ Saddam Hussein also was not deterred from invading Kuwait because of his perception of U.S. interest, which he believed to be indifferent to Kuwait's sovereignty.

These examples point out the critical relationship between national interests, from which policy is derived, and the ability to deter. If a crisis does not involve sufficient interest for U.S. intervention *in the mind of the aggressor*, deterrence likely will fail. Likewise, if the threatened action is not credible to the situation, because the action is not proportionate to the interest, deterrence likely will fail. The relationship between the level of interest, the threatened action, and the credibility of naval deterrence is summed up by Sir James Cable: "Gunboat diplomacy is a screwdriver intended to turn a particular kind of screw. It is not a hammer that will bang home any old nail."¹⁸⁷

The wide range of options that U.S. naval forces provide the National Command Authority in crisis response, often referred to as a "rheostat" of options, allows U.S. policy-makers to threaten a credible, proportionate action, and set limits on the options available to the deterred state. This is especially true due to the very high

¹⁸⁶Blechman and Kaplan, Force Without War, 518.

¹⁸⁷Cable, "Gunboat Diplomacy's Future," 39.

readiness of U.S. naval forces, which can shift to combat operations on very short warning. Luttwak refers to this feature of naval deterrence as, "a shadow that impinges on the freedom of action of adversaries, because the capabilities can be activated at any time."¹⁸⁸

The ability to combine a certain vagueness of intent with uncertainty of location makes naval forces ideal for this role, which Luttwak calls "latent suasion."¹⁸⁹ The ability to operate in international waters, to take station close up or at a distance, the range of capabilities provided, the ability to remain for months at a time, and the responsiveness of forces on the scene, have made U.S. naval forces the "preeminent military force in discrete political operations" in the post-World War Two era.¹⁹⁰ A former Commander in Chief of U.S. Central Command (CinCCENTCOM), Army General Binford Peay, sums up the deterrent utility of naval forces:

Because of their limited footprint, strategic agility, calculated ambiguity of intent, and major strategic and operational deterrent capability, naval forces are invaluable. Our ability to rapidly move these forces in 1993 and again in 1994 from the Mediterranean Sea and the Arabian Gulf to positions off the coast of Somalia and Kuwait demonstrates extraordinary utility and versatility. . . . The

¹⁸⁸Luttwak, The Political Uses of Sea Power, 11.

¹⁸⁹Ibid.

¹⁹⁰Blechman and Kaplan, Force Without War, 529.

carrier battle group, in particular, has been an unmistakable sign of U.S. commitment and resolve in the Central Region.¹⁹¹

Signaling U.S. Interest/Supporting U.S. Allies

One of the principal methods for the United States to signal its interest in a region or country is by dispatching military forces. Given the global mobility of naval forces, and their freedom to come and go in international waters, warships clearly make good "diplomats", as Nelson observed. Add to this mobility the visibility of naval forces and it is not surprising that the Navy has been the service of choice for sending a signal of U.S. interest for the last fifty years.¹⁹² Army and Air Force units can be employed in this role as well, but encounter political, logistical, and risk concerns from which naval forces largely are exempt. Again, it is not intended to marginalize the need for land forces in places like Kuwait or Korea. However, for providing a flexible, mobile, and responsive means of signalling U.S. interest, naval forces remain superior to land forces.

The first post-World War Two use of naval forces for signaling occurred in 1946, when USS Missouri (BB-63) was

¹⁹¹Quoted in Johnson, "Carriers Are Forward Presence," 37.

¹⁹²Roger Barnett, "U.S. Strategy, Freedom of the Seas, Sovereignty and Crisis Management," Strategic Review (Winter 1992): 32.

sent to Turkey by President Truman.¹⁹³ Ostensibly sent to return the body of the late Turkish ambassador in style, in reality the Missouri's mission was to signal U.S. support for the Turks, who were being pressured by Stalin to renegotiate the Montreaux Convention. The Missouri's presence in this instance largely was symbolic, as no single warship, not even the "Mighty Mo", could have any decisive impact on the military balance in the eastern Mediterranean.¹⁹⁴ Nonetheless, the appearance of a U.S. capital ship in a Turkish port gave Turkey a boost in confidence in dealings with the Soviets, and laid the groundwork for a lasting U.S.-Turkish alliance.

The deployment of naval forces to a region can signal U.S. interest without targeting a certain state, as a deterrent deployment might aim to do. Over the last fifty years, the deployment of U.S. naval forces has become part of the landscape in strategically important areas, and has served to emphasize U.S. interest in the Mediterranean, the Persian Gulf and Indian Ocean, and the Pacific.¹⁹⁵ Even greater emphasis is placed on a region when U.S. naval forces are homeported or headquartered there.¹⁹⁶ The

¹⁹³Baer, 100 Years of Sea Power, 282.

¹⁹⁴Luttwak, The Political Uses of Sea Power, 32.

¹⁹⁵Allen, The Uses of Navies in Peacetime, 15.

¹⁹⁶Dismukes, National Security Strategy and Forward

Seventh Fleet homeports a CVBG and an ARG in Japan, while the Sixth Fleet is headquartered in Italy. After the Gulf War, the Fifth Fleet was re-established and headquartered in Bahrain, replacing the five-ship Mid East Force with a thirty-ship fleet as a signal of U.S. interest in the Gulf.¹⁹⁷

In each of the three strategic hubs, the presence of U.S. naval forces serves to promote stability, a requirement for continuity of trade. For example, the Seventh Fleet in the Pacific does not have to be postured to deter any one Asian nation, but can convey to all observers the fact that the United States is interested in the stability of this region. In fact, many observers judge U.S. naval presence in the Pacific to be the principal stabilizing force in an important region:

Perhaps most critical for U.S. interests in this region will be a sustained and visible naval presence that will reassure friends and allies about the United States' commitment to the region's political stability, which is necessary for economic prosperity.¹⁹⁸

Presence, 2.

¹⁹⁷In 1982, nearly a decade before the Gulf War, the authors of Projection of Power advocated stationing a U.S. fleet in the Persian Gulf, and even advocated homeporting an aircraft carrier in the region. See Ra'anani et al., Projection of Power, 98-99. Also, Redd, "Fifth Fleet, Arriving," 48.

¹⁹⁸Don DeYoung, "Sea Power Is Grand Strategy," Proceedings (November 1994): 76.

In addition to general, day-to-day signaling via presence, naval forces can send specific messages to specific states through a variety of means. The means can be subtle or highly visible, and can show support or intimidate as needed, often at the same time. One of the most common means of showing support for an ally is through a port visit by U.S. ships. Easily arranged and beneficial both to U.S. sailors and the local economy, a visit to Haifa or Singapore serves to re-affirm the close ties between the United States and allies. Ordinarily low-key, a port visit can also be a pointed reminder to potential enemies of U.S. capability in a region. In November 1992, for example, USS Topeka (SSN-754) held a very visible port visit in Bahrain. Conducted at the time the first of three Kilo-class submarines was in transit to Iran from Russia, the visit served both to remind Iran of the presence of a premier anti-submarine warfare (ASW) platform in the Gulf, and to re-assure the GCC states of U.S. interest in their safety.¹⁹⁹

Another means of sending a signal of U.S. interest in events is a significant change in established operating pattern or tempo. An increased number of patrol flights

¹⁹⁹Although not known for their visibility--the service motto being "the Silent Service"--in this instance a visit by a submarine to a U.S. ally proved highly useful in displaying U.S. interest in the Gulf. See Jan Breemer, "Where Are The Submarines?" Proceedings (January 1993): 38.

from a CVBG, or the placement of a naval force in greater proximity to a certain location, can signal a departure from normal operating procedure due to heightened interest. An example of such a signal occurred in 1973, at the outset of the Yom Kippur War. The USS Independence (CV-62) put to sea immediately on 6 October in the eastern Mediterranean, signaling increased U.S. interest and watchfulness. At the same time, USS Kennedy (CV-67) remained in port in Scotland, signaling U.S. restraint during a crisis. When the Soviets began to show signs of an impending air lift and sea lift to Egypt, three U.S. carriers concentrated near Crete, a major departure from normal operating patterns and a strong signal of U.S. preparedness to act.²⁰⁰

In the late 1970s, an increase in the tempo and frequency of U.S.-Thailand exercises served to re-assure Thailand of U.S. support in the face of Vietnamese provocation. The annual COBRA GOLD exercises continue to demonstrate U.S. support for Thailand. Also in late 1970s, during the civil war in Yemen, the United States sent the USS Constellation (CV-64) CVBG to the Gulf of Aden, as well as sending Air Force E-3 aircraft to Saudi airfields, to show support for Saudi Arabia.²⁰¹

²⁰⁰Allen, The Uses of Navies in Peacetime, 24-26; John Douglass, "Often the Only Option," Proceedings (February 1998): 34.

²⁰¹Adam Siegel, To Deter, Compel, and Reassure in International Crises: The Role of U.S. Naval Forces

The deployment of the USS Nimitz (CVN-68) and USS Independence (CV-62) CVBGs near the Taiwan Strait in March 1996, in response to Chinese intimidation of Taiwan, also marked a major departure from normal operating procedure, as well as a massive concentration of U.S. firepower.²⁰² The concentration of two CVBGs sends a message simply by virtue of the latent combat power represented by these forces.²⁰³ The level of capability carried by a CVBG or ARG is one of the reasons these two forms of naval power are so useful in signaling U.S. interest, and is why U.S. regional commanders want these assets to be present even when conditions in their region seem calm:

The presence of U.S. Navy ships has come to represent an expression of U.S. interest backed by readily deployable forces. This presence reassures allies and is one reason that Unified Commanders still demand carriers and amphibious forces even in the absence of an identifiable threat.²⁰⁴

Under the National Security Strategy, which emphasizes engagement, the ability to re-assure allies and signal

(Alexandria, VA: Center for Naval Analyses, 1995), 22. At least in part because of the timely deployment of U.S. forces to support Saudi Arabia in 1979, the Saudi government granted full base access to U.S. forces in 1990.

²⁰²Goure and Mauldin, Naval Forward Presence: Status, Prospects, 55-57.

²⁰³Dismukes, "The U.S. Military Presence Abroad," 52; Linn, "Naval Forces In The Post-Cold War Era," 20.

²⁰⁴Linn, "Naval Forces in the Post-Cold War Era," 20.

interest will be an important function of U.S. military forces.²⁰⁵ Given the mobility, sustainability, visibility, and responsiveness of naval forces, it seems likely that the Navy-Marine Corps team will continue to be the instrument of choice for signaling U.S. interest in the future.

Limited Use of Force

The strongest possible use of naval diplomacy is the use of military force in limited operations that do not qualify as war, either in response to or in anticipation of actions taken by another state or entity.²⁰⁶ The ability to apply force in a controlled manner, in incremental levels as the situation warrants, makes this aspect of naval diplomacy useful for situations in which the United States cannot tolerate the status quo, is not willing or able to retreat, but does not wish to engage in a regional war.²⁰⁷ Limited

²⁰⁵William Johnsen, The Future Roles of U.S. Military Power and Their Implications (Carlisle, PA: Army War College, 1997), viii, 11.

²⁰⁶The emerging stature of non-state terrorist organizations world-wide means that naval diplomacy can be applied to groups of individuals, without necessarily being directed at the state those individuals reside in. The recent cruise missile strikes against targets in Sudan and Afghanistan, and the 1985 intercept of an airliner carrying the *Achille Lauro* hijackers by Navy F-14 aircraft, are examples of naval diplomacy in which U.S. force is applied to individuals, not governments. See Jeffrey Simon, U.S. Countermeasures Against International Terrorism (Fort Belvoir, Virginia: Defense Technical Information Center, 1990), 25-28.

²⁰⁷Breemer, "Naval Strategy is Dead," 53.

strikes may be seen as a corollary to deterrence, in which the United States provides a demonstration of capability and will to an adversary, while still allowing the adversary to reverse course and cease its misbehavior.

Because ground forces are more difficult to move into a region, and because ground forces can have little direct effect on an adversary without entering his territory, the utility of Army forces for limited military action is problematic.²⁰⁸ Unless Army forces are located in an adjacent state, they will likely be unable to bring force to bear, and will require permission from the host state. If Army forces are employed in limited action, the risk of sustaining U.S. casualties will be proportionate to the number of ground troops employed, and will be higher than for air or naval forces in any case.²⁰⁹

Given the arguments against ground troops in most cases, the instruments of choice for the limited use of

²⁰⁸It is important to note the distinction between the limited use of military force, which entails attacking some target set of value to an adversary, and political-military operations such as the intervention in Somalia, which may not involve physical attacks on any targets, except in self-defense.

²⁰⁹The Mayaguez rescue operation, conducted by Marine ground troops, often is criticized for having resulted in forty-one U.S. casualties in the rescue of forty crewmembers. See Allen, The Uses of Navies in Peacetime, 11.

force have been aircraft-delivered weapons.²¹⁰ In recent years, cruise missiles and other PGMs also have been used, obviating the need for the aircraft and pilot in many cases. The attractiveness of aircraft or PGMs stems from their ability to conduct discrete, controlled attacks from great distance, to limit collateral damage, and to minimize the number of U.S. servicemen put at risk. Because the United States is well above most regional powers in the balance of air power vs. air defenses, the air strike has been a favored method for employing limited force.

Naval forces provide the ability to deliver U.S. strike aircraft to any region of the world that can be approached from the sea, with the all-important virtue of independence from host nation permission. The CVBG has no peer in this regard, as its air wing can deliver a wide range of weapons to targets hundreds of miles inland. In addition, the continued development of such autonomous weapons as the Tomahawk cruise missile, the stand-off land attack missile (SLAM and SLAM-ER), the joint stand-off weapon (JSOW), and the land-attack Standard missile (LASM), allow even smaller surface combatants and submarines to deliver potent strike weapons from the sea.²¹¹

²¹⁰Commander Robert Stumpf, "Air War With Libya," Proceedings (August 1986): 42; Hessman, "Forward-Thinking and Forward Deployed," 20-21.

²¹¹Captain Richard Wright, "Shaping the Battlefield: The 21st-Century Navy," Surface Warfare (March/April 1998):

The employment of cruise missiles, especially Tomahawks, is extremely appropriate in many cases due to the nature of typical targets for limited use of force. High-value assets of an adversary, such as military airfields, air defense systems, or command and control facilities, tend to be large, static targets. Thus cruise missiles, which can find such targets with increasing accuracy, can allow the use of force with no risk of U.S. casualties.²¹²

Emerging technology being introduced into the Tomahawk program should allow Tomahawks to be used against mobile targets in the future, as well as providing for immediate battle damage assessment.²¹³ While Tomahawks or similar cruise missiles may not be appropriate for every target, for example terrorist training facilities in Afghanistan, they are very appropriate for attacking large, fixed targets with no risk of U.S. casualties.

What other means does the United States have for employing limited military force? Unless ground troops are to be sent into a foreign country to conduct attacks, aircraft and missiles are the only options. The Air Force has tremendous striking power in its tactical aircraft, as

33-35.

²¹²Rear Admiral Walter Locke and Kenneth Werell, "Speak Softly and..." Proceedings (October 1994): 32.

²¹³Vision, Presence, Power, 71.

well as in its inventory of cruise missiles and stand-off weapons. Air force bombers, particularly the B-2, are able to conduct strike missions from far greater distance than carrier aircraft, even from CONUS if necessary. However, all Air Force aircraft except heavy bombers require the permission of a host nation for launching strikes, permission that may not be forthcoming.²¹⁴

The ability of U.S. naval forces to conduct strikes from international waters, free of host nation permission, is an advantage that cannot be overstated. Naval forces are the ideal instrument for the employment of military force short of war, and enjoy access to virtually all potential trouble areas by sea. Naval strike aircraft, such as the FA-18E/F, can deliver ordnance up to six hundred miles inland, while Tomahawks can attack targets up to fifteen hundred miles from their launch points, making few areas on earth immune to U.S. naval strike capability.²¹⁵ Given the littoral location of almost all plausible sites for the use of limited military force, the ability to employ modern-day

²¹⁴Davis, Aircraft Carriers and the Role of Naval Power, 34.

²¹⁵James Hessman, "Overwhelming Air Power-From the Sea," Sea Power (June 1997): 27; Daniel Murphy, "Achieving 21st Century Naval Mastery," Surface Warfare (March/April 1998): 8.

"gunboat diplomacy" makes forward-deployed naval forces indispensable.

Enforcement of Economic Sanctions

The ongoing enforcement of economic sanctions against Iraq is yet another form of naval diplomacy. Imposed after the Gulf War, the sanctions are intended to motivate Iraqi compliance with UNSCOM inspections of Iraqi facilities. For maritime sanctions enforcement, only on-scene naval forces will do. The need to stop, board, search, and detain smugglers cannot be met with land or air forces, nor can it be met from CONUS.²¹⁶

Since the establishment of Maritime Intercept Operations (MIO), conducted by the Multinational Intercept Force (MIF), over eleven thousand suspected smugglers have been stopped in the Persian Gulf.²¹⁷ Supported by Task Force 50 of the Fifth Fleet, the MIF since 1991 has conducted the largest maritime intercept operation in history.²¹⁸

From 1991-1995, over 80 percent of attempts to smuggle oil through the Persian Gulf were foiled by the MIF. After U.N. Security Council Resolution 986 was signed, however,

²¹⁶Dismukes, "The U.S. Military Presence Abroad," 52.

²¹⁷"Sentinels of International Will," All Hands (July 1998): 7.

²¹⁸Redd, "Fifth Fleet, Arriving," 49.

allowing Iraqi oil sales for food and medical supplies, the interception of oil smugglers has dropped off. A principal reason for the reduction in successful intercepts has been, and continues to be, Iranian assistance to Iraqi smugglers.²¹⁹

By allowing Iraqi ships to sail inside the twelve-mile limit of Iran's territorial waters, Iran effectively prevents the MIF from conducting intercepts. Vice Admiral Thomas Fargo, a former commander of Fifth Fleet, described the Iranian actions as, "a rather sophisticated effort," and indicated that substantial portions of illegal Iraqi oil proceeds were being diverted to Iranian authorities in return for their assistance.²²⁰ Some Iraqi ships reportedly have been allowed to fly the Iranian flag after entering Iranian waters, further complicating the problem of intercepting them.²²¹

Despite Iranian efforts to help Iraq circumvent the U.N. sanctions, ships of the Fifth Fleet and the MIF remain on station in the Gulf, with U.S. ships of Task Force 50

²¹⁹Lt. Commander William Bray, "Five Fleets: Around the World with the *Nimitz*," Proceedings (January 1999): 80.

²²⁰"U.S. Admiral Says Iraq, Aided by Iran, Is Smuggling Oil in Gulf," New York Times, 12 February 1997, A7.

²²¹Tom Chamberlain, "Naval Forces and the Persian Gulf," Surface Warfare (March/April 1997): 4.

conducting the majority of intercepts.²²² A minimum of two U.S. ships are constantly on duty conducting maritime intercepts, including boarding, searching, and, when violators are caught, escorting ships to Gulf ports for further investigation.²²³

Enforcing and Protecting Freedom of the Seas

One of the long-standing principles of international law is the right of free passage on the seas. Especially for a maritime nation, such as the United States, freedom of the seas is a vital national interest. As currently defined, the limit of a coastal state's territorial waters is twelve miles, beyond which any nation has the right to navigate and overfly the world's seas and oceans. Within twelve miles, ships are allowed "innocent passage," but overflights are not permitted. Excessive claims to offshore waters as territorial waters, based on abuse of international definitions of territorial bodies of water, consistently have been resisted by the United States, at times through the use of naval forces to challenge excessive claims.²²⁴

²²²"NAVCENT: Forward Presence," Surface Warfare (March /April 1997): 14.

²²³Chamberlain, "Naval Forces and the Persian Gulf," 2.

²²⁴Parks, "Crossing the Line," 41-42.

In the modern era, President Ronald Reagan was one of the strongest proponents for aggressive defense of freedom of the seas. After the Carter administration's half-hearted attempts to protect freedom of the seas, the Reagan administration produced formal guidelines for freedom of navigation (FON) operations. The first such FON operation occurred on 18 August 1981, when USS Forrestal (CV-59) and USS Nimitz (CVN-68) sailed into the Gulf of Sidra, claimed by Libya as a territorial sea. Libya's claim was legally unjustifiable, and could have set a precedent for the many similar claims around the world. After F-14s from the carriers were fired on by Libyan Su-22 fighters, the Libyan planes were shot down in self-defense. No further incidents occurred, and the carriers left the Gulf a few days later.²²⁵

After renewed Libyan claims to the Gulf of Sidra, including Colonel Gadhafi's assertion that the line of thirty-two degrees, thirty minutes North Latitude constituted the "Line of Death", President Reagan authorized the 1986 OVL operations. OVL-III, conducted from 23-29 March 1986, involved the Sixth Fleet aircraft carriers USS Coral Sea (CV-43), USS Saratoga (CV-60), and USS America (CV-66), along with their escorts. On 24 March these ships steamed into the Gulf of Sidra in a direct challenge to

²²⁵Ibid., 43-44.

Gadhafi's claims. When Libyan SAMs were fired at U.S. aircraft, the carriers responded with strikes against Libyan facilities and ships. As in 1981, Libyan provocation ceased after the first U.S. retaliation.²²⁶

One year later, in 1987, President Reagan again authorized a FON operation, this time in the Persian Gulf. The Iran-Iraq War had spread to include attacks on each adversary's shipping. The attacks, which included minelaying and aircraft-delivered anti-ship missiles, threatened to interrupt the steady flow of oil to world economies, as attacks by Iran often targeted Iraq's two principal supporters, Saudi Arabia and Kuwait.²²⁷ Just two months after the Stark incident, Reagan authorized the re-flagging of Kuwaiti tankers with the U.S. flag, and the formation of convoys escorted by U.S. warships.²²⁸ Although Iranian attacks continued for some time after the convoys were established, by the end of 1987 twenty-three convoys had been escorted through the Gulf, and Iranian efforts to conduct commando attacks with small boats largely had ceased after Marine Corps helicopter gunships repeatedly

²²⁶Stumpf, "Air War With Libya," 46-47.

²²⁷See Appendix A, Table 7, for a chronology of events in the Gulf in 1987.

²²⁸Captain Frank Seitz, U.S. Merchant Marine, "S.S. Bridgeton: The First Convoy," Proceedings Naval Review (May 1988): 52.

intercepted the Iranian forces.²²⁹ The FON operations, although costly and dangerous, were justified by the imperative in U.S. national security and foreign policy of maintaining freedom of the seas.

Another threat to freedom of the seas, less well-known and seemingly anachronistic, is modern-day piracy. Occurring primarily in and among the islands of the East Indies and the South China Sea, roughly eighty acts of piracy are recorded each year, half of them involving violence. Not surprisingly, the ASEAN defense forces allocate significant effort and resources to combating the problem of piracy.²³⁰ U.S. naval forces, through training and joint exercises, assist ASEAN nations in their ongoing efforts to fight piracy.

Enforcing and protecting freedom of the seas is one of the Navy's principal responsibilities, and is conducted essentially every day by underway ships. The focus on the Mediterranean, the Gulf, and Northeast Asia indicates the importance of the SLOCs in these regions, but all of the world's international waters receive the benevolent attention of the U.S. Navy.

²²⁹O'Rourke, "The Tanker War," 30, 34.

²³⁰Russ Swinnerton, "Piracy Remains A Concern For Southeast Asian Nations," Defense News, 25-31 August 1997, 8.

The preceding sections, covering deterrence, signaling and re-assuring, limited use of force, sanctions enforcement, and enforcement and protection of freedom of the seas, comprise the broad concept of naval diplomacy. Each is a useful tool for U.S. relations with other nations, provided that the risks and limitations of each is understood. It is the unique features of naval forces, and primarily their ability to come and go at will in international waters, that make possible the wide array of actions encompassed by naval diplomacy.

Maintaining Interoperability with Allies

Although U.S. forces are the best-equipped and most capable in the world, it is both sensible and advantageous to involve U.S. allies whenever possible, both in peacetime and in times of crisis or conflict. While the United States must maintain the capability to act alone, it is especially important that U.S. allies be able to participate in a meaningful way in regional crises or conflicts. Without the willingness and ability of allies to participate in crises taking place in their regions, it is doubtful that the U.S. public would support military action to protect them.²³¹

The various documents that guide U.S. defense planning reflect the desire for allied and coalition assistance in

²³¹Dismukes, "The U.S. Military Presence Abroad," 51.

U.S. national security whenever possible. The National Security Strategy states that:

No matter how powerful we are as a nation, we cannot always secure these basic goals unilaterally. . . the threats and challenges we face frequently demand cooperative, multinational solutions.²³²

The National Military Strategy provides similar commentary:

Because we will often act in concert with like-minded nations, as we implement JV 2010, we must also retain interoperability with our allies and potential coalition partners.²³³

The overarching document for the armed forces, Joint Vision 2010, states:

We must find the most effective methods for integrating and improving interoperability with allied and coalition partners. Although our Armed Forces will maintain decisive unilateral strength, we expect to work in concert with allied and coalition forces in nearly all of our future operations.²³⁴

Finally, the principal concept of operations for the Navy-Marine Corps team, Forward...From the Sea, states:

In peacetime U.S. naval forces build "interoperability" . . . so that in the future we can easily participate fully as part of a formal multinational response or as part of "ad hoc" coalitions forged to react to short-notice crisis situations.²³⁵

²³²Clinton, National Security Strategy, 12.

²³³National Military Strategy, 17.

²³⁴Joint Vision 2010, 9.

²³⁵Forward...From the Sea (Washington, D.C.: Department of the Navy, 1994), 3.

If U.S. allies are to possess interoperability with U.S. forces, there is no substitute for regular training exercises between U.S. and allied forces.²³⁶ It was not through coincidence or accident that U.S. and NATO forces were fully interoperable in the Gulf War, but through constant training in Europe during the Cold War. Conversely, U.S. and Syrian forces were almost totally non-interoperable, and remain so today.²³⁷

Forward-deployed forces obviously are the best-suited to the role of training with allies, since forward-deployed forces operate in regions of U.S. interest where allies are located. U.S. naval forces, as described earlier, continue to focus on maintaining forward presence in the Mediterranean, the Persian Gulf, and Northeast Asia. Accordingly, U.S. naval forces constantly train with the armed forces of allies in these regions.

²³⁶Lt. Commander Craig Faller, interview by author, 20 January 1999, via e-mail. "The allies look to the U.S. for leadership in this area. And while we can talk about it or discuss issues or even wargame together--the only way to truly test concepts, doctrine and equipment is by doing it." Lt. Commander Faller served as Executive Officer on USS John Hancock (DD-981) before reporting to N513 at the Pentagon.

See also Dismukes, National Security Strategy and Forward Presence, 47. "Interoperability is achieved exclusively through interoperations. Practically speaking, only forces forward can generate it."

²³⁷Ibid., 46; Owens, "Naval Voyage to an Uncharted World," 31.

In the Mediterranean, ships and aircraft of the Sixth Fleet conduct frequent exercises with NATO forces.²³⁸ In the Persian Gulf, U.S. allies participate daily in ongoing operations, such as the MIO efforts.²³⁹ U.S. Fifth Fleet and GCC naval forces also conduct a variety of exercises, including operations ashore involving Marine ground units.²⁴⁰ In recent years, such exercises have included MCM efforts with Omani ships in the Strait of Hormuz, providing valuable training for a vital wartime need. In addition to such formal exercises, U.S. naval forces make regular use of the facilities owned by the UAE, especially the deep-water port of Jebel Ali and dry-dock facilities at Dubai.²⁴¹ In the Pacific, U.S. Seventh Fleet units conduct regular training with naval forces from Japan, South Korea, Australia, Thailand, and the Philippines.²⁴²

In all, the U.S. Navy and Marine Corps conduct around 300 exercises annually, of which nearly half involve allied

²³⁸McAnally, "NATO's Post-Cold War Internal Adaptations," 160.

²³⁹Redd, "Fifth Fleet, Arriving," 49.

²⁴⁰Captain Scott Lopez and Sgt. Marc Ayalin, "ARG Employment: America's Maritime Assault Weapon," Surface Warfare (March/April 1997): 17.

²⁴¹Lt. Commander Jeffrey Macris, "Knowing Thy Gulf Partners," Proceedings (March 1998): 39.

²⁴²The United States Security Strategy for the East Asia-Pacific Region 1998, 8.

forces. The exercise goals typically include training in basic combat skills, developing common doctrine and operational procedures, and ensuring that command, control, and communications procedures and equipment are fully interoperable.²⁴³ Given the high likelihood that future regional conflicts will be coalition efforts, the ability of forward-deployed U.S. forces to conduct regular training with allies helps to build and maintain the necessary military-to-military contacts, ensuring that U.S. and allied forces are familiar with each other's operational and doctrinal practices.²⁴⁴

Familiarizing U.S. Forces with Regional Conditions

Each of the regions to which U.S. forces routinely deploy have unique features and patterns, which may not be apparent to forces stationed in CONUS. Familiarity with a region requires presence in the region, and is one of the stronger arguments against a CONUS-based national security strategy. For example, the Persian Gulf is a very busy and congested place, with hundreds of VLCCs, naval vessels, smaller cargo vessels, and small boats constantly present. The large number of offshore oil rigs have provided starting

²⁴³Trost, "Maritime Strategy for the 1990s," 98; Dismukes, National Security Strategy and Forward Presence, 47; Johnsen, The Future Roles of U.S. Military Power, 26.

²⁴⁴Dietz, "Presence Is in the Beholder's Eye," 112; Dur, "Presence: Forward, Ready, Engaged," 41-42.

points for attacks on shipping in the past.²⁴⁵ Vice Admiral Redd's description of the Gulf makes clear the need for U.S. forces to be familiar with regions where they may be required to fight:

The threat is proximate, real, and varied, from low-tech Boghammers and mines to tactical air and air-, sea-, and ground-launched antiship cruise missiles. . . . It is an incredibly busy theater. . . . Military forces must understand the region and all its dimensions. That comes only through being there and operating in the demanding environment.²⁴⁶

Constant presence in a region, whether on land or at sea, allows U.S. forces to become familiar with the features and conditions of the region, and to incorporate these features into operational and contingency plans.²⁴⁷

For example, during the OVL-I and -II operations, USS Coral Sea and USS Saratoga had built up familiarity with Libyan flight patterns, radar patterns, ship movements, and communications capabilities, as well as having honed their own tactical and communications practices. When USS America arrived to take part in OVL-III, her crews and pilots had to acquaint themselves quickly with local conditions.²⁴⁸ If U.S. forces were required to respond to a crisis from CONUS,

²⁴⁵Smith, "GCC Regional Security," 6.

²⁴⁶Redd, "Fifth Fleet, Arriving," 49, 51.

²⁴⁷O'Hanlon, "Can High Technology Bring U.S. Troops Home?" 83.

²⁴⁸Stumpf, "Air War With Libya," 46.

it is doubtful that they would have available the intelligence on the theater needed to allow operations to be as safe and efficient as possible. Through lack of familiarity, the incidence of mistakes, losses, and collateral damage should be expected to be higher than for forces already familiar with the area.²⁴⁹ The routine deployment of naval forces to important regions, and the ability of naval forces to gather intelligence on the region through a variety of means, allows U.S. commanders to remain current on conditions in the region from day to day.

Crisis Response

With the demise of the Soviet Union and the corresponding reduction in the likelihood of a global general war, one of the primary duties of the Armed Forces of the United States has become crisis response. Since the end of World War Two, U.S. forces have responded to an average of five crises annually.²⁵⁰ Crisis response may entail anything from non-combatant evacuation operations (NEO) to major theater war (MTW), but the ability to respond quickly to short- or no-warning crises clearly is one of the principal requirements placed on America's military forces in the post-Cold War world. Small-scale contingencies,

²⁴⁹Dismukes, "The U.S. Military Presence Abroad," 53.

²⁵⁰Perin, Aircraft Carriers, 4.

falling somewhere along the continuum of crises below MTW, are expected to form the majority of future events requiring the intervention of U.S. military forces:

Based on recent experience and intelligence projections, the demand for smaller-scale contingency operations is expected to remain high over the next 15 to 20 years. . . . these operations will still likely pose the most frequent challenge for U.S. forces through 2015.²⁵¹

Forward-deployed forces are inherently more capable of responding to crises than forces in CONUS, since forward-deployed forces will be nearer to crisis locations. Naval forces in particular are well-suited for crisis response, at any point along the spectrum of crisis, due to their mobility and independence of movement.²⁵² Especially if the warning of an impending event is ambiguous, in which case political difficulties may exist in the deployment of U.S. ground or land-based air forces into a region, naval forces can move into the region and take up position without depending on host nation permission.

Appendix A, Table Eight presents a description of crises that naval forces have responded to between January 1991 and October 1998. The following sections will proceed from the low end of the crisis spectrum towards the high

²⁵¹Cohen, Report of the Quadrennial Defense Review, Section 3, page 8.

²⁵²Kahan and Sands, Alternative Naval Deployment Concepts, 2-6.

end, which is major theater war. One of the most prominent forms of crisis response in the post-Cold War period has been the NEO, usually conducted by Navy-Marine Corps ARGs and their embarked Marine Expeditionary Units (MEU).

Non-Combatant Evacuation Operations (NEO)

The NEO is the specialty of the Marine Corps, as it usually requires the ability to put forces ashore, with organic and supporting firepower and air support, secure an area, identify and load civilians, and transport the civilians back to the Marines' ships. Often the location to be secured is well inland, requiring the "vertical" assault capability of the Marines' CH-46E and CH-53E helicopters. While a few special cases may be conducted by other naval forces, the ARG with its embarked Marine Expeditionary Unit (Special Operations Capable), known as MEU(SOC), is tailor-made for the NEO mission.

An ARG consists of three amphibious ships, usually one big-deck amphibious ship (LHA or LHD) capable of operating helicopters and AV-8B Harrier jets, and two other amphibious ships. The embarked MEU(SOC) consists of approximately twenty-one hundred Marines, four AH-1T Super Cobra helicopters, six Harriers, a SEAL detachment, and various combat support and logistics units. The ARG's Marines are not considered special forces, but are tasked with being mission-capable for twenty-one special missions, including

clandestine recon/surveillance, tactical recovery of aircraft and personnel, and specialized demolition, among others.²⁵³ Additionally, each MEU(SOC) is required to be capable of launching any of the twenty-one special missions within six hours of receiving orders from the regional CinC.²⁵⁴

For many of its missions, the MEU(SOC) will employ a special formation, known as the Maritime Special Purpose Force (MSPF), a unit built around the MEU(SOC)'s reconnaissance teams. All members are qualified swimmers, qualified close combat (pistol) shooters, trained in assault climbing, and possess other small-team skills.²⁵⁵ Frequently paired with the ARG's embarked SEAL detachment, the MSPF can also operate independently. Past missions conducted by MSPFs include the destruction of Iranian oil platforms and the rescue of Air Force pilot Scott O'Grady.²⁵⁶

²⁵³Arthur Brill, "Anatomy of a MEU(SOC)," Sea Power (December 1997): 42. See Appendix A, Table 9 for a full listing of MEU(SOC) special missions.

²⁵⁴Lopez and Ayalin, "ARG Employment," 16; Brill, "Anatomy of a MEU(SOC)," 45.

²⁵⁵Glenn Goodman, "Special Ops Afloat," Armed Forces Journal International (April 1995): 18.

²⁵⁶*Ibid.*, 18; Scott O'Grady, "The Rescue From My Point Of View," Armed Forces Journal International (December 1995): 18.

Navy-Marine ARGs have conducted several large NEOs in the 1990s, and have shown their flexibility in each. In August of 1990, the 22nd MEU(SOC) deployed to the west coast of Africa in anticipation of evacuating American citizens from a growing civil war in Liberia. Ordered from southern France to Liberia on 25 May 1990, the ARG arrived on 3 June and stayed nearby until early August. On 4 August, as fighting in and around Monrovia increasingly threatened the U.S. Embassy, the U.S. ambassador contacted the National Command Authority and requested assistance. The 22nd MEU(SOC) was directed to enter Monrovia and establish three landing zones, including one at the U.S. Embassy, from which U.S. civilians could be evacuated.

On 5 August, the ARG steamed to a position five miles offshore and began flying Marine units ashore. AV-8Bs aboard USS Saipan (LHA-2) stood at five-minute standby in case air support was needed. Included among the forces deployed at the Embassy were six Light Armored Vehicles and the Marines' organic heavy weapons. From 6 August through 21 August, Marine helicopters and Landing Craft Air-Cushion (LCAC) ferried U.S. and other nations' civilians to the ARG's ships. A total of more than sixteen hundred U.S. and foreign civilians were evacuated safely, including 754 on 18 August alone.²⁵⁷

²⁵⁷Parker, "Operation Sharp Edge," 103-106.

In January of 1991, a seventy-man Marine MSPF and SEAL force in two CH-53E helicopters flew 460 miles at night from their ships to the U.S. Embassy in Mogadishu, Somalia, where they prepared for the arrival of the ARG's twenty CH-46E helicopters the next morning. A total of 263 civilians, including ambassadors of eleven nations and other civilians from thirty nations, were flown safely back to the ARG.²⁵⁸

On some occasions, non-ARG ships may be in place to conduct NEO operations. Such a case occurred in 1991 in the Philippines, when the eruption of Mount Pinatubo combined with Typhoon Yunya to create horrific conditions at the U.S. naval facility at Subic Bay. Sixteen thousand U.S. Air Force personnel and their dependents already had driven to Subic Bay from Clark Field, and ships of the Seventh Fleet were diverted from all over the Pacific to Luzon to begin one of the largest peacetime evacuations in history.

Beginning on 16 June 1991, the ships USS Arkansas (CGN-41), USS Rodney M. Davis (FF-60), and USS Curts (FFG-38) loaded nine hundred civilians for the sixteen-hour trip to Cebu, located farther south in the Philippines. On 17 June, over seventeen hundred U.S. Air Force servicemen and dependents were loaded aboard USS Long Beach (CGN-9), USS Lake Champlain (CG-57), USS Merrill (DD-976), USS Gary (FFG-

²⁵⁸Geoffrey Till, "Maritime Strategy and the 21st Century," Journal of Strategic Studies (March 1994): 193; Goodman, "Special Ops Afloat," 18.

51), and USNS Passumpsic (T-AO-107). USS Peleliu (LHA-5), an amphibious assault ship with very large medical facilities, took all of the serious medical cases and most of the pregnancies, four of which were delivered while aboard ship. Finally, the aircraft carriers USS Midway (CV-41) and USS Abraham Lincoln (CVN-72) were able to carry several thousand guests apiece.²⁵⁹ In a ten-day period involving several trips per ship, over nineteen thousand U.S. servicemen, dependents, and civilians were evacuated safely to Cebu, with no injuries other than minor accidents.²⁶⁰

The Marines conducted two NEOs in 1997, one in Albania and one in Sierra Leone. In March, over eight hundred U.S. and foreign civilians were evacuated by helicopter from Albania. During the mission, ground fire was directed at several Marine helicopters. The escorting AH-1T Super Cobra gunships were able to silence the ground fire quickly, and all helicopters returned to the ARG without damage, but the incident demonstrates the enormous advantage of being able

²⁵⁹The author was stationed onboard Abraham Lincoln at the time, and took part in the evacuation. In addition to servicemen and dependents, on two of the Lincoln's three trips from Subic to Cebu, hanger bays 2 and 3 were utilized as animal shelters for over 500 dogs of all sizes. One baby was born onboard the Lincoln, and was named Abraham Lincoln Presteria in memory of the event.

²⁶⁰Lt. Commander Kevin Mukri, "Fiery Vigil: Out From the Ash," Proceedings Naval Review (May 1992): 117-119.

to bring along air support and heavy firepower without depending on other-service assets that may be too distant to arrive on short notice. In June 1997, over twenty-five hundred civilians were evacuated from Freetown, including thirteen hundred on 3 June alone, after a military coup overthrew the government of Sierra Leone.²⁶¹

One reason for the high readiness of Navy-Marine ARGs to conduct NEOs and other special operations is the constant practice dedicated to such operations, and the maintenance of standard operational plans that require only minor modification to fit a specific scenario. As stated previously, each ARG is required to be able to launch any one of its special missions on six hours' notice. Each MEU(SOC) maintains what one Marine officer describes as a "playbook" for each of the twenty-one special operations. Contained in the playbook are such variables as different levels of opposition, different geographical environments, operations that may involve multiple sites or cross the borders of multiple countries, and tactical communication procedures.²⁶²

Because of naval forces' ability to take station off the coast in crisis regions, maintain themselves there for

²⁶¹Richard Burgess, "Navy/Marine Corps Team Sees NEO Missions Expand," Sea Power (August 1997): 21.

²⁶²Lopez and Ayalin, "ARG Employment," 16.

weeks or months, and conduct operations with organic air and firepower support, the Navy-Marine ARG is the perfect instrument for the NEO mission. The introduction of the MV-22 Osprey tilt-rotor aircraft, due to enter the fleet in 2001, will nearly double the range of Marine vertical operations, allowing NEOs to be performed even further inland than today's CH-46E helicopters.²⁶³ The safety and security of U.S. citizens is the one overriding vital interest of the United States, and the ability of U.S. naval forces to extract U.S. citizens from areas of existing or impending danger, on short notice and without logistical support or political permission from others, is a crucial capability.

Political/Military Special Operations

In addition to normal military and warfighting missions, naval forces are well-suited to special operations that require the use, or implied threat of use, of military force. Because naval forces can be positioned anywhere in international waters, and because naval aircraft and Marine helicopters provide mobility over wide areas, naval forces are extremely flexible, and have performed several special operations in recent years.

²⁶³Loren Thompson, "Marine Corps Tilts Into the Future," Sea Power (November 1997): 44; Krulak, "Projecting Combat Power Ashore," 27.

The rescue of Air Force pilot Captain Scott O'Grady is one example of the special missions naval forces can conduct. Known as Tactical Recovery of Aircraft and Personnel (TRAP), it is one of the special missions for which each deploying MEU(SOC) is required to be mission-capable. The 24th MEU(SOC), stationed in the Adriatic Sea in June 1995, shared responsibility with the Joint Special Operations Task Force in Aviano, Italy, for the recovery of any downed aviators.

When Captain O'Grady's F-16 was shot down, the 24th MEU(SOC) had the unusual luxury of nearly a week for planning and preparation, rather than the six-hour requirement. Intelligence was gathered on local SAM threats and other ground-based threats, and several different scenarios for the mission were developed. When Captain O'Grady was able to contact a NATO aircraft, six days after being shot down, the 24th MEU(SOC) was at one-hour readiness to launch the TRAP mission.²⁶⁴

Launching from USS Kearsarge (LHD-3), the ARG's big-deck Wasp-class amphibious ship, the TRAP mission consisted of two CH-53E helicopters, two AH-1T Super Cobra gunships, and AV-8B Harrier jets. FA-18D Hornet aircraft from the Sixth Fleet provided additional jamming support and ground

²⁶⁴Brigadier General Martin Berndt and Major Michael Jordan, "The Rescue of Basher 52," Proceedings (November 1995): 42.

support capability. The flight inland, which covered more than 100 miles, was conducted at low level and high speed, and encountered some ground fire along the way.

Nonetheless, Captain O'Grady was located, picked up, and returned safely to the Kearsarge, ending a six-day stay in hostile territory in Bosnia.²⁶⁵

Incredibly, the Marines have received severe criticism from some authors for the conduct of the O'Grady TRAP mission, principally due to the difference between Marine units' non-SOF status and the SOF status of Air Force or Army search-and-rescue forces. Comparisons of the MH-53E Super Stallion helicopters used by the MEU(SOC) to the Air Force's MH-60G Pave Hawk, comparison of Marine kevlar body armor and Ranger body armor, lack of full night-vision capability, and insufficient medical training among Marine company-sized units, are just some of the arguments raised in criticizing the Marines.²⁶⁶ Lt. Colonel Christopher Gunther, who commanded the mission, responds to these criticisms by stating what should be obvious, that any mission can be improved by waiting for superior forces and equipment to become available, but at the expense of the

²⁶⁵Lt. Colonel Christopher Gunther, "Fortune Favors the Bold," Armed Forces Journal International (December 1995): 23.

²⁶⁶Michael Sparks, "One Missile Away From Disaster," Armed Forces Journal International (December 1995): 18-19.

prompt action that may be required in order to have any chance of succeeding: "In times of need, the enemy of 'good' is 'better'. Others may have a better canteen cup or e-tool, but if they aren't available, you go with what you've got."²⁶⁷

Another example of a special operation was the 1985 intercept of an airliner carrying the Achille Lauro hijackers, conducted by F-14s from the USS Saratoga. Given the nature of this mission, in which a civilian aircraft was forced to land in Sicily by U.S. warplanes, it is doubtful that the use of land-based aircraft would have been approved by a U.S. ally, a point underscored by Italy's refusal to turn the terrorists over to the United States.²⁶⁸ The ability to launch the mission from the Saratoga, which had been positioned by the National Command Authority in the eastern Mediterranean in anticipation of the operation, again highlights the advantageous nature of naval forces, which are free to come and go in international waters. The United States will not always have access to the facilities of other nations, making the ability to operate in international waters a very valuable attribute.

²⁶⁷Gunther, "Fortune Favors the Bold," 23.

²⁶⁸Simon, U.S. Countermeasures Against International Terrorism, 25-28.

Responding to a Short- or No-Warning Invasion

In the event of a short-warning crisis involving a ground invasion of a U.S. ally, such as Iraq's 1990 invasion of Kuwait, slowing or halting the invasion is viewed as a critical phase in the U.S. response.²⁶⁹ The ability to stop or slow significantly an armored advance is the main focus of the halt phase in U.S. strategy, and has been co-opted by the Air Force as the justification for several long-range, hi-technology systems, such as the B-2 bomber.²⁷⁰ The focus on stopping a large armored force as it streams across a neighbor's borders, however, is a dangerously narrow view of what is required to establish the conditions needed for the successful prosecution of a major regional war.

Of equal importance will be the need to defend regional ports and airfields, friendly force concentrations, and regional population centers from attack via ballistic missiles, *even in the absence of ballistic missile attacks*. The threat of using NBC weapons, delivered by ballistic

²⁶⁹William Cohen, Secretary of Defense Annual Report to the President and the Congress 1997 (Washington, D.C.: Department of Defense, 1997), 5; Cohen, Report of the Quadrennial Defense Review, Section 3, page 9.

²⁷⁰James Kitfield, "To Halt an Enemy," Air Force Magazine (January 1998): 62; General Charles Horner, "What We Should Have Learned in Desert Storm--But Didn't," Air Force Magazine (December 1996): 54; Glenn Goodman, "Virtual Overseas Presence," Armed Forces Journal International (April 1995): 12.

missiles, likely would serve as a strong deterrent to cooperation with the United States among regional nations, and could limit or prevent the use of regional facilities. The blackmail threat to regional population centers, and to population centers of U.S. allies both within and outside the theater, can best be met with theater missile defenses that are present in the region on a full-time basis, not by flying strikes from CONUS to destroy ballistic missile launch sites. The results of the 1991 "Scud Hunt" in Iraq indicate the difficulty of finding individual ballistic missile launchers in the territory of an enemy, even an enemy unable to defend its own airspace.²⁷¹ An adversary that *could* have remaining ballistic missiles and NBC warheads thus would retain the ability to blackmail U.S. allies, reduce U.S. access to regional facilities, and lower the likelihood of U.S. intervention.²⁷² The ability to defend, and to convince regional allies that the United States can defend them against ballistic missiles as well, will be crucial.

²⁷¹See Michael Gordon and Bernard Trainor, The Generals' War (Boston: Little, Brown & Company, 1995), Chapter 11, "The Great Scud Hunt," for an excellent depiction of the problems encountered in finding and killing Iraqi SCUDS.

²⁷²Colin Gray, "The Second Nuclear Age: Insecurity, Proliferation, and the Control of Arms," in Brassey's Mershon American Defense Annual 1995-96 ed. Williamson Murray (Washington, D.C.: Brassey's, 1995), 151-152.

Accordingly, the halt phase of an invasion must encompass more than just destroying armor on the move. Theater missile defense, available from the outset even without warning, and anti-air warfare capability must be combined with the ability to slow or stop an armored advance, if the conditions for successful termination of the conflict are to be produced.

Emerging systems expected to enter the fleet in the near future should allow naval forces to play a role in each of these aspects of a regional conflict. The most important of these systems are the Navy TMD systems, Lower Tier and Upper Tier.²⁷³ Also important will be emerging anti-armor weapons capable of being delivered by carrier aircraft or by Tomahawk missiles, which should allow surface combatants as well as aircraft carriers to play a part in the halt phase.²⁷⁴ Organic MCM capability is being pursued for all surface combatants and submarines, and should lower the current level of dependence on dedicated MCM ships.²⁷⁵

²⁷³David Foxwell and Joris Janssen Lok, "Naval TBM defense matures," Jane's International Defense Review (January 1998): 28-30.

²⁷⁴Captain Denis Army, "Tactical Tomahawk," Surface Warfare (September/October 1997): 22.

²⁷⁵The systems mentioned here--TMD, anti-armor weapons, and MCM systems--will be covered in greater depth in Chapter IV, and so will not be expanded on in Chapter III.

It is not intended here to portray naval forces as being capable of fighting and winning a regional war on their own. The Army and Air Force will have to participate in any crisis that qualifies as a major regional war, and it is hoped that allies will participate as well. However, by being present at the outset of such a crisis, naval forces should be able to shape events in such a way that successful termination of the conflict becomes more probable. The regular presence of Aegis cruisers and destroyers in the Mediterranean, the Persian Gulf, and the Pacific, should provide TMD capability on a full-time basis, and allow reinforcement of TMD coverage in times of crisis. The presence of Tomahawk-armed surface combatants should provide anti-armor capability on a full-time basis, sufficient to blunt if not to stop completely an armored advance. When combined with the ability of an ARG to insert forces of its embarked MEU(SOC), in order to seize facilities for follow-on forces, naval forces clearly represent an important element of slowing and halting an invasion, and providing the conditions needed for the successful prosecution of a regional war.

Enabling the Deployment of Follow-On Forces

In addition to their usefulness in crisis response, naval forces will be vital in the deployment of Army or Air Force units to a theater if a regional war must be fought.

This was true in 1917, in 1942, in 1990, and will remain true in the future. Unless the United States is called on to wage war against Canada or Mexico, the war by definition will be overseas, requiring the ability to send U.S. combat power overseas.²⁷⁶ Colin Gray elaborates:

It does not much matter that the exact locus and occasion for U.S. military interventions in the future cannot be predicted with certitude, because it is known that such interventions will be distantly overseas. Material large in volume or that is heavy has to move by sea from North America to Europe, Asia, or Africa.²⁷⁷

If U.S. military power is to be moved across the sea, U.S. naval forces will be the key enabler. Even for Air Force units that can transport themselves over part or all of the distance between CONUS and the theater in question, naval forces will be required during the transit time of those forces, and for protecting the facilities that those units will require in the theater. The same is true for the deployment of Army units, whose heavy equipment must come by sea. The SLOCs that the transport ships will use, the ports those ships will require for off-loading, the continued delivery of supplies for Army forces--all will depend on naval forces for their protection.

²⁷⁶Forward...from the Sea, 6.

²⁷⁷Gray, The Navy in the Post-Cold War World, 193.

The frequent analogy used to describe the sea services' crucial role in the transition from crisis to war is "holding the door open" for Air Force and Army entry into the theater. It is an important role, and one that may have been de-emphasized after 1991, due to the relative ease with which the Army and Air Force were able to deploy to Saudi Arabia. This is not to say that the Desert Shield logistical effort was anything but enormous. Rather, it is a reflection of the excellent, modern air and sea bases that awaited U.S. forces arriving in Saudi Arabia, and the all-important fact that Saddam could do little to impede the arrival of U.S. forces, and did not make the efforts he was capable of. Instead, the United States was given a six-month period of unobstructed build-up in Saudi Arabia, without any interference from Iraqi forces.²⁷⁸ In a future conflict, U.S. naval forces will be required to hold the door open in two distinct but equally important regards. First, the sea and air lines of communication must be

²⁷⁸For an excellent treatment of the logistical effort involved in Desert Shield / Desert Storm, see Lt. General William Pagonis, Moving Mountains: Lessons in Leadership and Logistics from the Gulf War (Boston: Harvard Business School Press, 1992). Pagonis likens the logistical effort of the Gulf War to, "Transporting the entire population of Alaska, along with their personal belongings, to the other side of the world, on short notice," and to, "feeding all the residents of Wyoming and Vermont three meals a day for forty days."

cleared and kept open. Secondly, the facilities at the end of the communication lines must be protected against attack.

Clearing the sea lines of communication will be most difficult in the approaches to the region, particularly if a maritime chokepoint is involved. In fact, given the current preponderance of the U.S. Navy in open-ocean capability, it is not unrealistic to state that clearing the sea lines will center on the terminal portion of the transit from U.S. ports to regional ports, rather than the Cold War model of naval forces having to fight their way across the Atlantic Ocean to reach Europe.²⁷⁹ Mines, submarines, and anti-ship cruise missiles are expected to be employed in a sea denial strategy by regional opponents, with the goal being to stop or merely delay the transport of U.S. forces into the theater.²⁸⁰ Accordingly, naval forces will have to provide MCM capability, ASW capability, theater air and anti-cruise missile defense, and strike capability in order to deal with the expected threats. More importantly, these capabilities will need to be present at the outset of a crisis, meaning that all surface ships and battle groups must possess at least some degree of organic MCM and air defense

²⁷⁹David Yost, "The Future of U.S. Overseas Presence," Joint Force Quarterly (Summer 1995): 73.

²⁸⁰Goure and Mauldin, Naval Forward Presence: Status, Prospects, 10.

capability.²⁸¹ Also, because crisis operations are often "come-as-you-are" events, without the time for deploying distant assets into a theater, the MCM and air defense assets of allies will be important additions to U.S. assets, re-emphasizing the need for U.S.-allied training.²⁸²

At the end of the transit from CONUS or other theaters, arriving Army forces and Air Force aircraft still require modern facilities for disembarking or landing. Since port and airfield facilities are large, static aim-points, ballistic missiles provide an excellent means for an aggressor to attack these high-value targets. Especially for nations such as Iraq or North Korea, whose air forces are very unlikely to be effective in the face of modern air defense systems, ballistic missiles provide the means to conduct the deep-strike attacks that their aircraft cannot conduct.

Although Iraq did not employ its SCUD and Al Hussein missiles prior to the initiation of hostilities, after 15 January 1991 Iraq fired ballistic missiles at a variety of

²⁸¹David Foxwell, "Mine-conscious surface ships back on the agenda," Jane's International Defense Review (May 1997): 26; Alan Maiorano, Nevin Carr, and Trevor Bender, "A Primer On Naval Theater Air Defense," Joint Force Quarterly (Spring 1996): 26-28; Captain Gary Holmstrom, "Joint Theater Air and Missile Defense: A Primer for the Surface Warrior," Surface Warfare (March/April 1998): 30-31.

²⁸²Goure and Mauldin, Naval Forward Presence: Status, Prospects, 12.

military and population targets. While the effect of Iraq's missiles was felt largely in the political sphere, where Israel had to be dissuaded from retaliation, Iraq literally came within yards of a potentially devastating hit on coalition ships and supplies at Al Jubayl, Saudi Arabia. On 16 February an Iraqi missile fell into the harbor an estimated one hundred yards from a pier at which five ships, including USS Tarawa (LHA-1), were moored. On the pier itself were Army fuel trucks, 155mm artillery shells, and assorted other military equipment.²⁸³ The Tarawa, positioned directly adjacent to the 155mm storage area, would have been at tremendous risk of her own magazines and aviation fuel being ignited if the SCUD had hit the pier, probably leading to the destruction of the ship.

Iraq's use of ballistic missiles, which led to the single largest loss of life for the coalition at Dharan on 25 February, when a storage and barracks facility was hit, is even more sobering when it is considered that Iraq rarely engaged in multiple-missile salvos, instead firing individual SCUDs at regional targets.²⁸⁴ If a regional adversary was able to fire large numbers of missiles at a port or airfield, perhaps twenty or twenty-five at a time,

²⁸³John Gresham, "Navy Area Ballistic Missile Defense: Coming On Fast," Proceedings (January 1999): 58-59.

²⁸⁴Ibid.

it is reasonable to expect that several missiles would land on or near something valuable. And of course, if the missiles carried chemical or biological warheads rather than high explosive, the missiles would need to hit only within a kilometer or so of their aim point to be effective. Thus the ability to defend against ballistic missiles is a critical requirement for a future regional conflict.

Finally, the Gulf War model, in which arriving U.S. forces found massive, modern facilities waiting for them, should not be viewed as representative of all possible future regional conflicts. Depending on the location of the conflict and the adversary's ability to target existing facilities, the Marines may be called on to seize facilities ashore, or to land and establish suitable locations for the unloading of forces and supplies "over the beach".²⁸⁵ It may also be necessary for the Marines to land in order to clear the shore areas of a chokepoint, for example by seizing Queshm Island, Abu Musa, and the Tunb Islands in the Strait of Hormuz.

Wherever a regional conflict is situated, deploying Army and Air Force units to the theater will require that naval forces are present to keep open the lines of communication, and to protect facilities until Army and Air Force strength has been built up sufficiently that they can

²⁸⁵DeYoung, "Sea Power Is Grand Strategy," 77.

protect themselves. Since forward-deployed naval forces are maintained in the most likely areas of crisis on a full-time basis, there is reason to be confident about the continued ability of the United States to fight a regional war. If all U.S. forces were withdrawn to CONUS, however, the deployment of U.S. forces to a distant theater would become very problematic. The forward presence mission thus can be seen to retain its importance in U.S. security strategy, even in the absence of the Soviet Union or a similar global, peer-level threat.

Summary

The presence of U.S. military force in proximity to U.S. interests is a requirement unlikely to diminish in the future. As long as U.S. interests reside far from CONUS, threats to U.S. interests must be guarded against. Particularly in the Mediterranean, the Persian Gulf, and East Asia, military forces are needed to protect U.S. interests against existing threats, and to hedge against unforeseen threats. For the purposes of deterring aggressors and protecting U.S. interests, forces that are forward-based or forward-deployed have clear advantages over CONUS-based forces. Where the threat is clearly identified, as on the Korean Peninsula, land forces may be appropriate for guarding U.S. interests. However, for many reasons forward-deployed naval forces often are more desirable than

forward-based ground forces. Primarily for providing flexible, responsive, and combat-capable forward presence, naval forces are the preferred method of positioning U.S. military power near U.S. interests.

Naval forces provide reliable access to any area of the world accessible by sea, which encompasses an ever-growing portion of the earth's landmass. The forced entry capability of naval forces, embodied principally by Navy-Marine ARGs, allows the insertion of land power from the sea, both for discrete combat operations and to allow the follow-on of Army or Air Force units. Naval forces possess superb sustainability when at sea, both through their onboard stores and through the ability to replenish while underway. Naval forces are less obtrusive when positioned in international waters than U.S. forces on the territory of another state, an important consideration for political and religious reasons in the Persian Gulf. With the ability to operate in the air, on land, and on and under the sea, naval forces are uniquely flexible in responding to crises, and can respond at any point along the spectrum of crisis, from non-violent intervention to sustained combat operations. Also, naval forces can adjust their level of visibility, by alternately stationing themselves in plain sight or remaining over the horizon, and so can monitor an area of tension without being seen as provoking further tension. Finally, and most importantly, naval forces do not require

the permission of any entity except the National Command Authority to conduct a full range of operations, as their position in international waters makes them an extension of sovereign U.S. territory.

By virtue of the above qualities, the Navy-Marine Corps team can be employed in the practice of naval diplomacy, which describes military actions short of war, intended to influence what other states think and do. Since U.S. interests are located around the world, and naval forces are inherently mobile, naval diplomacy provides a tremendously flexible and responsive tool to U.S. policy-makers.

Included under the concept of naval diplomacy are such military-political activities as deterrence, signaling U.S. interest in a region, providing re-assurance to U.S. allies, intimidating a potential adversary through visible combat power, limited combat operations, enforcement of international sanctions, enforcement and protection of freedom of the seas, and non-combat operations.

The two principal instruments of naval diplomacy in the current international setting are the aircraft carrier battle group (CVBG) and the amphibious ready group (ARG). The CVBG in particular holds preeminent status as a symbol of American sea power, and sends a proportionate message when used for naval diplomacy. The ARG, although not capable of as wide a range of combat operations as the CVBG, nonetheless is a very flexible and valuable instrument of

naval diplomacy. Due to the very high readiness maintained by deployed naval forces, both CVBGs and ARGs can transition from peacetime operations to crisis response or combat operations nearly instantly.

For purposes of deterrence, naval forces combine the requisite capability and credibility to be effective. Because naval forces do not need basing support or political permission to conduct combat operations, their threatened use is more credible than that of land-based forces. Also, naval forces' growing capability to conduct limited strikes with un-manned systems means that, in appropriate cases, such strikes can be launched with no risk of U.S. casualties, a factor that adds to the credibility of threatened action. When force must be used, force originating from the sea may be more acceptable to U.S. allies in terms of political support, as it does not implicate allies through the use of their facilities. Naval forces' visibility, which can be increased or lowered as the situation dictates, provides great flexibility in the escalation of deterrent efforts, and perhaps is the most important factor operating on the minds of adversaries. A wing of B-2 bombers may be capable of carrying out threatened action, but if it is not visible to an adversary it may not deter. Since the adversary's perception ultimately is what determines the success or failure of

deterrence, visibility counts for a great deal, and naval forces offer unique scalability in this regard.

When used to signal U.S. interest or support, naval forces can be employed in a variety of ways. Sending naval forces to an area on routine deployment is itself a signal of U.S. interest, and is the reason that the Mediterranean, the Persian Gulf, and East Asia maintain full CVBG coverage. The positioning of naval forces near specific locations during periods of crisis, for example near Taiwan during the 1996 PRC "missile diplomacy" operations, sends a message of heightened U.S. interest. Another means of signaling interest is through a port visit by U.S. warships, which serves both to announce U.S. friendship with the host nation and to support the upkeep of the naval forces. Even a port visit can carry a clear message to regional observers, as when USS Sam Houston (SSBN 609) visited the Turkish port of Izmir in 1963, advertising the U.S. nuclear umbrella provided to Turkey.²⁸⁶

When signaling U.S. interest falls short, and the use of limited force must be employed to convince an adversary to change its behavior, naval forces' ability to apply force incrementally from a secure sea base makes them ideal instruments of U.S. policy. The instruments of choice for limited use of force have been aircraft and cruise missiles,

²⁸⁶Breemer, "Where Are the Submarines?" 41.

since these systems can destroy targets while minimizing risk to U.S. forces, and naval forces can deliver both aircraft and cruise missiles to locations where force must be used.

Another instrument of naval diplomacy is the enforcement of international economic sanctions. Since the great majority of world commerce moves by sea, naval forces can provide the means to apply economic leverage against states that have exceeded international norms for acceptable behavior. Only ships can stop, board, search, and impound other ships, requiring naval forces to be present in the vicinity of sanctioned states.

Often overlooked, perhaps due to its fundamental place in U.S. policy, is the important need to enforce freedom of the seas, and to challenge unacceptable claims to international waters by coastal states. The ships of the U.S. Navy fulfill this vital mission every day, in all the world's seas.

In addition to their use in naval diplomacy, naval forces support several other important requirements in U.S. defense policy. Since naval forces regularly operate in regions of U.S. interest, they are able to conduct frequent training operations with U.S. allies, an important means of maintaining interoperability in case of war. Equally important in keeping U.S. forces prepared for regional war is the need to maintain familiarity with different regions

of the world. Different regions have their own unique characteristics, and constant operations in those regions build familiarity in case of war.

Crisis response has replaced global general war as the primary concern of the U.S. military, as the dissolution of the Soviet Union removed the only plausible threat of a global war. Crisis response may involve combat or non-combat operations, and may be large or small in scale, but requires the ability to respond on short notice. Both through physical proximity and through high everyday readiness, forward-deployed naval forces are well-suited to crisis response. Naval forces should soon be equipped to take part in the halt phase of sudden cross-border attacks, as existing and projected anti-armor weapons begin to enter the fleet. For the transition from crisis to a regional war, naval forces will provide vital service by maintaining the sea and air lines of communication open, and providing TMD capability for the defense of regional facilities, population centers, and force concentrations. If regional facilities are not available or accessible, the Marines' forced entry capability may be needed to secure facilities and safe logistical marshaling areas.

While the primary threat to U.S. interests has changed with the demise of the Soviet Union, the need to maintain military force near U.S. interests abroad has not diminished. As long as U.S. interests reside far from

CONUS, which would seem to include the future as far as can be seen or predicted, U.S. military power must also be deployed far from CONUS. By virtue of mobility, flexibility, sustainability, scalability, and independence from host nation permission, forward-deployed naval forces represent the best means of protecting U.S. interests abroad. Chapter IV will examine the component capabilities and systems of naval forward presence, both at present and in the near future.

CHAPTER IV

IMPLICATIONS FOR SYSTEMS AND CAPABILITIES

In meeting the requirements of providing forward presence, U.S. naval forces will need certain capabilities in the future. Those capabilities in turn depend on specific systems, some of which exist at present and some of which are under development. Some systems, for example the aircraft carrier, have been suggested to be obsolete in the post-Cold War setting. Others, such as TMD, have been identified as important but have yet to be fielded.

Chapter IV will examine the capabilities and systems required for the naval forward presence mission in the twenty-first century, and will examine the Navy's twenty-first century warfighting concept, known as Network-Centric Warfare (NCW).

The Shift to a Littoral Focus

In 1992, shortly after the break-up of the Soviet Union, the U.S. Navy announced a shift in emphasis from open-ocean operations to operations in the littorals, defined as areas within 650 miles of the coast. The Navy document ...From The Sea stated that:

With the demise of the Soviet Union, the free nations of the world claim preeminent control of the seas and

ensure freedom of commercial passage. . . . This strategic direction, derived from the National Security Strategy, represents a fundamental shift away from open-ocean warfighting on the sea toward joint operations conducted from the sea.²⁸⁷

The emphasis on littoral regions stems from the absence of a global peer competitor, able to challenge U.S. interests on the high seas, and a new focus on deterring regional crises. Since nearly 75 percent of the world's population live within the littoral region, and since U.S. interests abroad exist primarily in the littorals, it is logical for the focus of the sea services to be directed at coastal areas.

The littoral area typically is a very busy place, with heavy traffic on the seas and in the air. The ships and planes of friendly forces, enemy forces, and neutral states all occupy a compressed space, with identification and the monitoring of movement posing a serious difficulty.²⁸⁸ Due to the need for U.S. naval forces to approach the shore in order to influence events on land, the littoral offers adversaries the opportunity to layer their defenses. Mines, anti-ship cruise missiles, and submarines in particular are expected to form layered, supporting defenses for coastal states that desire to keep U.S. forces from approaching.²⁸⁹

²⁸⁷ ...From The Sea, 3.

²⁸⁸ Ibid., 6.

²⁸⁹ Stephen Keller, "To Influence Events Ashore," Sea Power (April 1998): 87.

The focus on the littorals also offers opportunities to the United States in its efforts to protect national interests. Naval forces can project power inland for many hundreds of miles, allowing U.S. sea power to influence events ashore as never before.

The Marine Corps also has developed a littoral concept of operations, still focused, as Marine operations always have been, on events on land, but now conducted and enabled by position and mobility at sea. Known as Operational Maneuver From the Sea, the concept envisions using the sea as a secure base for maneuver, at the operational level, to allow Marine forces to strike directly at enemy "centers of gravity" rather than assaulting through enemy defenses.²⁹⁰ With the current level of sophisticated weapons contained in the arsenals of many regional states, the movement of Marine forces from sea to land will have to be conducted from greater distance offshore than in the past. In order both to protect ARGs and Marine landing forces from shore-based weapons, and to maintain uncertainty about the destination of Marine landings, future amphibious operations are likely to be conducted from over the horizon.²⁹¹

²⁹⁰"Operational Maneuver From The Sea: A Concept For The Projection Of Naval Power Ashore," Surface Warfare (July /August 1996): 9.

²⁹¹Krulak, "Projecting Combat Power Ashore," 27-28.

In order to be successful, Operational Maneuver From the Sea will require tactical and operational mobility, dedicated fire support, aviation support, and mine countermeasures support (MCM). In addition, all naval vessels will require better self-protection capabilities if they are to operate close to shore.²⁹² Finally, both Navy and Marine units require improvements in nuclear, biological, and chemical (NBC) detection and protection.²⁹³

The overall Navy-Marine Corps focus on operations closer to the shore than in the past dictates that existing systems be examined for their continued relevance, and that new systems be approached from the standpoint of their suitability to the littoral environment. Accordingly, there are two major areas of emphasis in examining the twenty-first century Navy-Marine Corps team's systems and equipment. The first is the ability to project military power ashore, whether in the form of an ARG's ground combat units, naval surface fire support (NSFS), or a CVBG's air strikes. The second is the ability to defend the force against littoral threats, and includes anti-submarine

²⁹²Robert Holzer, "Funding Shortage Will Delay U.S. Ship Defense System," Defense News, 14-20 April 1997, 22.

²⁹³Mark Ormsby, "The Chemical and Biological Warfare Threat to Naval Forces," Surface Warfare (November/December 1996): 5-8; Stanley Enatsky, "Protecting the Fleet: Tackling the Chemical/Biological Threat," Surface Warfare (November/December 1996): 29-31; Major Victor Riley III, "We Need to Learn ABCs of NBC," Proceedings (August 1993): 38-39.

warfare (ASW), MCM, TMD, and NBC protection. These two broad areas of concern will comprise the bulk of this chapter.

ARG Component Systems

Under the concept of Operational Maneuver From the Sea (OMFTS), the characteristics of mobility and survivability will be crucial. Navy-Marine ARGs will have to place the Marines ashore from over the horizon, while defending themselves against a variety of threats. The systems that are envisioned for the twenty-first century ARG include several different amphibious ships, two types of landing vehicles, and a replacement aircraft for existing CH-46 helicopters. Systems that are in service today, or about to enter service, are the LHA-1 class, LHD-1 class, and LSD-41/49 class amphibious ships, and the Landing Craft Air Cushion (LCAC). Systems under development are the LPD-17 class amphibious ship, the Advanced Amphibious Assault Vehicle (AAAV), and the MV-22 Osprey tilt-rotor aircraft. The amphibious ships will form the ARG of the future, while the LCAC, AAAV, and MV-22 will form the Marine Corps' "triad" for delivering units from the sea to shore.²⁹⁴

²⁹⁴Vincent Grimes, Richard Scott, and Mike Wells, "Amphibious Advancement," Jane's Navy International (September 1997): 24-26.

The five LHA-1 Tarawa-class amphibious ships date from the mid-1970s, with the oldest being twenty-two years old. With a thirty-five year initial service life, and a Service Life Extension Program (SLEP) refit expected to extend the ships to nearly fifty years, the LHA-1 class should be in service well into the twenty-first century.²⁹⁵

The LHA-1 is some two hundred feet longer than the LPH-1 class ships it was designed to replace, as well as having nearly twice the displacement of the LPH-1s. The LHA-1 ships can operate a mixture of up to forty-two CH-46E, CH-53E, UH-1, and AH-1 helicopters, and six AV-8B Harrier jets. Over seventeen hundred Marines can be embarked, along with their AAV7A1 vehicles, but only a single LCAC can be accommodated.²⁹⁶ The LHA-1s are used as the big-deck ship in an ARG, and can modify their mix of aircraft depending on the mission.

The newer and larger LHD-1 Wasp-class ships are the largest amphibious ships ever built, with a displacement of over forty thousand tons at full combat load.²⁹⁷ In comparison, the World War Two Essex-class carrier Wasp (CV-18) displaced thirty-three thousand tons when fully

²⁹⁵Bryan Bender, "USN study will decide future of amphibious fleet," Jane's Defense Weekly, 17 June 1998, 8.

²⁹⁶Sea Power Almanac Issue (January 1999): 116-117.

²⁹⁷Ibid.

loaded.²⁹⁸ Based on a modified LHA-1 hull, the LHD-1s can carry twenty-one hundred Marines, three LCACs, forty-five helicopters, AV-8Bs, five M1A1 main battle tanks, twenty-five Light Armored Vehicles (LAV), eight M 198 artillery pieces, sixty-eight heavy trucks, and ten logistical vehicles. In addition, the six hundred-bed hospital facilities aboard the LHD-1s are second in size only to those found on dedicated hospital ships.²⁹⁹

The original Marine Corps request for ten LHD-1s was halved by the Navy for budgetary reasons, but was later increased to seven through the direct intervention of Congress. At a cost of over one billion dollars each, the LHD-1s are among the most expensive surface ships in the fleet, trailing only the full-size aircraft carriers as a capital investment.³⁰⁰ The fifth and sixth of the LHD-1s, USS Bataan (LHD-5) and USS Bonhomme Richard (LHD-6), have joined the fleet in the last fifteen months, while the final

²⁹⁸Jane's Fighting Ships of World War II (New York: Military Press, 1989), 267.

²⁹⁹Commander Christopher Wode, "The Forward Warriors: The United States Must Revitalize Its Amphibious Fleet," Armed Forces Journal International (March 1994): 26; Grimes et al., "Amphibious Advancement," 27.

³⁰⁰Scott Truver, "Tomorrow's Fleet, Part II," Proceedings (August 1996): 58.

ship of the class, USS Iwo Jima (LHD-7) is expected to be commissioned in 2001.³⁰¹

Due to the significantly higher capabilities of the LHD-1s compared to the LHA-1s, proposals have been made to spend the roughly one billion dollars budgeted for the LHA SLEP refits on additional LHD-1s. Citing the LHD-1's superior hangar and deck space, larger well deck, ability to operate larger numbers of MV-22s, and improved self-defense capability, both the Senate Armed Services Committee and Marine Corps Commandant General Charles Krulak have openly supported purchasing more LHD-1s.³⁰² The two hundred million dollars of additional cost involved in building new LHD-1s, instead of refitting the LHA-1s, would be more than offset by the improved capability of the Wasp-class ships, as well as providing a new ship with a fifty-year life span, rather than simply extending the life of an existing LHA for another fifteen years. Chief of Naval Operations Admiral Jay Johnson has indicated agreement in principle, adding that the thirteen years until the LHA-1s begin their SLEP refits should allow ample time for studying the trade-offs

³⁰¹Richard Burgess, "Fifth Wasp-Class LHD Joins the Active Fleet," Sea Power (November 1997): 39; Richard Burgess, "USS *Bonhomme Richard* Joins the Active Fleet," Sea Power (September 1998): 24; Vision, Presence, Power, 61.

³⁰²Bender, "USN study," 8.

of the proposal.³⁰³ Whatever decision is reached, the Navy-Marine ARG requirement is for twelve big-deck ships for the future fleet, with current plans calling for a balance of five LHA-1s and seven LHD-1s.³⁰⁴

The newest amphibious ship is the LPD-17 San Antonio-class, the first of which is due to be commissioned in 2002. The LPD-17s will carry 720 Marines, two LCACs, and up to four CH-46E or CH-53E helicopters. Storage space aboard ship will be over twenty-five thousand cubic feet for vehicles, and over thirty-six thousand cubic feet for other stores.³⁰⁵ Intended to replace ships of the LST-1179 class, LSD-36 class, LKA-113 class, and LPD-4 class, the LPD-17 reflects the influence of the OMFTS philosophy. Unlike its predecessors, the LPD-17 will not be able to beach itself in order to offload equipment and supplies, will not be able to turn 360 degrees within its own length in shallow water, cannot pump bulk fuel ashore, and will have only a ten-ton over-the-side lifting capacity, compared to thirty tons on previous classes of amphibious ships.³⁰⁶

³⁰³Ibid.

³⁰⁴James Hessman, "For the Corps and for the Nation," Sea Power (November 1997): 13, 17; Krulak, "Projecting Combat Power Ashore," 28.

³⁰⁵Vision, Presence, Power, 62.

³⁰⁶Major Thomas Lloyd, "The Whole LPD-17 Story," Proceedings (November 1996): 73.

Since OMFTS posits the delivery of the Marines from over the horizon, the shallow-water capabilities mentioned above should not be required. Also, due to the perceived need to reduce vulnerability to littoral threats as much as possible, the LPD-17's crane size was reduced to lower the ship's radar signature, sacrificing lifting capability for a smaller radar return.³⁰⁷ Thus the OMFTS vision of amphibious operations can be seen in the design features of the newest amphibious ship.

In addition to attempts to lower radar visibility, the LPD-17 class will have unprecedented self-defense capability. The Integrated Combat Direction System (ICDS), a combination of existing combat direction and self-defense systems, will be installed in the LPD-17s, as will a forward VLS cell with sixty-four Evolved Sea Sparrow missiles guided by a pair of Mk 91 fire control units. A pair of Rolling Airframe Missile launchers and a pair of Mk 15 Phalanx Close In Weapons System (CIWS) mounts also will be installed.³⁰⁸

In addition to the ARG ships, the Marine Corps is in dire need of the new amphibious assault vehicle. The AAV is a critical modernization requirement for the Marine Corps, as many existing AAV7A1 vehicles already have served for over thirty years. The AAV is expected to begin

³⁰⁷Ibid.

³⁰⁸Grimes, et al., "Amphibious Advancement," 25.

production in 2005, and to begin service with the fleet in 2007. The last of the AAV7A1s will not be replaced until 2011, at which time they will be nearing fifty years of service.³⁰⁹

Capable of speeds of twenty-five knots in the water, and forty-five miles per hour on land, the AAV will be a great improvement over the AAV7A1, which is limited to eight or nine knots in the water.³¹⁰ Additionally, the AAV will be able to carry its eighteen Marines ashore from over the horizon, as its range in the water is seventy-five miles. Equally valuable will be the use of Global Positioning System (GPS) data to allow precise navigation from ship to shore, at night or in poor weather, easing command and control problems associated with the transition from sea to land. Precise navigation also may be required in order to pass through clear lanes in enemy minefields.³¹¹

The AAV is being designed with a number of features that should improve its survivability. It is intended to be seaworthy in up to nine-foot seas, to be able to roll up to sixty degrees to either side, and to pitch up or down to a

³⁰⁹Jim Courter and Merrick Carey, "An Alligator for The 21st Century," Sea Power (November 1997): 53.

³¹⁰Ibid., 51; Krulak, "Projecting Combat Power Ashore," 28.

³¹¹Robert Holzer, "U.S. Marine Corps Readies for AAV Prototype Phase," Defense News, 17-23 August 1998, 18.

vertical position as it passes over waves without foundering. Modular composite armor, able to be installed or removed as dictated by the situation, will improve survivability to battle damage. The proven Bushmaster 30mm cannon of the Army's Bradley fighting vehicle has been paired with a forward-looking infra-red sighting system and computer fire control.³¹² Finally, the AAV will be one of just two American land combat vehicles (the Bradley being the other) with full NBC protection, allowing its occupants to travel through areas of chemical or biological contamination without donning special protective gear.³¹³

Like the LPD-17, the AAV is a manifestation of the requirements of OMFTS. It possesses the speed in water and range to be launched from over the horizon, and should be much more survivable than its predecessor. Although the AAV will not enter service for another eight years, it already is being factored into Marine Corps doctrinal development and amphibious tactics.³¹⁴

³¹²Courter and Carey, "An Alligator for the 21st Century," 53.

³¹³Holzer, "US Marine Corps Readies," 18. It should be noted that troops in the AAV would still need to don protective gear before leaving the vehicle, or to have the vehicle thoroughly de-contaminated. However, the ability to pass through contaminated areas is an important improvement over the AAV7A1.

³¹⁴Roman Schweizer, "Waterworld: The Marine Corps Is Rethinking Operations Ashore and May Just Stay At Sea," Armed Forces Journal International (September 1998): 60.

A second important leg of the Marines' amphibious triad is the MV-22 Osprey tilt-rotor aircraft, intended as a replacement for existing CH-46E and CH-53E helicopters. In order to meet the OMFTS requirement of delivering combat power directly to an enemy's center of gravity, which may be miles or hundreds of miles inland, the ability to employ vertical assault is crucial. The Vietnam-era CH-46E and CH-53E helicopters have been performing this role for many years, and each is nearing the end of its useful service life. The CH-46E in particular is showing signs of age, as seen from its accident record between 1985 and 1995, when one CH-46E was lost nearly every three months due to airframe failure or accident.³¹⁵ Not surprisingly, Marine Commandant General Krulak has stated that his number one modernization priority is the development of the MV-22.³¹⁶

The MV-22 is a hybrid aircraft, able to take off and land vertically like a helicopter, but also able to fly as a fixed-wing airplane. The MV-22's oversized propellers are mounted at the end of its wing, and the entire engine assembly can be rotated forward after takeoff, allowing the Osprey to transition from vertical lift to forward flight. While its two to three-fold increase in payload over the CH-

³¹⁵Loren Thompson, "Marine Corps Tilts Into the Future," Sea Power (November 1997): 43.

³¹⁶Hessman, "For the Corps and for the Nation," 13.

46E is significant, its most important feature is its five-fold increase in speed. After taking off and shifting to forward flight, the Osprey has a top speed of 275 knots and a range of two hundred miles.³¹⁷ The Osprey can carry twenty-four fully-loaded Marines, can refuel in flight, and has a ferry range of twenty-one hundred miles with a single aerial refueling.³¹⁸

The Osprey currently is undergoing sea trials aboard USS Saipan (LHA-2), which will include vertical and rolling takeoffs, landing at various ship speeds, landing in high winds, lifting netted cargo from a sling hook, and night operations.³¹⁹ The Marine Corps plans to purchase 360 Ospreys, with the first being delivered in 1999. The first operational squadron is expected to be formed in 2001, with the last Ch-46Es being replaced in 2014.³²⁰

The MV-22 might have entered service as early as 1991, since it began development in 1985. However, technical problems and strong resistance from different quarters in the Department of Defense nearly killed the MV-22

³¹⁷Richard Burgess, "Naval Aviation Program Update," Sea Power (June 1998): 10.

³¹⁸Thompson, "Marine Corps Tilts Into the Future," 46; Vision, Presence, Power, 57.

³¹⁹"V-22 Tiltrotor Aircraft Undergoes Sea Trials," Defense News, 8 February 1999, 15.

³²⁰Thompson, "Marine Corps Tilts Into Future," 43.

development program. Only the continued insistence of Congress that the MV-22 be developed and fielded kept the project alive.³²¹ It is unpleasant to consider where the Marine Corps might be today, with no replacement for the aging CH-46, had the MV-22 been allowed to die.

The third leg of the amphibious triad is the Landing Craft Air Cushion (LCAC). Capable of carrying sixty tons (seventy-five tons in a maximum overload configuration), and able to travel over water at forty knots, the LCAC provides a critical ability to deliver heavy vehicles from ship to shore quickly, including the M1A1 tanks recently acquired by the Marines.³²² The first LCAC was delivered to the Navy in 1984, with a total of ninety-one LCACs ordered through 1997.³²³

Typical loads for an LCAC are: one main battle tank; four LAVs; three AAV7A1 amphibious vehicles; or two M 198 155mm towed howitzers.³²⁴ With a deck area of eighty-one by

³²¹Ibid., 45. One of the strongest opponents of the MV-22 was Secretary of Defense Dick Cheney, who felt it was too expensive. Ironically, it was the arrival of Bill Clinton, one of the worst Presidents of this century in regard to national security and defense issues, that helped rescue the MV-22. Clinton had endorsed the MV-22 during his 1992 campaign, and he continued to support it after the election.

³²²Vision, Presence, Power, 61.

³²³Norman Polmar, Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet (Annapolis: Naval Institute Press, 1993), 183; Vision, Presence, Power, 61.

³²⁴Polmar, Naval Institute Guide, 184.

twenty-seven feet, the LCAC could also carry well over one hundred troops, time-sensitive bulk cargo such as ammunition or fuel, and any of the assorted items of equipment that a MEU(SOC) might desire to take ashore. The LCAC has a projected service life of thirty years, including a SLEP program at fifteen years.³²⁵ Able to drive itself into and out of the well decks of LHA, LHD, LSD, and LPD amphibious ships, and able to travel 200 miles with a full sixty-ton payload, the LCAC is a very versatile and valuable vehicle.

The ARG's ships, which in the future will consist of an LHA or LHD big-deck ship matched with an LSD and LPD, should be able to position the LCACs, AAVs, and MV-22s in proximity to an enemy's coast, enabling the Navy-Marine Corps team to project power ashore virtually anywhere in the world. When combining the LCAC, the AAV, and MV-22 in the future, the Marine Corps amphibious triad should be able to deliver combat power quickly, both onto and beyond the beach, enabling OMFTS's vision of rapidly moving Marine forces striking directly at adversary centers of gravity.

Naval Surface Fire Support

Among the different areas of naval warfare, possibly no area is undergoing a more dramatic change than naval surface fire support (NSFS). In addition to a new concept for

³²⁵Vision, Presence, Power, 61.

organizing and directing NSFS, known as Ring Of Fire (ROF), several weapons programs are underway that will utilize a combination of GPS data and on-board sensors to provide highly accurate fire support to Marine forces ashore. The application of GPS guidance to ordinary iron bombs already has produced the Joint Direct Attack Munition (JDAM), which should allow virtually any tactical aircraft to make precision attacks previously limited to F-18D or A-6E aircraft equipped with laser designators. This section will cover two systems designed specifically for launch or firing from surface combatants, rather than from aircraft. These two systems are the 5-inch gun/Extended Range Guided Munition and the Tactical Tomahawk.

The 5-inch rifled gun has been the standard naval gun since the early twentieth century, and continues to serve on every destroyer and cruiser in the fleet. The current model is the 5in/54 caliber Mk 45, which was designed and fielded in the mid 1960s primarily as an anti-air weapon. Although the anti-air warfare (AAW) mission has shifted to missiles, the 5-inch gun has been retained for its secondary roles of fire support and anti-surface warfare. The thirteen-mile range of the gun was not seen as a major disadvantage during the 1960s and 70s, since many older 8-inch gun cruisers, as well as the Iowa-class battleships, remained on active duty

with the fleet.³²⁶ With the retirement of the Iowa-class ships, apparently for good, the only naval gun remaining is the Mk 45. With the Navy's shift to littoral operations, the range of the Mk 45 has become a serious limitation in providing NSFS.

The Marine Corps is the primary driver of gunfire requirements. With the new Operational Maneuver From the Sea strategy, the Marines now require gunfire support to a much greater depth than in the past. Starting with the twenty-five-mile offshore position typical of amphibious operations, the Marines require fires to a depth of sixteen miles inland to prepare the beach landing area, as well as an additional twenty-two miles to suppress enemy artillery and tactical missiles. Thus the Marine requirement of providing support fires from a distance of sixty-three miles has become the criteria for NSFS.³²⁷

Firing a 5-inch round to a range of sixty-three miles is made possible through modifications to the Mk 45 gun, increasing the size of the round's propellant charge, and providing a new type of 5-inch shell with rocket assistance. Fortunately, the Mk 45 gun is not limited by chamber pressure, but only by the strength of the recoil mechanism,

³²⁶Dennis Hagan, "Naval Gunfire Support: Versatile Weapons Systems for Warfighting Needs," Surface Warfare (September/October 1997), 30-31.

³²⁷*Ibid.*, 32.

so that adding forty inches to the barrel length and strengthening the recoil/counter-recoil components will allow the larger propellant charge. The rocket propellant is designed to burn for several seconds after launch, increasing the shell's apogee and giving the shell additional velocity.³²⁸

The most important component of the new gunfire support system, however, is the new projectile. Even at a range of only thirteen miles, with observer support, the Mk 45 has a circular error probable (CEP) of 333 meters. Maintaining and improving on this level of accuracy at sixty-three miles would be virtually impossible without some type of guidance. The new Extended Range Guided Munition (ERGM) utilizes a combination of GPS data and an inertial navigation system (INS) to maintain the accuracy needed for close gunfire support. In order to accommodate the GPS/INS guidance package, as well as a submunitions payload, the ERGM has a length of sixty-one inches, compared to around forty inches for standard 5-inch shells.

The ERGM utilizes GPS data in two ways. Prior to firing, the location of the target is fed into the shell's guidance system. Since GPS data is three dimensional, differences in altitude between the ship and the target are

³²⁸Captain John W. Townes III, "Naval Surface Fire Support: On Target," Surface Warfare (January/February 1997), 24-26; Hagan, "Naval Gunfire Support," 32-33.

accounted for. Next, immediately after firing the ERGM's GPS receiver locks on to four GPS satellites, allowing for precise self-location. The ability to lock on to GPS satellites in the early seconds of flight is crucial, as enemy jamming of the GPS signal is expected as the shell nears the target area. In addition, the INS system cannot easily be calibrated prior to firing. Instead, the GPS receiver updates the INS after firing, allowing the INS to be initialized in flight. The GPS/INS system controls a set of small fins to allow the ERGM to correct its course, and for terminal guidance. The INS provides terminal guidance if the GPS receiver is jammed, maintaining the degree of precision needed to provide an acceptable CEP when friendly forces are near the target area.³²⁹

The new system has been designated as the 5-inch/62 caliber ERGM. The system is planned for installation on most of the Aegis cruisers (CG-52 through 73), as well as most of the DDG-51 class destroyers yet to be built. A total of forty-nine ships, with seventy-one 5-inch/62 ERGM guns, are expected to be deployed by 2008. The ERGM will initially be provided with seventy-two XM-80 multi-purpose submunitions, an Army munition developed for the 155mm howitzer. A unitary warhead for hard-target penetration

³²⁹Kenneth Lyons, "Extended Range Guided Munition," Surface Warfare (May/June 1996): 8-9.

also should be available in the future.³³⁰ With the ERGM shell being larger and heavier than the standard 5-inch shell, the twenty rounds per minute standard of NSFS will have to be reduced to ten rounds per minute. However, it is expected that the ERGM's improved accuracy will make up for the lower rate of fire.³³¹

When employed in the context of ROF, a description of which will follow, the ERGM system should make the NSFS process more effective, accurate, and timely. With ROF, any ship within range can respond to a call for fire. The ability to mass naval fires, and to coordinate those fires to allow shifting from target to target rapidly, should provide greater flexibility and effect to Marine forces ashore.³³² Fire mission planners should be capable of receiving and responding to requests for fire very quickly, as the firing platform will not need to lay the gun in the traditional manner. The target's GPS coordinates are the only offboard requirement. After the target's location has been provided to the ERGM, the shell can be fired along an azimuth to the target and guide itself to impact. Since the

³³⁰Murphy, "Achieving 21st Century Naval Mastery," Surface Warfare (March/April 1998), 12; Lyons, "Extended Range Guided Munition," 9,11.

³³¹Scott Truver, "A call for fire: Launching the NSFS projectile," Jane's Navy International (September 1997): 18.

³³²William Gravell, "The Offensive Punch of Network-Centric Warfare," Surface Warfare (March/April 1998): 16.

ERGM will be able to change its trajectory in flight, it may be possible simply to raise the gun to the elevation that provides the greatest range, and allow the ERGM to fly itself to the target. In any event, the ERGM will provide a greatly improved capacity for offshore fire support, an improvement made possible by the ERGM's ability to utilize GPS data.

A second improvement to NSFS being made possible by integration of GPS data is the Tactical Tomahawk. An evolutionary development of the BGM-109 Tomahawk cruise missile, the Tactical Tomahawk will provide greater flexibility in targeting and effectiveness:

System improvements include inflight retargeting; battlefield loiter capability; a missile-mounted camera that gives a snapshot of the battlefield for BDI [Battle Damage Indication], Battle Damage Assessment (BDA), and target identification; on-board GPS mission planning; and an architecture to allow for future advances and alternative payloads.³³³

As with the ERGM, it is the ability to utilize GPS data that makes the Tactical Tomahawk possible. Unlike the ERGM, however, the Tactical Tomahawk is a powered aircraft, meaning that it can remain airborne under its own power for over two hours. The Tomahawk also has a much greater payload than the ERGM, allowing sensor, communications, and weapons payloads to be carried simultaneously. The Tactical

³³³Vision, Presence, Power, 71.

Tomahawk will be provided with a two-way satellite link, which will allow the missile to report its status to strike planners. The planners likewise will be able to communicate with the missile, allowing re-targeting in mid-flight. This capability is perhaps the greatest improvement over existing Block II and Block III Tomahawks, which cannot be re-targeted after launch.³³⁴ In addition to re-targeting capability, the Tactical Tomahawk should support multiple-engagement attacks through the use of submunitions, particularly the Brilliant Antitank (BAT) submunition.³³⁵

The advantages of the Tactical Tomahawk's new capabilities are obvious. With loiter capability, a Tactical Tomahawk could be positioned over enemy territory and wait for a target of opportunity. With the networked sensor capability envisioned for the twenty-first century Navy, a target could be attacked by such a loitering Tomahawk almost as soon as the target is detected. The Tomahawk's 1,500-mile range allows the kind of deep strike attacks formerly conducted by A-6E aircraft, which are now retired.³³⁶ The ability to use GPS makes possible the re-

³³⁴Captain John W. Townes, "Surface Strike: The Powerful Punch of Deterrence," Surface Warfare (January/February 1997), 19.

³³⁵Army, "Tactical Tomahawk," 22-23.

³³⁶Murphy, "Achieving 21st Century Naval Mastery," 11.

targeting and loiter capability of Tactical Tomahawk, by allowing new target coordinates to be downlinked while the missile is in flight. Using only INS and terrain contour matching guidance, Block II and III Tomahawks require several hours for programming before launch, and cannot be retargeted after launch. Although still awaiting contractor and Naval Strike Warfare Division approval for production, the Tactical Tomahawk should begin low-rate initial production in 2002.³³⁷

The new ROF concept for coordinating and directing NSFS typifies the networked systems entering service with the armed forces. ROF currently exists only at the level of Fleet Battle Experiments, which are conducted by underway forces around the world to test operational concepts. Fleet Battle Experiment Bravo (FBE-B), conducted in August-September 1997 by USS Coronado (AGF-11), USS Peleliu (LHA-5), and USS Russell (DDG-59), tested the ROF concept of a local area network for providing NSFS. In addition to the ships listed above, ground elements of the 13th Marine Expeditionary Unit also participated in the experiment. The six elements of ROF are:

- Continuous automatic inventory of the force's weapons.
- The ability to quickly and easily apportion ordnance to warfare commanders.

³³⁷Vision, Presence, Power, 71.

- The ability to automatically pair ordnance to targets.
- The sharing of common information by all providers and users.
- Automated integrated deconfliction tools.
- The ability for each ship's fire control system to be the master or decision-maker station.³³⁸

ROF is a local area network (LAN) that connects ships, forces ashore, artillery fire planners, and close air support. ROF is designed to manage all kinds of support fire, from short range gunfire to Tomahawk land attack missiles. ROF allows different platforms to "plug in" to the LAN at any time, as ships arrive or depart the area. Upon plugging in, the magazine loadout of the platform is automatically provided to the task force commander via the LAN.³³⁹ The platform's weapons can then be assigned to calls for fire by the master station in the LAN. Each ship's captain can manually select limits on the amount of his magazine that can be expended, so that the ship maintains a minimum level of ordnance for self-defense.

The weapons on the LAN are continuously inventoried, so that weaponeering can be automated to the greatest extent practical. For example, the ROF software might require

³³⁸David Blake, Joe Penny, and Allen Hjelmfelt, Fleet Battle Experiment Bravo-Ring of Fire Analysis Report (U) (Alexandria, VA: Center for Naval Analyses, 1998), 1-2.

³³⁹Ibid., 7.

human intervention only if there is uncertainty as to the best match of weapon to target. The ROF system in its current form requires human approval for any fire mission, a safety feature that may not be practical to automate.³⁴⁰ Any fire control station on the LAN can serve as the master station, and will be able to launch ordnance from another ship's magazines remotely when functioning as the master station. Thus, there should be no degradation of the system as individual ships come and go, or suffer battle damage.³⁴¹

The subsequent Fleet Battle Experiment Charlie (FBE-C), conducted 1-11 May 1998 by the USS Eisenhower (CVN-69) battle group, utilized lessons learned from FBE-B to further test the ROF concept. Among the conclusions of FBE-C was the statement that, "The ROF engagement grid concept is ready for expanded experimentation to include Sensor Grid and sensor fusion inputs."³⁴² Such testing will be conducted through additional Fleet Battle Experiments in the future. Already the ROF concept is providing a significant improvement in NSFS, in that ROF allows a large number of fire requests to be processed simultaneously, rather than

³⁴⁰Ibid., 10-11.

³⁴¹Ibid., 8-10.

³⁴²Fleet Battle Experiment Charlie (FBE-C) Quick Look Report, unpublished report by the U.S. Navy Maritime Battle Center, 12 May 1998, 6.

having to be processed individually.³⁴³ With continued development, the ROF concept should support OMFTS with responsive, accurate, long-range fires in any weather, day or night.

Aircraft Carriers: Their Future Prospects

The aircraft carrier is the capital ship of the U.S. Navy, a position held since June of 1942, when the Pacific fleet carriers Yorktown, Enterprise, and Hornet turned back the Japanese fleet at Midway. From the end of World War Two until the present day, the CVBG has been the Navy's "big stick", both as an instrument of naval diplomacy and as a warfighting platform. Able to operate a wide variety of aircraft and helicopters, and with excellent facilities for command, control, and communications, the aircraft carrier remains one of the "basic building blocks" of naval forward presence.³⁴⁴

The value of the carrier is its ability to bring U.S. tactical air power to any region of the world accessible by sea, and to allow that air power to be exercised without dependence on foreign facilities or permission. The carrier's air wing (CVW) is capable of a wide range of military missions, including strike, anti-air, anti-

³⁴³Kip Wright, "Ring of Fire: A Quantum Leap in Warfighting," Surface Warfare (November/December 1997), 13.

³⁴⁴Forward...From the Sea, 4.

submarine, electronic warfare, reconnaissance, airborne early warning, and search and rescue. The nine existing nuclear powered carriers (CVN) also have excellent endurance and sustainability, as they enjoy effectively unlimited steaming capability and can carry very large quantities of aviation fuel and ordnance.³⁴⁵

Despite the powerful and versatile nature of carriers, their design philosophy and basic relevance in the current international setting have become hotly-debated topics. For reasons of cost, perceived duplication of function between carrier-based and land-based aircraft, and extremely valuable status (which could make them too valuable to risk losing), critics of large-deck CVNs call for a shift to smaller, less capable but less costly conventional carriers, or for the abandonment altogether of the aircraft carrier.

The issue of cost cannot be denied in regard to CVNs. The USS Enterprise (CVN-65) was the most expensive warship ever built when launched in 1960, costing 444 million dollars. The most recent Nimitz-class carrier, USS Harry S. Truman (CVN-75), was purchased for over six billion dollars, and will deploy with an air wing valued at several billion dollars as well.³⁴⁶ In addition to the six billion-dollar price of CVN-75, -76, and -77, these ships will entail a

³⁴⁵Sea Power Almanac Issue (January 1999): 97-98.

³⁴⁶Polmar, Naval Institute Guide, 84, 89.

further twelve billion dollars each in lifetime operating costs.³⁴⁷ Particularly in light of the current defense budget, there are valid questions about whether it makes financial sense to continue purchasing multi-billion dollar ships.³⁴⁸ The General Accounting Office (GAO) has been very critical of the cost-effectiveness of CVNs compared to conventional (oil-burning) carriers (CVs), claiming among other things that the life-cycle costs of a CVN will exceed that of a CV by over eight billion dollars.³⁴⁹

A corollary to the cost criticism is the fact that, with only twelve carriers available, each is too valuable to risk losing, a concern that easily could preclude certain wartime employments of a CVBG: "Our entire grand strategy rests on only twelve battle groups. What can we risk them

³⁴⁷David Perin, Fundamental Issues for a New Aircraft Carrier: Some Thoughts About Cost and Affordability (Alexandria, VA: Center for Naval Analyses, 1996), 1.

³⁴⁸Rear Admiral Daniel Murphy, at the time the Director of Surface Warfare programs, stated in an October, 1997 press conference that, "We cannot afford to continue to build 4-5 billion-dollar aircraft carriers." See Otto Kreisher, "Admiral warns 300-ship goal is periled," San Diego Union-Tribune, 16 October 1997, from DoD Early Bird, 17 October 1997, 16.

³⁴⁹Bradley Peniston, "Navy Disputes GAO Nuclear Carrier Critique," Defense News, 7-13 September 1998, 26. For the complete GAO report, see United States General Accounting Office, Navy Aircraft Carriers: Cost-Effectiveness of Conventionally and Nuclear-Powered Carriers, GAO/NSIAD-98-1, August 1998.

on?"³⁵⁰ This criticism has great merit, especially in a world of abundant, cheap anti-ship cruise missiles. Increasingly as time advances, and as smaller and smaller states possess themselves of anti-ship missiles, the Navy will have to weigh the benefits of sea-based aviation against the likelihood of losing a significant portion of overall capability in a single ship. It is not clear what the answer to this cost-vs.-risk equation will be, but it must be addressed nonetheless.

Another common criticism is the claim that aircraft carriers have outlived their intended purpose, which was to be an instrument of open-ocean fighting against a peer-level navy, such as the Imperial Japanese Navy or the Red Banner Fleet. As such, current carriers are much larger, more expensive, and more complex to build and operate, than are called for by the setting in which they will be used.³⁵¹ Smaller carriers, in the range of forty thousand to fifty thousand tons and operating around forty multi-mission aircraft, are advocated as a more appropriate and cost-effective means of taking air power to sea.³⁵²

³⁵⁰Friedman, The Future of War, 201.

³⁵¹Captain Charles Girvin, "Twilight of the Supercarriers," Proceedings (July 1993): 42-43.

³⁵²*Ibid.*, 44.

Then-CNO Admiral Elmo Zumwalt advocated even smaller and less-capable "Sea Control Ships" in the early 1970s, envisioned at seventeen thousand tons and carrying only helicopters and a small number of Harriers, as a "low mix" to alleviate the high cost of building only nuclear powered carriers.³⁵³ While smaller carriers clearly would be less expensive than large-deck nuclear powered carriers, it is not clear that they would be more cost-effective, or even as cost-effective. Again, this difficult question will have to be addressed by the Navy in the near future, as the first post-Nimitz-class carrier is due to be delivered in 2013.³⁵⁴

A third common criticism is that land-based aircraft, and even small remotely-piloted vehicles (RPV), can fulfill the strike and electronic warfare missions conducted by CVW aircraft, while other surface combatants can satisfy the air control, electronic warfare, and anti-submarine missions.³⁵⁵ Land-based aircraft are indeed more versatile than carrier-based aircraft, and can sustain more sorties per plane over

³⁵³Zumwalt, On Watch, 75-76.

³⁵⁴Scott Truver, "Sunrise or Sunset?: U.S. carrier power launches itself into the future," Jane's International Defense Review (February 1997): 26.

³⁵⁵Lieutenant Richard Arthur, "The Last Days of Carrier-Based Aviation?" Proceedings (January 1999): 75; Bill Sweetman, "Pilotless fighters: has their time come?" Jane's International Defense Review (June 1997): 58.

time, making land-based air power more effective than carrier-based air power *if bases are available*.

Unfortunately for land-based air power advocates, history has shown that, in situations short of war, local allies may be unwilling to grant basing rights for U.S. planes.³⁵⁶ Also, while RPVs clearly have a place in conducting certain high-risk missions, and are well-suited for battlefield surveillance, there is little basis for asserting that they can replace manned strike aircraft at the present and foreseeable level of RPV technology. It seems likely that RPVs will supplant manned aircraft someday; however, that day would appear to remain far in the future.

In countering the aforementioned GAO report on the cost-effectiveness of CVNs, the Navy has argued that nuclear propulsion allows a CVN to be steamed at top speeds for much longer periods than a CV, due to a more robust propulsion plant design. This allows CVNs to avoid areas of bad weather, to sprint at top speed over long distances in response to crises, and to launch aircraft at lower cost. A Nimitz-class CVN can also carry 100 percent more aviation

³⁵⁶A recent refusal to grant basing access for less-than-war use of land-based air power came in 1995, when Italy refused to allow U.S. F-117 planes to operate out of Aviano Air Base during the bombing campaign in Bosnia. See Johnson, "Carriers Are Forward Presence," 38.

fuel than a JFK-class CV, the last CV class built for the U.S. Navy.³⁵⁷

While proposals for smaller CVs are attractive financially, there is little evidence to support the assertion that small CVs can provide the same capability as a single large-deck CVN. In a study of possible future naval forces and deployments, it was concluded that:

Credible "work-arounds" in the form of substitute forces [for CVNs] or varying patterns of operation could not easily be found to respond to demands. . . . no naval force group could substitute for the independent air power and capital ship clout of large-deck carriers to provide comparable credibility and reasonable risk.³⁵⁸

Despite all the criticisms launched against large-deck carriers, some admittedly with merit, the fact remains that a carrier's ability to deliver U.S. air power to any littoral area, with 100 percent certainty of access, is a unique and valuable feature.³⁵⁹ CVBGs have responded to nearly eighty crises since 1970, many of which were beyond the reach of land-based aircraft, leading to the justified

³⁵⁷Tom Philpott, "The Year Of Declining Readiness," Sea Power Almanac Issue (January 1999): 5; Peniston, "Navy Disputes GAO Nuclear Carrier Critique," 26.

³⁵⁸Jerome Kahan et al., Alternative Naval Force Deployment Concepts Study: Summary Report (Alexandria, VA: Center for Naval Analyses, 1991), vi, 28.

³⁵⁹Peter Perla et al., Future Sea-Based Aviation: Roles, Missions, and Threats (Alexandria, VA: Center for Naval Analyses, 1992), 56; Davis, Aircraft Carriers and the Role of Naval Power, 39.

claim that, "No other DoD asset can match the carrier's record or provide that type of powerful and compelling presence."³⁶⁰ As long as manned combat aircraft remain an important component of U.S. strategy, it seems likely that the large-deck aircraft carrier will remain also.

FA-18E/F Super Hornet

The newest aircraft in the Navy's inventory is the FA-18E/F Super Hornet, intended as a replacement for the A-6, the F-14, and the FA-18A/B/C/D. The FA-18E/F may also replace the EA-6B electronic warfare aircraft in the future.³⁶¹ Stemming from the need to replace the aircraft mentioned above in a period of declining budgets, the Super Hornet program is based on a series of modifications to existing FA-18C/D aircraft. By adding four feet to the length and to the wingspan of the FA-18C/D, the Super Hornet will carry 33 percent more internal fuel than its predecessor, and will have 40 percent more range with a standard strike load of four one thousand-pound bombs.³⁶² The FA-18E/F also will enjoy 90 percent commonality of parts with the FA-18C/D, an important logistics concern during the

³⁶⁰Admiral Henry Mauz, Jr., "The Value of Being There," Proceedings (August 1994): 27.

³⁶¹Hessman, "Overwhelming Air Power," 26.

³⁶²Ibid., 27.

ten-year period in which FA-18C/Ds will be phased out of service.³⁶³

Initial Navy procurement plans included one thousand FA-18E/Fs, but the number has been cut to a low of 548 and a high of 785 by the Quadrennial Defense Review.³⁶⁴ Although press reports of the FA-18E/F's development process have centered on a "wing drop" problem, the problem has been corrected and approval for low-rate initial production has been given. The development program is ahead of schedule and below budget³⁶⁵

Although the FA-18E/F is below its original budget predictions, the unit cost of production model Super Hornets will be around forty-four million dollars.³⁶⁶ The cost of the FA-18E/F has drawn criticism as being too high for what is essentially a stop-gap measure until the Joint Strike

³⁶³Loren Thompson, "The New Centerpiece of Naval Aviation," Sea Power (June 1998): 18.

³⁶⁴Cohen, Report of the Quadrennial Defense Review, Section 7, page 11. The possible range of F-18E/F procurement stems from uncertainty about the Joint Strike Fighter's initial availability and cost, and the possibility of replacing the EA-6B with a Super Hornet variant. See also Hessman, "Overwhelming Air Power," 25.

³⁶⁵Thompson, "The New Centerpiece of Naval Aviation," 18.

³⁶⁶John Tirpak, "The Super Hornet," Air Force Magazine (March 1998): 39.

Fighter enters service sometime late in the next decade.

One naval officer observes that:

The Navy cannot afford carrier-deck aircraft that cost more than \$50 million a copy. . . . Instead of paying all that money for a single aircraft, perhaps we should use it for two or three aircraft, planes that can support Marines on the ground, take out critical near-shore facilities and defense sites, protect ships at sea, and fall out of the sky--as they sometimes do--without breaking the bank.³⁶⁷

The cost of new carrier aircraft is a vital consideration for the future of naval aviation as a whole, since it is aircraft, not carriers, that are the primary cost drivers of sea-based air power.³⁶⁸ The unit cost and expected service life of new aircraft are the principal determinants of lifetime cost for a CV and its CVW. The implications of purchasing forty-four million-dollar aircraft thus are clear: unless a significant increase in aircraft service life is obtained, it is doubtful that

³⁶⁷Commander Kevin Peppe, "Constant Bearing, Decreasing Range," Proceedings (December 1996): 42.

³⁶⁸John Hall, Long-Term Affordability of Sea-Based TACAIR: Some Preliminary Examples (Alexandria, VA: Center for Naval Analyses, 1997), 7. Of seven inputs to lifetime CVN/CVW costs, the greatest changes derived from increased aircraft service life from twenty to twenty-five years (a 14 percent reduction in lifetime cost) and from a 10 million-dollar increase in aircraft unit cost (a 15 percent increase in lifetime cost). Shifting to a more "austere" CVN/CVX resulted in a 5 percent decrease, while a reduction to a carrier capable of handling only fifty-five aircraft resulted in a 4 percent decrease. See Appendix A, Table 10 for a graphic representation of various cost factors associated with lifetime CVN/CVW costs.

current CVW size can be maintained. Thus future CVWs may deploy with fewer aircraft, perhaps as few as half the current seventy-five, if unit costs are not reduced.

A future CVW is expected to deploy with FA-18E/Fs as its only combat jet aircraft, a practice that should lead to significant savings in parts and maintenance costs. However, it is not clear that the benefits of "necking down" to a single aircraft will balance the forty-four million-dollar (or more) cost of each aircraft. As mentioned earlier, the FA-18E/F is intended to cover the ten to twelve-year period before the Joint Strike Fighter (JSF) enters service. However, the ability of the JSF to replace the FA-18E/F on a one-for-one basis is anything but clear. Even the Quadrennial Defense Review hedges with the caveat that:

The Navy will transition to the JSF as soon as costs and effectiveness for the JSF are well understood and the aircraft is demonstrated to be superior to the FA-18E/F. . . . Uncertainties in prospective JSF production cost warrant careful Departmental oversight.³⁶⁹

If the JSF program should encounter the kinds of developmental problems that plagued the A-12 program, or the Air Force F-111 program, the Navy could be left with a fifty million-dollar (or more), thirty-year-old aircraft as its

³⁶⁹Cohen, Report of the Quadrennial Defense Review, Section 7, page 11.

only twenty-first century combat jet. Recent articles about the JSF highlight the concern that the JSF may not be ready on time, or even be produced at all.³⁷⁰ While the risks of this acquisition strategy are apparent, the Navy has stated that the FA-18E/F, now in production and expected to enter squadron service in 2001, is, "the right airplane at the right time."³⁷¹

DD-21/Arsenal Ship/Ohio-class SSGN Conversion

Three different proposals exist for providing new warships, designed for littoral operations, in the twenty-first century. One, the DD-21, is an evolutionary step in surface combatant design. The other two proposals, the arsenal ship and the Ohio-class SSGN conversion, would represent a new concept in warship design, namely the concentration of a very large amount of precision strike firepower in a single platform. None is beyond the drafting board stage today, and only the DD-21 seems certain to be built, but each could provide a valuable capability to the Navy in the future.

The DD-21 surface combatant is often described as a land-attack destroyer, since its primary mission would be

³⁷⁰William Matthews, "Two New Fighters Flourish; Future of JSF Uncertain," Defense News, 22 February 1999, 14.

³⁷¹Sea Power Almanac Issue (January 1999): 162.

strike warfare.³⁷² After a Cost and Operational Evaluation Analysis study in 1996, the specifications for DD-21 were laid out as:

- 128 VLS cells with Tomahawk or other missiles.
- Two 155mm Vertical Gun for Advanced Ships (VGAS).
- One 5-inch/62 caliber ERGM gun.
- A new ASW suite with advanced sonar.
- Two SH-60R multi-purpose helicopters.
- A "Smart Ship" system to allow manning by 95 sailors.³⁷³

The VGAS system is a pair of vertically-mounted, 155mm/52 caliber guns with a round similar to the ERGM. Designed to fit within the space allocated for a Mk 41 VLS cell, each gun will be fully automatic and have a 750-round magazine. Further development of ERGM technology is expected to produce a family of VGAS rounds. The guns' vertical orientation below decks will serve to remove the radar signature of a traditional gun turret.³⁷⁴ In addition

³⁷²Leslie West, "Competing To Build the 21st-Century Destroyer," Sea Power (April 1998): 93.

³⁷³Captain Richard Wright, "Future Force," Surface Warfare (September/October 1997): 10.

³⁷⁴Captain Dennis Moral, "Naval Surface Fire: Enabling Maneuver Warfare," Surface Warfare (July/August 1997): 27; Captain Richard Wright, "Shaping the Battlefield: The 21st-Century Navy," Surface Warfare (March/April 1998): 34; Vision, Presence, Power, 79.

to these offensive capabilities designed to provide support ashore, several DD-21 defensive requirements have been described for operations in the littorals. These include "full-spectrum signature reduction," improved survivability to mines, anti-ship missiles, and torpedoes, and a new command, control, and communications system.³⁷⁵

Through a competitive shipyard development process, the expected use of innovative design and construction features, and a firm limit of ninety-five crewmembers, the Navy hopes to keep the average cost of the DD-21 below 750 million dollars.³⁷⁶ Thirty-two DD-21 ships are planned, with the first to be started in 2004 and commissioned in 2008.

The arsenal ship, unlike the DD-21, is envisioned as a pure land-attack vessel, with no multi-mission capability. In fact, the arsenal ship is little more than a transportation platform for five hundred VLS cells, armed with Tomahawk or other cruise missiles. With so many missiles, an arsenal ship would provide a theater CinC with a large amount of precision firepower in the early stages of a conflict, when other precision strike assets might not be available.³⁷⁷ Targeting ashore could be provided by

³⁷⁵West, "Competing To Build the 21st-Century Destroyer," 95.

³⁷⁶Glenn Goodman, "Redesigning the Navy," Armed Forces Journal International (March 1998): 28.

³⁷⁷Captain Richard Wright, "Potent and Punishing: Ships
197

satellite surveillance, special operations forces, or by RPVs deployed from the arsenal ship.³⁷⁸

In the present joint warfighting setting, the arsenal ship's magazine likely would be apportioned between the different Joint Force component commanders, available to each for the completion of different mission areas. The Joint Force Air Component Commander might use the arsenal ship in counter-air attacks on enemy air bases, while the Joint Force Land Component Commander might wish to strike enemy artillery, armored forces, or supply areas.³⁷⁹

However the arsenal ship's missiles were divided, the presence of five hundred Tomahawk or other precision weapons on a constant basis would provide a very valuable deterrent and warfighting tool to the regional CinC.

Initial studies of the arsenal ship concept postulated a 500 million-dollar cost for designing and building each vessel, with an additional 250-350 million dollars for the missiles. The Navy expressed interest in as many as six arsenal ships, and budgeted forty-five million dollars in January 1997 for research and development. However, by October 1997 the arsenal ship concept had been officially

of the Line for the 21st Century," Surface Warfare (January /February 1997): 22.

³⁷⁸Robert Holzer, "Exercise Highlights Arsenal Ship Firepower," Defense News, 14-20 April 1997, 8.

³⁷⁹Wright, "Potent and Punishing," 22.

rejected by Secretary of the Navy John Dalton, who cited ever-tighter defense budgets and competing procurement projects.³⁸⁰ Although interest in the arsenal ship continues to exist, it would appear that there is insufficient money in the defense budget to allow development of the concept.

The Ohio-class SSGN conversion is a proposal to convert the first four Ohio-class ballistic missile submarines (SSBN) into guided missile submarines (SSGN), able to carry Tomahawk or other precision missiles. The SSBNs Ohio (SSBN 726), Michigan (SSBN 727), Florida (SSBN 728), and Georgia (SSBN 729) are slated for de-commissioning in order to meet START II nuclear force levels.³⁸¹ By re-configuring their Trident missile tubes to carry smaller precision guided missiles, as many as 150 such missiles could be deployed on each Ohio-class SSGN. Each could also deploy a SEAL detachment, by installing a lock-out chamber in one of the Trident tubes.³⁸²

The Ohio-class boats would require around 400 million dollars each for conversion, which would include the cost of

³⁸⁰Greg Schneider, "Navy scuttles Arsenal Ship program," Baltimore Sun, 25 October 1997, in DoD Early Bird, 27 October 1997, 19.

³⁸¹Jim Courter, "The Boomer Reborn," Proceedings (November 1997): 52.

³⁸²Ibid., 53.

a nuclear refueling for their reactors. After conversion, each would provide a very survivable, covert means of deploying precision strike capability into a crisis region. Each Ohio SSGN could carry nearly as many Tomahawks as a typical surface action group, as well as deploying SEAL teams from as far as 120 miles off an adversary's coast, using the Advanced SEAL Delivery System (ASDS).³⁸³ In addition to retaining full ASW and anti-surface capability through their existing torpedo systems, each SSGN should retain excellent electronic intelligence-gathering capabilities. If an encapsulated RPV can be developed for underwater launch, the Trident SSGN would provide an excellent platform for gathering intelligence many miles inland.

Since the Ohio-class SSBNs already are paid for and have many years of remaining service life (Ohio, the oldest, was launched in 1979), it makes good financial sense to keep them in the fleet in some capacity.³⁸⁴ Even if not converted to SSGN configuration, two of the Ohios should be kept in service to replace USS Kamehameha (SSN-642) and USS James K. Polk (SSN-645), former SSBNs converted into SEAL delivery submarines and due to be decommissioned soon.³⁸⁵

³⁸³Jim Courter and Loren Thompson, "Arsenal Under the Sea," Sea Power (June 1997): 44.

³⁸⁴Polmar, Naval Institute Guide, 56.

³⁸⁵Lt. Colonel Reynolds Peele, "Combat Power Projection
200

The future of the four Ohio-class SSBNs, which are due to begin decommissioning in 2002, is not decided, but it would represent a tremendous waste of potential capability simply to strike them from the active list.

Mine Countermeasures (MCM)

In addition to the offensive power-projection systems described in the preceding sections, several defensive systems and programs are being developed or improved for use in the twenty-first century. With the Navy's littoral focus and the Marines' OMFTS concept, naval forward presence forces will be required to operate in close proximity to the coastline of adversaries, necessitating improved defensive capabilities. One area that demands improved capability is mine countermeasures (MCM).

Mines are among the oldest of naval weapons, and remain highly effective today even in their most rudimentary form. Because contact mines involve little technology beyond a contact detonator, they are both easy and inexpensive to produce.³⁸⁶ For as little as one thousand dollars each, virtually any nation can produce effective contact mines, allowing very large numbers to be produced and deployed.³⁸⁷

Forward...From (Under) The Sea," Marine Corps Gazette (June 1995): 12; Courter, "The Boomer Reborn," 52.

³⁸⁶Captain Brian Longworth, "Solutions to the shallow-water challenge," Jane's Navy International (June 1996): 15.

³⁸⁷H. Dwight Lyons et al., The Mine Threat: Show

Thus it should be assumed that any coastal state will be equipped with significant numbers of contact mines.

Contact mines are highly lethal against even the largest of merchants and warships. Partly due to their large warhead size, and partly due to their direct proximity to the ship's hull upon detonation, such mines have proven capable of "mission kills" against U.S. warships on several occasions, as well as against tankers and other merchants. The Samuel B. Roberts struck an Iranian contact mine on 18 April 1988 and very nearly was broken in half, with over fifty million dollars' worth of repairs and nearly two years required before she was able to return to service.³⁸⁸ When USS Tripoli (LPH-10) detonated an Iraqi contact mine on 18 February 1991, the explosion caused extensive flooding in the forward part of the ship, ripped open several JP-5 fuel tanks, and left a sixteen foot by twenty-six-foot hole in the Tripoli's hull below the waterline.³⁸⁹ Merchant Marine Captain Paul Seitz, who was captain of the SS Bridgeton when she struck an Iranian contact mine on 24 July 1987, stated

Stoppers or Speed Bumps? (Alexandria, VA: Center for Naval Analyses, 1993), 4.

³⁸⁸Chamberlain, "Naval Forces and the Persian Gulf," 5. A mission kill indicates that the target has survived the attack, but is not able to perform its mission without repairs. Thus while the target has not been "killed" for good, it is out of consideration for some length of time.

³⁸⁹Gordon and Trainor, The Generals' War, 344.

that the force of the explosion nearly knocked his bridge crew off their feet, an impressive statement given the 401,000-ton displacement of the Bridgeton. Naval repair personnel later determined that the Bridgeton had struck a Russian model M-08 contact mine, the design of which dates to 1908.³⁹⁰

In addition to contact mines, several existing and projected types of mines are expected to be encountered in the future. Among these advanced mines are both moored and bottom influence mines, which are triggered by the magnetic, acoustic, or seismic signature of a passing ship, and moored and bottom rising mines, whose warhead rises to just beneath the ship's keel before exploding, thus maximizing the resulting damage. The Chinese EM-52 rising mine, which uses a rocket to propel its warhead towards the surface, is one such example. Other advanced rising mines are expected to employ a small guided torpedo, which should be even more effective.³⁹¹

Even when a mine does not explode directly under the target ship, the shock of a nearby explosion can cause significant damage. USS Princeton (CG-59) detonated an Iraqi bottom influence mine just hours after Tripoli was

³⁹⁰"SS Bridgeton: The First Convoy," 52.

³⁹¹Jeanne Avery, "The Naval Mine Threat to U.S. Surface Forces," Surface Warfare (May/June 1998): 7.

damaged, which knocked out all electrical power and propulsion for over two hours. With its rudders jammed by the explosion, Princeton had to be towed to Bahrain for repairs.³⁹²

Additional advances expected to be seen in the future include the use of buried bottom mines, mines made from high-strength plastic to avoid magnetic mine sweeping, mine warheads of up to one ton, and the use of multiple trigger sensors to resist sweeping measures.³⁹³ Already bottom influence mines are available that are made of fiberglass, and that employ geometric shapes in order to resemble rocks when detected by minehunting sonar.³⁹⁴

The mine problem is made more serious by the fact that specialized mine-laying ships are not required to deploy mines. Any ship or small craft can deploy mines, often with minimal or no modifications to the vessel involved. Given the ability of any nation to produce large numbers of contact mines, the ready availability of many advanced mines in world arms markets, and the ease with which mines can be deployed, perhaps the most serious feature of mine warfare

³⁹²Gordon and Trainor, The Generals' War, 345; Chamberlain, "Naval Forces and the Persian Gulf," 5.

³⁹³Robert Holzer, "Dangerous Waters," Defense News, 4-10 May 1998, 14.

³⁹⁴Avery, "The Naval Mine Threat," 7.

is the sheer number of mines that a future adversary could deploy.³⁹⁵

The Navy's littoral focus, and the Marines' OMFTS concept, will require that U.S. naval forces approach the coastline of an adversary, up to and across the shoreline in the case of a Marine landing. With the kinds of existing and projected mines available to virtually any nation, MCM capability is re-emerging from a long period of little emphasis to a position of priority in the Navy. A recent study entitled "Technology for the United States Navy and Marine Corps 2000-2035" noted that:

The other potential undersea expeditionary warfare 'show-stopper' for naval forces is mine warfare. All opponents trying to protect a shore against amphibious landings or trying to deny free passage of warships and logistic ships will use mines.³⁹⁶

A similar commentary comes from Rear Admiral Mike Mullen, a former commander of the USS George Washington (CVN-73) CVBG:

Without MCM capability, we simply can't put the Marines ashore, nor can we safely operate any ships in the mine-danger areas. Because of that, full integration of mine warfare into the warfare campaign plan and the force commander's scheme in terms of

³⁹⁵"Maneuver Warfare and Mine Countermeasures," Surface Warfare (May/June 1998): 29.

³⁹⁶Cited in Robert Holzer, "Study: Mines, Quieter Subs Pose Looming Naval Threats," Defense News, 8-14 September 1997, 38.

sequence is vital. Without mine warfare, the campaign stops.³⁹⁷

U.S. naval forward presence forces will rely on three methods for providing MCM capability. The first and oldest method is through dedicated MCM forces, which employ purpose-built MCM ships and equipment. Dedicated open-water MCM will come from the fourteen MCM-1 Avenger-class ships acquired from 1985 to 1992.³⁹⁸ These ships have wooden hulls, to defeat magnetic mine triggers, and are in the process of having new digital electronic minehunting gear installed. Two are homeported in Japan, and two are homeported in the Persian Gulf.³⁹⁹ The lead ship of the class, USS Avenger (MCM-1), operated in the Persian Gulf during the Gulf War.

A second type of purpose-built MCM craft are the MHC-51 Osprey-class boats, designed primarily for defending ports and harbors from enemy divers or offensive mining. Designed for work in shallow water, and with limited sea-keeping ability and only fifteen days' endurance, these small craft are not well-suited to open-water MCM work.⁴⁰⁰ Instead,

³⁹⁷Cited in Rear Admiral Dennis Conley, "Mine Warfare: Enabling Power Projection in the Littorals," Surface Warfare (May/June 1998): 24.

³⁹⁸Polmar, Naval Institute Guide, 211.

³⁹⁹Sea Power Almanac Issue (January 1999): 150.

⁴⁰⁰Vision, Presence, Power, 63.

they likely would be tasked with keeping U.S. ports or beachhead areas free from mines.

The third type of MCM ship is USS Inchon (MCS-12), a converted LPH-1 amphibious ship. With large hangar and workshop facilities, Inchon serves as a floating support and supply base for regional MCM forces. She also carries a squadron of MH-53E Sea Dragon minehunting helicopters.⁴⁰¹ Although a fairly old ship (launched in 1969), Inchon has shown herself to be well-suited to the floating base application. Her ability to operate a large number of helicopters also is a valuable MCM asset.

A unique dedicated MCM capability comes from the Navy's Marine Mammal System (MMS) platoons. Able to be air lifted anywhere in the world quickly, these platoons comprise a team of shallow-water divers, a marine mammal unit of dolphins, animal handlers, and small boat coxswains, and an unmanned minehunting unit. The Mk 4 MMS employs four dolphins to detect and locate deep-moored mines, whether rising, influence, or contact types. The Mk 6 MMS employs six dolphins working in conjunction with explosive ordnance disposal (EOD) and SEAL personnel to protect friendly harbors from enemy intrusion. The Mk 7 MMS uses eight dolphins for the detection, location, and neutralization of bottom mines. The Mk 7 MMS currently represents the only

⁴⁰¹Sea Power Almanac Issue (January 1999): 151.

capability in the U.S. Navy for dealing with buried mines.⁴⁰² The MMS platoons were integrated into the new Very Shallow Water MCM (VSWMCM) detachment in 1998. Intended specifically to search and clear prospective Marine landing locations, the VSWMCM detachments consist of the MMS platoons, EOD and SEAL teams, and Marine Corps Force Reconnaissance divers.⁴⁰³

Perhaps the most important improvement in MCM is the development of organic systems and capabilities, which should provide every ship and submarine with its own self-contained MCM capability. Because there may not always be time for the dedicated MCM ships to deploy to a theater in times of crisis, it is important that every ship be able to provide its own MCM, if only to allow itself to maneuver freely within a given area.⁴⁰⁴ Two means of organic MCM are airborne, through the helicopter found on almost every surface combatant in the fleet, and through remotely guided "swimming" systems.

⁴⁰²Commander Dan Renwick, "Conquering the VSW Environment: Man and Dolphins on the Front Lines," Surface Warfare (May/June 1998): 39-41.

⁴⁰³Vision, Presence, Power, 105.

⁴⁰⁴"Mine Explosion: Defensive Efforts Lag Behind Enemy Technology Gains," Defense News, 4-10 May 1998, 15. Cited in this article is U.S. Navy data that claims a one- to two-week delay for deploying MH-53E helicopters, and up to one month for MCM ships stationed in CONUS. See also Captain Buzz Broughton, "Mine Countermeasures: Zapping the Speed Bumps," Surface Warfare (July/August 1997): 16.

Most ships carry at least one helicopter capable of locating and clearing mines. The Inchon's MH-53E helicopters are the best-suited for airborne MCM due to their large size, heavy lift capability, and long endurance, but the Inchon is the only ship of her class and cannot be in two places at once. Thus it is important that the smaller SH-60 helicopters found on most surface combatants be capable of at least modest MCM. Several emerging systems should improve the airborne MCM capability of these smaller helicopters.

The new CH-60S Knighthawk version of the MH-60 multi-purpose helicopter eventually will employ two different minehunting and neutralization systems. The first combines the Airborne Laser Mine Detection System (ALMDS), a blue-green laser system also known as Magic Lantern, with the Rapid Airborne Mine Clearance System (RAMICS), a 20mm gun with specially-designed ammunition. These two systems are optimized for shallow-moored (fifty feet or less) or surface-moored mines.⁴⁰⁵ Magic Lantern was demonstrated successfully in 1995, and three contingency systems are operated by the HSL-94 ASW squadron pending final development of the system.⁴⁰⁶

⁴⁰⁵Major General Edward Hanlon Jr., "Shaping the Battlespace: Organic Mine Countermeasures," Surface Warfare (May/June 1998): 13.

⁴⁰⁶Vision, Presence, Power, 103.

The second airborne system will combine the towed AN/AQS-20 minehunting sonar and the Airborne Mine Neutralization System (AMNS). The AMNS is a remotely-guided, self-destructing shaped-charge weapon, intended to be deployed from the helicopter operating the AN/AQS-20. The AN/AQS-20 and AMNS are intended for mines located in deeper water, and complement the ALMDS and RAMICS systems that operate against shallow mines.⁴⁰⁷

To complete the needed organic MCM capability, three swimming systems are under development. The first is the Remote Minehunting System (RMS), a diesel-powered semi-submersible craft operated from surface ships.⁴⁰⁸ The RMS was first demonstrated in an operational setting by USS Cushing (DD-985) in the Persian Gulf in 1997, and is expected to enter service in 2000.⁴⁰⁹ Described as "an organic, high-endurance reconnaissance unit," the RMS is not capable of neutralizing mines. Rather, it will provide intelligence to its parent ship about the safety of surrounding waters.⁴¹⁰ However, as the Tripoli and

⁴⁰⁷Otto Kreisher, "Unencumbered Maneuverability On Day One," Sea Power (February 1999): 58-59.; Hanlon, "Shaping the Battlespace," 14.

⁴⁰⁸Hanlon, "Shaping the Battlespace," 13.

⁴⁰⁹Vision, Presence, Power, 104.

⁴¹⁰David Foxwell, "Mine-conscious surface ships back on the agenda," Jane's International Defense Review (May 1997): 33.

Princeton examples show, simply knowing where the mines are is of great importance, and the RMS should provide such knowledge, in both deep and shallow water, at distances of several miles.⁴¹¹

The two other remote minehunting systems are intended for U.S. submarines, but hold obvious potential for adaptation by surface forces. The first is the Near-term Mine Reconnaissance System (NMRS), a torpedo tube-launched, "tethered" system that is controlled through a fiber-optic cable from the submarine.⁴¹² The NMRS will carry the same AQS-14 minehunting sonar used by current helicopter MCM units. After traveling for up to five hours at four to six knots, the NMRS vehicle is recovered through the submarine's torpedo tubes, allowing the entire process of launch, mission execution, and recovery to be performed while submerged. Although relatively slow and short-ranged, the NMRS system will provide an important covert MCM capability for U.S. submarines. The NMRS, which relies heavily on proven commercial systems and components, is viewed as an interim system, pending development of the more-capable Long-term Mine Reconnaissance System (LMRS).⁴¹³

⁴¹¹Broughton, "Mine Countermeasures," 19.

⁴¹²Hanlon, "Shaping the Battlespace," 14.

⁴¹³David Foxwell, "Naval ROVs: alternatives sought for mine neutralization," Jane's International Defense Review

The LMRS essentially will be a "mini-submarine", with its own self-contained power source and navigation system. It is projected to provide forty to forty-eight hour endurance and 120-mile range from the launching submarine. Although the LMRS will be more complex and expensive than the NMRS, due to the need to develop a suitable power source, the LMRS should be a much safer option for the deploying submarine (or ship).⁴¹⁴ Slated to enter service in 2003, the LMRS should allow long-range, covert minefield reconnaissance, a vital requirement for OMFTS.⁴¹⁵

The MCM systems and capabilities described here will be vital for a Navy that espouses littoral operations as its main focus for the twenty-first century. For a state attempting to defend against naval forces, mines are an obvious means of countering U.S. sea power. Mines should be expected to be used in any regional chokepoints, as defenses around likely landing areas, and in important SLOCs.⁴¹⁶ Even the threat of mines can impose caution and delay on U.S. operations. Clever adversaries can compound this problem by advertising (or falsifying) their minelaying

(May 1997): 61; Vision, Presence, Power, 104.

⁴¹⁴Ibid.

⁴¹⁵Vision, Presence, Power, 104-105.

⁴¹⁶"Maneuver Warfare and Mine Countermeasures," 28.

efforts, and by employing dummy mines to augment existing minefields.

Because existing deep-water MCM systems and practices do not work well in shallow or surf-zone waters, the development of new MCM capabilities has added urgency.⁴¹⁷ The U.S. Navy has neglected MCM for many years, as open-ocean operations against the Soviet Union were expected to be the principal activity of the Navy in wartime. The Navy has found itself forced to "play catch-up" in this vital warfighting area, with the result that many developmental efforts have come to naught. Despite observations from within and from outside the Navy that MCM remains underfunded, a recent GAO report cites the expenditure of over a billion dollars on MCM systems, with little to show for it.⁴¹⁸ MCM capability must be improved at every level, throughout the fleet, if a littoral strategy is to be pursued in the twenty-first century.

Anti-Submarine Warfare (ASW)

During the Cold War the U.S. Navy was the recognized leader in ASW, a not surprising fact given the large Soviet submarine force that the Navy trained to counter. Structured for an open-ocean effort against Soviet

⁴¹⁷Daniel Crute, "Surf Zone Technology," Surface Warfare (May/June 1998): 36.

⁴¹⁸"Mine Explosion," 15.

submarines, the Navy's ASW capability primarily was centered on deep-water operations against large, relatively noisy nuclear powered submarines. With the demise of the Soviet Union, and the shift to littoral operations, the twenty-first century Navy is confronted with a new ASW challenge: prosecuting and killing small, quiet diesel-electric submarines in shallow waters, where many of the systems and tactics of open-ocean ASW are not effective.⁴¹⁹

Since the 1991 breakup of the Soviet Union, the Navy has seen a significant decrease in size, readiness, and capability. ASW has been a particular area of deteriorating capability, as resources and training for ASW have dwindled in the post-Cold War period. The lack of a world-wide, open-ocean submarine threat and competition for funds from higher-priority programs, such as TMD, have seen a serious degradation of the Navy's ASW skills.⁴²⁰ Another reason for the decline in ASW capability is the restructuring or dismantling of much of the Cold War ASW force structure. For example, P-3 maritime patrol aircraft have been reduced by half since 1989, with the remaining P-3s largely employed in surface surveillance and reconnaissance.⁴²¹ U.S. SSNs,

⁴¹⁹Longworth, "Solutions to the shallow-water challenge," 15.

⁴²⁰Robert Holzer, "U.S. Navy Chief Emphasizes Need To Renew ASW Focus," Defense News, 7-13 September 1998, 4.

⁴²¹"ASW Atrophy: Training Sinks Dangerously Low,"

such as the SSN-688 Los Angeles-class, represent the premier ASW platform, yet their numbers are expected to fall to fifty, half of the Cold War goal of one hundred, by 2004.⁴²² The combination of decreasing ASW force size and structure, decreasing funds, and lack of emphasis due to the absence of the Soviet submarine threat have served to leave the Navy in poor ASW health.

In the littoral setting, ASW will be a critical capability. The keep-out strategy expected to be employed by regional opponents is built upon the traditional weapons of sea denial, the mine and the submarine. The study cited in the previous section on MCM offers a similar position on submarines:

Of special concern to the naval forces are advanced, quiet submarines. . . . This would present a major threat to our ability to initiate and sustain expeditionary military operations along the littoral regions, especially in view of evolving concepts for such warfare that call for extensive fire support and logistic support from the sea.⁴²³

The submarine threat, like the mine threat, must be taken seriously all the time, even when submarines have not been identified. In fact, it is precisely when the location of enemy submarines is unknown that the greatest effort must

Defense News, 4-10 May 1998, 14.

⁴²²Sea Power Almanac Issue (January 1999): 102.

⁴²³Holzer, "Study: Mines, Quieter Subs," 38.

be expended in ASW operations. The British experience in the Falklands campaign is illustrative of the level of respect commanded by even a few old, less-capable submarines.

In the Falklands campaign, Argentina possessed four diesel-electric submarines, only two of which were seaworthy. Of these two, one was an ex-U.S. Guppy-class World War Two submarine, while the other was a modern German Type-209. The British Royal Navy was perhaps the only ASW peer of the U.S. Navy, operating many of the same advanced SSNs and ASW helicopter systems. Yet the mere presence of a single Argentine submarine in the South Atlantic forced the British commander to divert significant surface assets to ASW work, and prevented the British amphibious group from taking optimal positions for the re-capture of South Georgia. Several hundred ASW weapons were dropped or fired on possible submarine contacts, without damaging the Argentine submarine San Luis, which was able to conduct at least three torpedo attacks on British ships.⁴²⁴

Even the two Argentine submarines that did not go to sea were able to influence British operations. One, also a Guppy-class boat, was towed from port to port to give the impression that it was operable, thus increasing British

⁴²⁴Lodmell, "It Only Takes One," 30; Commander Kevin Peppe, "Submarines in the Littorals," Proceedings (July 1993): 47.

apprehension to the submarine threat. The concerns of a naval commander faced with enemy submarines is stated by a U.S. Navy submarine officer:

No greater threat exists to successful operations in the littorals than that posed by a professionally operated diesel submarine. . . . Even poorly operated diesel submarines are a menace. . . . Even the oldest of diesel submarines . . . retains that most fundamental of submarine qualities: stealth.⁴²⁵

Just as uncertainty about mines serves nearly as well as the actual presence of mines, so can uncertainty about the presence of submarines serve an adversary's purposes. Until and unless positive information exists that an enemy submarine has been sunk, any naval operations in the area must be assumed to be at risk of submarine attack, and may be restricted in range of action as a result.

The focus on littoral ASW is especially relevant due to the possession of diesel submarines by many potential regional adversaries. Diesel submarines are found in the navies of Iran, North Korea, China, India, Pakistan, and, of course, Russia.⁴²⁶ Roughly 110 diesel submarines exist in the inventories of twenty-one nations around the world, many of them relatively modern German, French, or Russian

⁴²⁵Ibid.

⁴²⁶David Foxwell, "Sub proliferation sends navies diving for cover," Jane's International Defense Review (August 1997): 31.

models.⁴²⁷ In addition to previously exported Kilo-class boats, the new Russian Amur-class diesel submarine has been offered for export even before the first Amur has been launched.⁴²⁸ Clearly there is no shortage of available submarine capability for small states seeking to strengthen their defenses.

For the Navy's littoral strategy, ASW will be crucial. If ships are to approach an enemy's coast, as they must for amphibious landings, enemy submarines must be defended against. Although aircraft carriers have attracted the most attention as being too valuable to risk losing, the decreasing size of the U.S. fleet means that every ship represents a larger percentage of overall capability, and increasingly may be too valuable to risk. The concentration of ever-greater capability into individual vessels, such as the large AOE fast support ships or the Maritime Pre-positioning Squadron (MPS) ships, means that a single torpedo attack by even the oldest of diesel submarines can have disastrous effects for U.S. regional warfighting efforts. An ARG's ships, including the large LHA and LHD ships with their hundreds of U.S. Marines onboard, must approach an enemy's coast to fulfill their power projection

⁴²⁷Commander Kaj Toft Madsen, Royal Danish Navy, "Fighting the Beast," Proceedings (August 1996): 28.

⁴²⁸Foxwell, "Sub proliferation," 33.

mission, and so will be at the greatest risk of submarine attack.

In short, no littoral operations can afford to ignore the threat of an enemy submarine, however old, that is capable of putting to sea.⁴²⁹ Accordingly, the U.S. Navy must improve on its current level of shallow-water ASW. Indicative of the need for improvement are recent training exercises with South Africa, in which thirty-year-old French-built diesel submarines were able to avoid detection by U.S. ships.⁴³⁰ Existing and future diesel submarines may be armed with homing torpedoes that can be launched from five miles or more, making the submarine threat even greater.⁴³¹ The shallow-water ASW mission thus must be elevated in priority among naval planners.

One possible step in improving U.S. ASW training and capability against diesel submarines would be for the Navy to purchase its own diesel submarines. As stated previously, many advanced German, French, and even Russian diesel submarines are available on the world arms market. Acquiring diesel submarines of its own would allow the Navy first-hand experience in the diesel submarine's operational tactics and limitations from the submarine commander's

⁴²⁹Lodmell, "It Only Takes One," 31.

⁴³⁰"ASW Atrophy," 16.

⁴³¹Madsen, "Fighting the Beast," 30.

perspective.⁴³² This real-life Red Team capability would be an invaluable source of information on diesel submarine operations. Such diesel submarines could be based overseas, as the SSBNs once were, in order to provide both realistic in-theater training as well as combat capability in wartime. Simply training against the diesel submarines of allies is unlikely to provide the depth of understanding that ownership of such submarines would allow. While no plans for the purchase of diesel submarines have been announced by the Navy, this option certainly merits consideration.

Other improvements in ASW capability must come from increased emphasis on ASW, which must be translated into increased funding for training and new systems. The recent paper from CNO Admiral Jay Johnson, "1998 ASW Focus Statement," is a step in the right direction, but additional efforts still must be made.⁴³³ Newer systems for TMD, aviation, and other warfighting areas are important, and have received much attention (and funding) in recent years. The submarine threat, on the other hand, has largely been ignored since the Soviet threat disappeared. It should not take the loss of a major warship or logistics ship to a diesel submarine attack to re-awaken the Navy to the need for ASW in the littorals. However, as the British Falklands

⁴³²"ASW Atrophy," 16.

⁴³³Holzer, "U.S. Navy Chief Emphasizes" 4.

experience and recent Navy exercises demonstrate, it may be that such a loss will have to occur to drive home the importance of ASW.

Theater Missile Defense

Probably no single warfare area is of greater importance in the current international setting than theater missile defense (TMD). One of the common threads in defense literature concerning possible opponent strategies is the use of ballistic missiles to attack U.S. forces, facilities, or allied population centers. In the absence of a credible TMD system, the mere possession of ballistic missiles likely will result in significant political pressure from regional allies, particularly if the adversary is believed to possess nuclear, biological, or chemical (NBC) weapons. Regional allies may be reluctant to render assistance to U.S. forces, such as base access or overflight rights, if their population centers are within range of ballistic missiles.⁴³⁴

In addition to these political effects, an opponent with the ability and willingness to use ballistic missiles to deliver NBC weapons could gain two important military

⁴³⁴Some authors use the term "horizontal deterrent" to describe political pressure from U.S. allies threatened with ballistic missile attack. See John Peters, The U.S. Military: Ready for the New World Order? (Westport, Connecticut: Greenwood Press, 1993), 106-107.

advantages in a conflict with the United States. First, the use of persistent chemical weapons on regional port and airfield facilities could render these facilities useless to American forces. Without access to regional ports and airfields, the kind of build-up seen in the Persian Gulf in 1990 would be virtually impossible.⁴³⁵ Second, an opponent in possession of one or more nuclear weapons could use a ballistic missile to conduct a nuclear attack on American space assets. The current and future U.S. level of dependence on space support are potentially severe vulnerabilities. If an opponent were able to destroy or degrade American space assets, U.S. forces could lose much of their high-tech advantage.

For these reasons, as well as the threat of attack on U.S. military forces, the development of TMD systems is a high priority within the U.S. armed forces:

Because the ability to fight and win major regional conflicts (MRC) relies on rapid reinforcement from home bases, the United States is investing heavily in

⁴³⁵See Weaver and Glaes, Inviting Disaster; (1) The Impact of Nuclear, Biological, and Chemical Proliferation on Naval Operations and Capabilities, (2) The Impact of the Proliferation of Nuclear, Biological, and Chemical Weapons on the United States Air Force, and (3) The Impact of Nuclear, Biological, and Chemical Proliferation on U.S. Armed Forces. 1-3 are reports by the Center for Counterproliferation Research, Washington, D.C.: NDU, 1996. Each of these sources describe the absolute necessity of large facilities in the theater, and the extreme vulnerability of such static facilities to persistent chemical attack.

assets such as C-17s and Roll-on Roll-off ships. The airfields and ports through which our forces must arrive are essential to the reinforcement strategy. The Surface Navy must be capable of protecting these debarkation points and able to force its way ashore under the threat or actual conduct of TBM strikes.⁴³⁶

The Navy systems intended to provide TMD capability are Navy Area Defense (also known as Lower Tier), and Navy Theater-Wide (also known as Upper Tier). Both systems are built around the Aegis radar system and the SM-2 missile. The Aegis system also has been proposed as the foundation of a national missile defense (NMD) system, although such a system would be prohibited by the 1972 ABM Treaty.

The first component of naval TMD is the Navy Area system, or Lower Tier. Navy Area utilizes the SPY-1 radar of the Aegis ships, and a modification of the SM-2 missile. Specifically, the SM-2 Block IVA missile adds a dual semi-active radar/imaging infrared seeker for terminal guidance, as well as an improved blast-fragmentation warhead with radar proximity fusing. The use of a proximity fuse reduces the "all-or-nothing" nature of hit-to-kill systems, as even a near miss should produce a mission kill.⁴³⁷ Navy Area is

⁴³⁶Captain Phil Balisle, "Theater Ballistic Missile Defense: Blunting the Attack," Surface Warfare (January/February 1997), 37. The current need for TBMD echoes the need for carrier-based aircraft in the 1930s-40s, to provide local air superiority so that Marine and Army forces could be landed in safety from aerial attack.

⁴³⁷Swicker, "Ballistic Missile Defense from the Sea," 8-9.

intended for short-ranged ballistic missiles, but retains the ability of the SM-2 Block IV to intercept cruise missiles and aircraft.⁴³⁸

The SPY-1 radar's ability to track ballistic missiles has been proven by test range operations, as well as real-world operations. The SM-2 Block IVA likewise has been tested successfully at White Sands missile range, where a Lance ballistic missile target was destroyed on 24 January 1997.⁴³⁹ The first multi-ship test took place in July 1995, when USS Lake Erie (CG-70) and USS Port Royal (CG-73) conducted a tracking experiment at the Pacific Missile Range facility in Hawaii.⁴⁴⁰ A recent test, conducted on 18 November 1998 at the Pacific Missile Range, involved the launch of an SM-2 as a simulated ballistic missile, which again was tracked by Lake Erie and Port Royal. The cruisers conducted a complete track and intercept of the SM-2, with only the launch of the SM-2 Block IVA interceptor being simulated. USS Russell (DDG-59), an Aegis destroyer operating the newer SPY-1D system, repeated the test two

⁴³⁸David Hughes, "Navy Readies Fleet For Anti-Scud Warfare," Aviation Week & Space Technology, 24 February 1997, 62.

⁴³⁹Vision, Presence, Power, 74.

⁴⁴⁰David Foxwell and Joris Janssen Lok, "Naval TBM defense matures," Jane's International Defense Review (January 1998): 28.

days later using an Aries target missile. In both tests, tracking information was shared in real time with Army TMD facilities in Alabama, in order to demonstrate the joint warfighting requirement of networking sensors in joint force application.⁴⁴¹ In March 1996 the cruiser USS Bunker Hill (CG-52) tracked all four Chinese M-9 missiles launched across the Taiwan Strait, while the Aegis destroyer USS Mitscher (DDG-57) has tracked Syrian missile tests from a position in the eastern Mediterranean.⁴⁴²

The ability to utilize Cooperative Engagement Capability (CEC) data sharing should make Navy Area much more effective, as data on a target missile's trajectory could be provided by Aegis-equipped ships located between the launch point and the target.⁴⁴³ Initial tests of the CEC system confirm that CEC can be employed in a TMD role, allowing earlier engagement by the firing ship. Given the likely "shoot-look-shoot" method of the Navy Area system, the ability to fire the first shot as early as possible has obvious advantages. Availability of a CEC-equipped EP-3 or

⁴⁴¹"Navy Launches New Missile Defense Tests," Defense Week, 30 November 1998, cited in BMDO External Affairs Digest, 30 November 1998.

⁴⁴²Foxwell and Lok, "Naval TBM defense matures," 29.

⁴⁴³CEC is an emerging system for sharing radar tracks on airborne targets in real time. A full description of CEC will follow later in this chapter.

E-2C aircraft would maximize the benefit gained through CEC, but even without an aircraft link the ability to share data through CEC provides an important advantage in TMD.⁴⁴⁴

As valuable as Navy Area will be, it has two significant disadvantages compared to a longer-range system like Navy Theater-Wide. First, because of the short range of Navy Area (described as "tens of miles"), it ties a multi-mission Aegis warship to a relatively fixed position, a position that may be hundreds of miles from the likely site of battle within the theater. An Aegis cruiser positioned to defend Bahrain, for example, would not be available to provide anti-air, anti-cruise missile, or anti-surface capability elsewhere in the Gulf. Secondly, the engagement envelope for Navy Area shrinks as the defended site gets farther inland, making it less effective in defending sites that are not located on or near the coast.⁴⁴⁵ For these reasons, a longer-range TMD capability is required.

The second component of naval TMD is Navy Theater-Wide, or Upper Tier. Like Navy Area, Navy Theater-Wide is crafted around the SPY-1 radar and the SM-2 missile. Unlike Navy Area, Theater-Wide is intended as an exo-atmospheric system,

⁴⁴⁴Cooperative Engagement Capability: A Revolution in Air Defense, U.S. Navy booklet, no publisher or date, 16.

⁴⁴⁵Swicker, "Ballistic Missile Defense from the Sea," 9.

destroying incoming ballistic missiles outside the atmosphere. In order to conduct intercepts outside the atmosphere, Navy Theater-Wide will utilize a modified SM-2 missile and the Lightweight Exo-Atmospheric Projectile (LEAP) kill vehicle. Modification to the SM-2 will include a third stage, comprised of the Advanced Solid Axial Stage rocket motor, and replacement of the blast-fragmentation warhead with the LEAP. The new missile likely will be designated SM-3.⁴⁴⁶

An important advantage of Navy Theater-Wide over Navy Area is the ability to conduct intercepts during the ascent, mid-course, and descent phase of a ballistic missile's flight. Such capability will allow multiple shots in many cases, as well as dispersing chemical or biological warheads harmlessly outside the atmosphere. When combined with Navy Area, a layered defense against ballistic missiles will be effected. The Theater-Wide system should share the same benefits of CEC data-sharing as Navy Area. Four successful test launches of an SM-2 missile configured to carry the LEAP projectile have been conducted since 1992. The initial

⁴⁴⁶Ibid., 10. The LEAP kill vehicle is a hit-to-kill system, relying on direct impact with an incoming missile in order to destroy it. With a mass of 18kg and a velocity in the neighborhood of 4.5 km/sec, the kinetic energy of the LEAP kill vehicle is approximately 250 million ft-lbs!!

intercept test of the SM-3/LEAP missile is planned for 1999, with deployment scheduled for as early as 2006.⁴⁴⁷

While both TMD systems should be capable of relying only on CEC for offboard cueing, the ability to integrate space assets into naval TMD would provide a significant advantage.⁴⁴⁸ Space-based sensors should provide the earliest possible notification of missile launch, due to the ability of a satellite to look down at the earth:

Providing targeting information to the Aegis system from these external sensors will supplement the information provided by the Aegis system's own SPY-1 radar and allow interceptors to "launch on remote data." This means the interceptor can be launched on the basis of information provided by external sensors and before the attacking missile is picked up by the SPY-1 radar. This would permit attacking missiles to be intercepted much earlier in their flight trajectories, substantially widening the area that can be defended, especially against higher velocity, longer-range theater ballistic missiles.⁴⁴⁹

The Space Based Infrared System (SBIRS), a constellation of satellites in both geosynchronous orbit (SBIRS-High) and low earth orbit (SBIRS-Low), should provide

⁴⁴⁷Vision, Presence, Power, 74.

⁴⁴⁸Frank Gaffney, "Defend America-From the Sea," Proceedings (October 1998), 73; Swicker, "Theater Missile Defense from the Sea," 12. Swicker states that, "In 2005, cueing to Aegis will be primarily a function of the U.S. Space Command."

⁴⁴⁹Defending America: Ending America's Vulnerability to Ballistic Missiles (Washington, D.C.: The Heritage Foundation, 1996). Cited in Gaffney, "Defend America-From the Sea," 73.

the space-based cueing needed to extract maximum benefit from the Aegis TMD systems. Launch of SBIRS-High satellites was scheduled commence in 2002, but has been pushed back by the Air Force to 2004.⁴⁵⁰ Launch of SBIRS-Low satellites will begin in 2004. Even with the delays in the SBIRS-High program, both components of SBIRS should be available when Navy Theater-Wide enters service.⁴⁵¹

Through the use of CEC data-sharing, any Aegis ship capable of tracking a ballistic missile should be able to provide cueing to the ship that actually fires at the ballistic missile. The ability to utilize offboard cueing in this manner will extend the range of the firing ship substantially, allowing a larger coverage against ballistic missiles and possibly allowing multiple shots in a shoot-look-shoot engagement. In addition, both TMD systems are good examples of the benefit gained through the ability to place sensors in space, and to transmit information from space in real-time. By combining two different systems to form a layered defense, with space and CEC support to improve the effectiveness of each component in the TMD shield, American TMD capability should provide much-needed protection against ballistic missile attack in the future.

⁴⁵⁰Warren Ferster, "Satellite Projects Killed," Defense News, 15 February 1999, 36.

⁴⁵¹Secretary of Defense Annual Report to Congress and the President 1998, 70.

Despite the recognized importance of TMD, the Area and Theater-Wide programs have experienced problems imposed from outside the Department of the Navy. Lack of enthusiastic support from the Clinton administration, and even from within the Department of Defense, have served to reduce the pace of Navy TMD development.⁴⁵² A further hindrance to the Theater-Wide program is its recent merger with the Army's problem-plagued Theater High Altitude Area Defense (THAAD) system. The merger was directed by the Pentagon's comptroller, William Lynn, for budgetary reasons.⁴⁵³ The Navy has strongly criticized the merger, arguing that it will force unjustified delays on the development of a long-range TMD system, as well as entailing extra costs to make the eventual system compatible with each service's operating requirements.⁴⁵⁴

Navy Area has entered initial manufacturing development, with the full software system installed on Lake Erie and Port Royal. Problems remain to be solved in making the Area TMD software, the CEC software, and the existing

⁴⁵²Eugene Fox and Stanley Orman, "Lack of Cooperation Cripples TMD Credibility, Effectiveness," Defense News, 6-12 October 1997, 21.

⁴⁵³Colin Clark and Robert Holzer, "Pentagon To Combine Theaterwide, THAAD," Defense News, 18 January 1999, 4.

⁴⁵⁴Robert Holzer, "U.S. Navy Rips Missile Merger," Defense News, 8 February 1999, 4.

Aegis software compatible, a daunting task given the size of the Aegis software alone.⁴⁵⁵ However, the Navy has planned thirty-five test launches of the SM-2 Block IVA missile in the next two years, and hopes to have the Navy Area system fully operational by 2003. Theater-wide is hoped to be operational by the year 2005, although a 2006-2008 time frame is more realistic.⁴⁵⁶ Both systems should provide a much-needed defensive capability against ballistic missiles, a capability made more effective through its position at sea.

Defenses Against Chemical and Biological Weapons (CBW)

The United States possesses unmatched power projection capability, both through forward-deployed forces and forces that can be transported overseas from CONUS, as demonstrated in 1990-91. However, the emergence of NBC capability in the hands of smaller states has the potential to invalidate U.S. regional warfighting strategy by targeting specific weaknesses of that strategy. In particular, chemical and biological weapons (CBW) represent an attractive 'equalizer'

⁴⁵⁵Bryan Bender, "USN digitisation effort is hit by integration flaw," Jane's Defense Weekly, 01 July 1998, 9; Captain Dan Meyer and Captain John Geary, "Aegis Computing Enters the 21st Century," Proceedings (January 1998): 40. The Aegis system currently utilizes over fifteen million lines of computer code and twenty-eight dedicated computers.

⁴⁵⁶Sea Power Almanac Issue (January 1999): 150.

for smaller states that envision war with the United States.⁴⁵⁷

In a regional crisis requiring the deployment of U.S. power projection forces, the units deployed in the theater will present an adversary with an enticing target for CBW attack. A regional power may conclude that it cannot defeat American forces using conventional weapons, making CBW necessary as an equalizer. Thus the attractiveness of CBW attack would derive from purely military considerations, setting aside the logistical, political, and blackmail benefits of using or threatening to use CW/BW weapons.

Naval forward presence forces, including Marine units, are the front line of U.S. power projection capability. These forces are most likely to be on station when a crisis erupts, and would be the first deployed into the theater. The importance of the Marines' amphibious capability has increased since the Gulf War, as a regional opponent is unlikely to allow U.S. forces to land unmolested at area ports. Marine units may well have to conduct combat landings to secure port facilities, or to set up major logistical hubs at suitable sites away from existing port facilities. Additionally, the facilities of local allies

⁴⁵⁷While many smaller states are believed to be pursuing nuclear capability, the possession of chemical and biological weapons in these nations' arsenals largely is a known fact. This section thus will be written from the standpoint that CW and BW are the most likely to be employed against the United States.

may not be made available to U.S. forces due to the threat of NBC attack or for political reasons.

Given the need to put Marine units "over the beach", an adversary's first and most viable opportunity to attack U.S. forces would come in the littoral area. The necessity for Marine units to come into close proximity with enemy forces would allow chemical attack via artillery, rockets, mortars, mines, and aerial bombs, while the need for supporting naval forces to concentrate in the waters near the landing area would allow attack by cruise missiles.⁴⁵⁸

In regard to attacks on Marine units, the continuing shortfall in fielding effective CBW protective gear likely would result in heavy casualties following a chemical attack. Among the problems faced by Marine units are insufficient detection capability, insufficient personal protective capability, and inability to safely process and treat chemical casualties.⁴⁵⁹ Marine Corps Major Victor Riley, writing in Proceedings, offered the following shortcomings of Marine NBC readiness:

Until recently, there has been no standard testing or progression of instruction to ensure mastery of NBC skills beyond the basic level that is required to ensure survival in a contaminated environment.

⁴⁵⁸Ormsby, "The Chemical and Biological Warfare Threat to Naval Forces," 5.

⁴⁵⁹The Impact of Nuclear, Biological, and Chemical Proliferation on Naval Operations and Capabilities, 15.

. . . The current protective suits (OG-84) used by the Marine Corps are bulky and extremely heavy.

. . . The M17 protective mask, which most Marines use, was found to have a failure rate of more than 37% when the Marine Corps Test facility at Camp Lejeune, North Carolina, tested masks that belonged to units preparing to deploy to SWA between 7 August and 31 December 1990. . . . The ability to detect chemical agents is critical to a unit. . . .

Currently, few detection devices are available.⁴⁶⁰

While some progress has been made in addressing the problems identified by Major Riley, significant shortfalls still exist. In particular, decontamination training and knowledge remains a major problem, in part because of the belief that decontamination operations are too hard to do. Despite some progress in CBW defensive capabilities, significant deficiencies in NBC defenses are likely to exist well into the next decade.

Despite the physical separation of naval units from opposing forces, CBW attacks also pose a major threat to the U.S. Navy. The 1996 National Defense University report Impact of the Proliferation of Nuclear, Biological, and Chemical Weapons on Naval Operations and Capabilities cited numerous material weaknesses, as well as conceptual weaknesses, in the Navy's NBC readiness:

- Fleet NBC training readiness has been substantially eroded.
- There is a fundamental division of opinion within the military community about NBC risks to U.S. military operations. While most take it very

⁴⁶⁰Riley, "ABCs of NBC," 38-40.

seriously, some tend to discount the NBC threat or place it in the "too-hard-to-do" box.

- CBW attacks may be delivered by penetrating weapons. In the case of some persistent chemical and biological agents, such attacks could render a ship effectively unusable for protracted periods.
- Tactical and doctrinal development remains a major deficiency.
- The impact of NBC on naval operations may be underestimated in war games; the lack of effective, integrated simulation and modeling tools impedes gaming and tactical doctrine development.

Among the most telling of the deficiencies noted by the report was the mindset of many Navy leaders. Among the quotes listed in the report: "NBC will not be the deciding factor in future regional wars;" "Bugs and gas are like heavy weather--the fleet will just button down and drive through;" "If it happens, it happens. We will just continue with combat operations." Such statements recall the official position that Pearl Harbor was too shallow for aerial torpedo attack, thus ruling out any risk to the Pacific Fleet. This mindset may be attributed to another of the report's observations: "NBC considerations, especially in the biological area, remain substantially outside the professional expertise of most naval officers."⁴⁶¹

Whether in the context of a Marine landing force or a naval battle group, the existing deficiencies in detection

⁴⁶¹The Impact of Nuclear, Biological, and Chemical Proliferation on Naval Operations and Capabilities, 21.

and protection require urgent attention. Additionally, CBW training must be made more regular and realistic. Finally, the level of knowledge concerning CBW issues must be improved through military education. As long as the deficiencies presented here remain, the vulnerability of military forces to CBW attack will be an 'Achilles Heel' for an opponent to exploit.

In addition to the military weaknesses describes above, American power projection forces are dependent on access to major facilities in order to operate. Port facilities are required to deliver the men and material needed to fight a ground war, while U.S. tactical aircraft require large, modern airfields from which to operate. In regard to a major regional war, the 1997 Secretary of Defense Report to Congress lists four general phases of U.S. intervention:

1. Halt the invasion.
2. Build up U.S. and allied combat power in the region, while reducing the enemy's.
3. Decisively defeat the enemy.
4. Provide for post-war stability.⁴⁶²

It should be noted that phases one, two, and three depend on unfettered access to in-theater facilities. Without access to regional airfields, U.S. tactical air power will be unable to repeat the performance of 1990-91, when most of the Tactical Air Command deployed to Saudi,

⁴⁶²William Cohen, Annual Report to the President and the Congress 1997, 5.

Emirate, and Omani airfields. Without access to regional ports, U.S. sea lift will be unable to repeat the performance of 1990-91, when 95 percent of the supplies and equipment used in Desert Storm were delivered by ship.⁴⁶³ Finally, without the full weight of U.S. air power, and with diminished capability to deliver and supply ground forces, the ability to decisively defeat the enemy becomes problematical. Thus the use of CBW weapons to neutralize regional facilities provides an adversary the means to degrade severely American warfighting capability.

The neutralization of regional facilities does not require an actual CBW attack in every case. In the book Deterrence in the Second Nuclear Age, Keith Payne describes the effect of *intimidation* produced by possession of CBW weapons.⁴⁶⁴ Since almost the whole of Saudi Arabia is within the range of Iranian missiles, and all of South Korea and Japan are within range of North Korean missiles, it is not difficult to imagine the facilities in these nations being denied to U.S. forces due to fear of CBW attack. In the Persian Gulf and Middle East, most U.S. allies are "one

⁴⁶³Weaver and Glaes, Inviting Disaster, 3.

⁴⁶⁴Payne describes the enormous effect SCUD attacks had on Israel, and emphasizes that the threat of chemical attack, even though it never occurred, weighed heavily on Israeli morale. See Deterrence in the Second Nuclear Age (Lexington, KY: University of Kentucky Press, 1996), 22-30.

target" populations in that their capital cities are the focal point of their national existence, making them even more fearful of CBW attack.⁴⁶⁵ Particularly in light of the United States' minimal ability to defend against ballistic missiles, the possibility of regional allies denying U.S. access to their bases cannot be discounted.

In addition to the threat of ballistic missile attack, cruise missiles will pose an increasing threat to facilities in the future. While Third World cruise missile capability largely remains limited to naval use, it should be expected that small states will be able to develop rudimentary land-attack cruise missiles in the future, in part due to the ready availability of GPS information, which could be used in a guidance system for such a cruise missile. Even using the commercial GPS signal, a cruise missile so equipped would be accurate to within one hundred meters, much better than any Third World ballistic missile:

This [different nations' planned GPS systems] suggests that GPS-INS technology suitable for long-range cruise missiles will become widely available in the Third World in the early 1990s. . . . In theory, selective availability will prevent Third World military forces from using GPS to deliver ordnance with an accuracy better than about 100 meters. For some applications, that may be enough.⁴⁶⁶

⁴⁶⁵Andrew Rathmell, "Chemical Weapons in the Middle East: Syria, Iraq, Iran, and Libya," Marine Corps Gazette (July 1990): 60.

⁴⁶⁶Seth Carus, Cruise Missile Proliferation in the 1990s (Westport, CT: Praeger, 1992), 66.

Whether or not a Third World nation could develop a true land-attack missile, capable of utilizing terrain masking or a multi-leg flight path, remains to be seen. However, the possibility of a regional power fielding a basic land-attack cruise missile, capable of correcting its position autonomously, cannot be discounted.

When such attacks occur, the results are likely to be severe for any facility struck with CBW weapons. Chemical weapons, which are widely held, inexpensive, and whose effects are very rapid, would provide the optimal agent for such attacks. Both The Impact of Nuclear, Biological, and Chemical Proliferation on Naval Operations and Capabilities (1) and its sister report, The Impact of the Proliferation of Nuclear, Biological, and Chemical Weapons on the United States Air Force, (2) provide very frank assessments of the survivability of major facilities:

(1) Large area defense, decontamination, and organizational responsibilities remain a major concern. . . . Next to detection, the most commonly voiced concern is for the NBC defense of ports and other large-area logistics nodes.

(2) Wargame participants generally believed that chemical and biological weapons attacks could shut down air operations at forward bases. . . . *The Air Force has no effective means to decontaminate aircraft that have been contaminated by toxic agents or materials without taking the aircraft out of service for a long period or damaging key aircraft components (italics mine).*⁴⁶⁷

⁴⁶⁷The Impact of Nuclear, Biological, and Chemical Proliferation on Naval Operations and Capabilities, 17; The Impact of the Proliferation of Nuclear, Biological, and

Until the facilities needed by U.S. power projection forces can be given protection from CBW attack, this vulnerability in U.S. strategy will continue to pose a grave threat to U.S. prospects in any regional conflict. The fact that such protection, if and when it becomes available, must be provided on a constant basis adds to the problem. A regional adversary is unlikely to withhold its CBW weapons until defenses against them have been positioned. Rather, it should be expected that regional facilities would be attacked at the outset of hostilities, before the United States could deploy whatever defensive systems it had available. Thus the ability to defend against ballistic missiles would have to be in place permanently. At present, of course, the vulnerability of major logistical facilities is a relative constant, since none of the U.S. theater missile defense systems, including the two Navy systems, are ready for deployment.

The most readily correctable vulnerability of the power projection paradigm is the state of U.S. active CBW defenses. As ballistic missiles and cruise missiles represent the primary means for an enemy to deliver CBW weapons, defenses aimed at defeating these missiles are crucial to improving overall U.S. defensive capability. The existing Navy TMD systems remain several years from

Chemical Weapons on the United States Air Force, 4, 7.

deployment. Cruise missile defenses are more advanced, especially defenses for use at sea, but will have to be improved to meet the land-attack cruise missile threat. More than any other defensive measures, defenses against ballistic and cruise missiles are vital to improving U.S. survivability against CBW attacks.

Without the ability to deliver CBW warheads via ballistic or cruise missile, much of an enemy's CBW leverage disappears. No regional air force is likely to get past American air superiority aircraft to deliver gravity bombs, nor is a regional navy likely to be able to approach U.S. naval forces and survive. The two Navy TMD programs would provide the enormous advantage of mobility, being capable of deployment wherever needed without regard to conditions ashore. Just as a carrier's aircraft enjoy independence from foreign basing rights, so would a naval missile defense system be able to operate anywhere in international waters. Since U.S. Navy ships are deployed to the Mediterranean, Persian Gulf, and Korean theaters on a permanent basis, ensuring the presence of the Aegis-equipped ships needed for ballistic missile defense would not require a major upheaval in deployment patterns.

Unlike TMD systems, programs designed for cruise missile defense have been given little emphasis in recent years. Because cruise missiles have been exclusively a naval problem for many years, the Marines in particular have

been slow to develop defenses against cruise missiles. The problems involved in intercepting and destroying a cruise missile are not as great as those involved in ballistic missile defense, and so cruise missile defenses may be expected to be developed more quickly.

Among the cruise missile defenses intended for use on land, the Army's PAC-3 version of the Patriot missile and the Tactical High-Energy Laser (THEL) appear to hold the most promise.⁴⁶⁸ The PAC-3, when completed, will serve as a dual-purpose system, capable of intercepting ballistic and cruise missiles, as well as intercepting aircraft. The THEL, while still in the design concept stage, has been tested using the Mid Infra-Red Advanced Chemical Laser (MIRACL). The tracking and fire control systems intended for the THEL system successfully destroyed a 122mm artillery rocket in 1996, using the MIRACL laser at a low power setting to simulate the smaller THEL laser.⁴⁶⁹ Provided that these Army systems can be made compatible with deployment as part of an ARG, their adoption by the Marine Corps would seem a logical step.

In addition to active defenses, measures of passive defense must be improved if U.S. naval forces are to be

⁴⁶⁸"Israel and US forces warm to high-energy laser weapons," Jane's International Defense Review (February 1997): 5.

⁴⁶⁹Hewish, "The Menace Reawakens," 33.

survivable to CBW attacks. It is only prudent to assume that an active defense system may allow some "leaks", making it less than 100 percent effective against incoming missiles. Also, Marine ground forces in close proximity to enemy forces will need protection against chemical or biological weapons delivered by mortars or artillery, methods that cannot be intercepted. Finally, chemical and biological weapons can be used in land or naval mines, requiring that U.S. forces be able to protect themselves while passing through contaminated areas. Thus personal and shipboard protective measures will be vital to protecting men and equipment.

The first requirement of passive defense is the ability to detect chemical or biological agents. The Marine Corps is ahead of the other services in regard to developing and fielding chemical detection equipment, which is not surprising given the role of the Marines in a regional conflict. Among the programs underway to improve chemical detection are several innovative ideas. One concept, which has not yet been tested, involves placing a living nerve cell on a silicon microchip. The cell fires electronic signals on a continual basis as long as it remains living. These signals are sent by the chip to the alarm component of the system, which will sound if the signal is interrupted. A chemical agent would kill the nerve cell, interrupting the signal and sounding the alarm. Another system in

development utilizes the light-absorbing properties of most chemical agents. Able to detect both aerosol clouds and surface contamination, the Differential Absorption Lidar (DIAL) is expected to be effective at up to ten kilometers.⁴⁷⁰

Biological agent detection rates with ballistic missile defense as one of the most pressing needs for American forces. Chemical detection enjoys the benefit of relatively short warning time due to the rapid effects of most chemical agents. Biological agents, however, typically do not produce effects for hours or days, and in some cases months. Detection of biological agents therefore must rely on other methods than the action of the agent itself, as timely warning would not be possible otherwise. The Impact of Nuclear, Biological, and Chemical Proliferation on Naval Operations and Capabilities states that:

The combination of our inability to detect BW agents and the potentially high lethality of BW attacks makes the biological threat especially significant to naval forces. . . . Biological and chemical agents can be successfully delivered against naval forces operating in littoral areas; expeditionary forces are even more vulnerable. . . . *Biological attack detection remains the single most important technical problem (italics mine).*⁴⁷¹

⁴⁷⁰Hewish, "Surviving CBW," Jane's International Defense Review (March 1997): 35.

⁴⁷¹The Impact of Nuclear, Biological, and Chemical Proliferation on Naval Operations and Capabilities, 2-3.

Unlike chemical detectors, which are produced in numerous countries and in a variety of forms, biological detectors remain rudimentary in design. Despite the high level of medical and biological knowledge in the United States, and in many U.S. allies' laboratories, the goal of producing an effective biological agent detector has not been reached.⁴⁷² However, both the U.S. Army and the British Army are attempting to develop a stand-off detector for identifying biological agents. By utilizing a laser scanner to measure the diameter and shape of airborne particles, the presence of biological particles theoretically could be detected. The detector also would be able to produce liquid samples from air passing through the unit, allowing more detailed analysis of suspected biological agents. Known as the Biological Integrated Detection System (BIDS), the unit is intended to be placed upwind of threatened areas, to allow sampling of the air before airborne agents could reach those areas.⁴⁷³ Like the PAC-3 and THEL, this system could be adopted by the Marines for future use.

Both chemical and biological detectors must be improved in order to protect U.S. forces and allies from chemical and

⁴⁷²Brad Roberts, "Bursting the biological bubble: how prepared are we for biowar?," Jane's International Defense Review (April 1998): 23.

⁴⁷³Hewish, "Surviving CBW," 36.

biological agents. The need for improvement is recognized by the different services, and efforts are being made to effect improvements. However, at present the detection of chemical and biological agents remains a critical weakness.

The second component of passive defense is protection, both personal protection for individuals and protection of facilities and ships. While existing personal protective suits offer adequate protection against chemical and biological agents, the suits are cumbersome and lead to rapid fatigue under most conditions, degrading troop performance. Especially in hot climates, such as the Middle East, wearing protective gear can be physically exhausting, even leading to heat stress or heat stroke.⁴⁷⁴ Thus the greatest concern in regard to personal protective gear involves producing a suit that is capable of protecting against chemical and biological agents, while being light enough for extended use without heat exhaustion.

A British design, designated the Mk IV suit, has served as the model for improved CBW protective suits, as it is lightweight, relatively comfortable, and far less bulky than existing OG-84 suits used in the U.S. military. In order to focus U.S. development efforts, the Joint Service Lightweight Integrated Suit Technology program is developing a single CBW suit for all U.S. service members. This suit

⁴⁷⁴Ibid., 47.

is intended to be light, durable, able to be decontaminated and worn again, and have a minimum usable period of 45 days.⁴⁷⁵

Production and deployment of an effective, durable CBW suit will be crucial to allowing U.S. troops to operate in a CBW environment. Existing suits, while effective, are so uncomfortable that troop performance is degraded severely.⁴⁷⁶ The suit must be light enough to be easily man-portable, durable enough to be worn over a period of days, able to be decontaminated and re-used, and not physically taxing to wear. Development of the JSLIST II, the follow-on to the original U.S. all-service CBW suit, is aimed at deployment in 2003.⁴⁷⁷

When a CBW attack occurs, especially a persistent chemical attack, the ability to decontaminate men and material in affected areas will be critical. Particularly in regard to large facilities such as ports and airfields, existing decontamination capability is minimal. While the

⁴⁷⁵Riley, "ABCs of NBC," 38; Hewish, "Surviving CBW," 47.

⁴⁷⁶Weaver and Glaes provide good depiction of the physical effects of wearing existing suits, which include decreased hearing and vision, decreased speech intelligibility, limited manual dexterity, hyperventilation and panic attacks, mood changes, and physical performance decrements. See Inviting Disaster, 27.

⁴⁷⁷Hewish, "Surviving CBW" 47.

need for decontamination capability has been recognized by the military services, existing decontamination capability continues to fall short of the operational requirements set by Department of Defense (DoD) regulation 5000.2-R:

"Requires all mission-essential systems to be survivable to those threat levels anticipated in their operating environment."⁴⁷⁸

One of the reasons for the lack of emphasis being placed on decontamination is the widespread belief that decontamination is too hard to do.⁴⁷⁹ In regard to the decontamination equipment and materials available to Marine ground forces, there perhaps is some justification for the too-hard-to-do label. Major Riley's article on Marine Corps NBC readiness pointed out that each individual Marine's M258A1 Skin Decontamination Kit consisted only of a small packet of towlettes, which are suitable only for blister

⁴⁷⁸Proliferation: Threat and Response 1997 (Washington, D.C.: Office of the Secretary of Defense, 1996), Section II, pg 16.

⁴⁷⁹The sentiment that many aspects of NBC training and readiness are "too hard to do" can be found throughout the twin reports The Impact of Nuclear, Biological, and Chemical Proliferation on Naval Operations and Capabilities and The Impact of the Proliferation of Nuclear, Biological, and Chemical Weapons on the United States Air Force. This pessimistic approach to training and readiness must be viewed as a self-fulfilling prophecy of sorts, in that lack of a determined approach has kept the United States from developing viable decontamination procedures that are not "too hard to do."

agents. Furthermore, the packaging material used to wrap the towlettes is prone to failure, resulting in the packet being rendered useless.⁴⁸⁰ Regardless of the difficulty involved, however, the ability to decontaminate men, equipment, and facilities will be vital to keeping U.S. forces functional.

The only surface decontamination agent available to the U.S. military has been found to be extremely corrosive to many of the vital components of aircraft and other vehicles, including plexiglass, rubber, and aluminum. In addition, the quantity of the agent needed to decontaminate a large facility is measured in hundreds of tons, making it unlikely that a port or air base commander would have sufficient quantities available.⁴⁸¹

The overall importance placed on decontamination by the services and the Department of Defense can be judged from the mention given in Proliferation: Threat and Response 1997. A single paragraph is provided, which does little more than cover the problems of developing non-corrosive, environmentally safe decontamination agents.⁴⁸² It is not

⁴⁸⁰Riley, "ABCs of NBC," 39.

⁴⁸¹Weaver and Glaes cite a U.S. Joint Staff study on decontaminating a major port after an attack with VX nerve agent. The report concluded that 863 tons of supertopical bleach decontaminant would be required. See Inviting Disaster, 26.

⁴⁸²Threat and Response 1997, Section II, pg 21.

surprising that one of the major findings of the NDU war games and their resulting reports is that, "Decontamination is not currently a priority investment area."⁴⁸³

Developing treatment and vaccination options for biological attacks likewise has been a slow process, and continues to fall short of required capability. Ongoing efforts in Canada, the United Kingdom, and the United States seek to develop a "one vaccination fits all" vaccine, which:

requires only a single oral dose, has no side effects, provides rapid immunity, offers complete protection, has a long storage life, is cheap to produce, and is licensed for worldwide use. *However, these aims remain many years away from fruition (italics mine).*⁴⁸⁴

While vaccines for anthrax have been available since the 1950s, many other biological agents have no available vaccine. The Defense Advanced Research Projects Agency's program for developing biological treatments, known as the Unconventional Pathogen Countermeasures Program, has budgeted 30 million dollars over the next five years to develop a full range of vaccines and medications intended for use with biological casualties.⁴⁸⁵ However, as the previous quote indicates, such treatments remain years away,

⁴⁸³The Impact of Nuclear, Biological, and Chemical Proliferation on Naval Operations and Capabilities, 17.

⁴⁸⁴Hewish, "Surviving CBW," 45.

⁴⁸⁵*Ibid.*, 46.

providing little protection to U.S. forces in the foreseeable future.

While the United States is making some progress in addressing shortfalls in active defenses and protective gear for CBW warfare, the state of decontamination and vaccination capability remains a major problem. Until these related capabilities are given more emphasis within the Department of Defense, U.S. facilities will be at risk of being neutralized by chemical or biological weapons that get past whatever active defenses exist. In addition, moving and treating any chemical or biological casualty will risk spreading the chemical or biological agent to additional personnel, compounding the problems caused by CBW attack. The Navy and Marine Corps, as well as their sister services, must improve the level of progress being made in providing decontamination and vaccination capability if they are to be sent into harm's way in a chemical or biological environment.

Network-Centric Warfare (NCW)

As the Navy enters the twenty-first century, emerging technologies in the areas of communications, command and control, sensor inputs, and information management are being combined to change fundamentally the way the Navy will operate. In a 2 March 1998 memo to all Navy flag officers, CNO Admiral Jay Johnson set out the Navy's long-range

planning objectives, which included the overall objective to:

Develop secure C⁴ systems and doctrine that provides the capability to significantly compress the operational decision loop through reduction of decision-making layers, through increases in direct sensor-to-shooter connectivity, and through automated processing and evaluation aids for decision-makers.⁴⁸⁶

The objectives listed above lay out, in simple terms, the basis of the Navy's twenty-first century warfighting concept, known as Network-Centric Warfare (NCW): reduce the number of decision layers in order to obtain speed of command and rapid tempo of operations, link sensors to shooters as tightly as possible so that what can be seen can be killed, and provide assistance in evaluating and utilizing information so that the commander's intent can be put into action without unnecessary delay. The features that are seen as enablers of NCW are the Sensor Grid, the Shooter Grid, and the Information Backplane.⁴⁸⁷

The Sensor Grid will be achieved through the continued evolution of existing command, control, communications, and intelligence (C³I) systems such as the Advanced Combat Direction System (ACDS), which eventually should allow the

⁴⁸⁶Admiral Jay Johnson, Chief of Naval Operations, memo to all Navy flag officers, 3 March 1998.

⁴⁸⁷Vice Admiral Arthur Cebrowski and John Gartska, "Network-Centric Warfare: Its Origin and Future," Proceedings (January 1998): 31.

fusion of sensor input from virtually any source, including joint and allied sensors. The Shooter Grid already exists in preliminary form as Cooperative Engagement Capability, which should be applicable to surface targets, ballistic missile targets, submarine targets, and shore bombardment targets.⁴⁸⁸ Finally, the Information Backplane is expected to grow out of existing networks, such as the Joint Worldwide Intelligence Communications System (JWICS) and Secret Internet Protocol Router Network (SIPRNET).⁴⁸⁹ The program intended to bring together the Sensor, Shooter, and Information components is Information Technology for the 21st Century (IT-21). Already in place, IT-21 is co-directed by OPNAV N6 (Space, Information Warfare, and Command and Control), the Space and Naval Warfare Systems Command, and the Naval Computer and Telecommunications Command.⁴⁹⁰

⁴⁸⁸Bryan Bender, "Buying into networked warfare," Jane's Defense Weekly, 13 May 1998, 27; Vice Admiral James Fitzgerald, Raymond Christian, and Robert Manke, "Network-Centric Antisubmarine Warfare," Proceedings (September 1998): 93; Glenn Goodman, "Sea-Based Firepower," Armed Forces Journal International (November 1997): 34; Alan Maiorano, Nevin Carr, and Trevor Bender, "A Primer on Naval Theater Air Defense," Joint Force Quarterly (Spring 1996): 24.

⁴⁸⁹Vision, Presence, Power, 96.

⁴⁹⁰Rear Admiral Robert Nutwell, "IT-21 Intranet Provides Big 'Reachbacks'," Proceedings (January 1998): 36.

The concept for NCW was derived from the growth of networks in non-military settings such as businesses, and the superior performance in many cases of networked businesses. In contrast to the rigid hierarchical organization of a typical military formation, in a network organization all units of the network are linked in terms of information. A unit does not depend on the higher levels of the organization to supply information, but instead can seek information from any location within the bounds of the network. When decisions are required, the unit is better equipped to decide for itself, rather than having to depend on (and wait for) a higher unit to decide. The advantages of units making decisions for themselves are obvious: faster decision-to-action time, better appreciation of conditions due to proximity to the problem, and flexibility in problem solving.⁴⁹¹

Possibly the greatest advantage of distributed decision-making in a networked structure occurs in periods of "information distortion", when information is unavailable, incomplete, or uncertain.⁴⁹² Units are able to "self-synchronize" with other units, allowing flexibility in solving problems. Particularly when operating under

⁴⁹¹Kathleen Carley and Zhiang Lin, "A Theoretical Study of Organizational Performance Under Information Distortion," Management Science (July 1997): 976.

⁴⁹²Ibid.

conditions that are similar to previous experience, intuition and pattern recognition can allow experienced leaders to reach course-of-action decisions quickly, maintaining a high operational tempo. The ability to maintain a high tempo is particularly applicable to military operations, where time often is a critical commodity and information uncertainty often exists.⁴⁹³ It is through the networking of dispersed platforms and the sharing of information that NCW is seen by its proponents as providing superior warfighting capability.

The first component of NCW, the Sensor Grid, will allow data from virtually any sensor to be viewed by any member of the network. Current sensor platforms, such as J-STARS and E-3 Sentry radar aircraft, represent the first step in the integration of sensor data. Fleet Battle Experiment Bravo validated the ability to utilize such offboard sensor data from naval, joint, or allied sensors.⁴⁹⁴ In the future, sensor fusion may include input from satellites, RPVs, visual or infrared sensors deployed by aircraft or artillery, seismic sensors, sound sensors, radar data, and

⁴⁹³Marine Corps manual MCDP-6, "Command and Control," stresses the need to maintain a high operational tempo. MCDP6 states that, "speed is an essential element of effective command and control."

⁴⁹⁴Vision, Presence, Power, 22; Blake, Penny, and Hjelmfelt, Fleet Battle Experiment Bravo-Ring of Fire Analysis Report (U), 66-68.

manual input from special operations units.⁴⁹⁵ The result will be to provide the proverbial "God's eye picture" to members of the network:

The central concept of networking is the ability for any participant in the network to *directly* access any other participant for information exchange or activity coordination. . . . The networking goal is for every unit to have the ability to access and display, at the same time, all or any part of the totality of sensor information available from all sources. While this alone does not guarantee perfect knowledge, it does mean that whatever insights are available from all organic, theater and national sensors arrayed against the problem can be used to aid every unit in the performance of the mission.⁴⁹⁶

NCW's Sensor Grid should provide the ability to link any sensor connected to the network to any platform in the network, regardless of distance. The ability to fuse incoming sensor data efficiently will derive from one of the properties of a network known as "Metcalf's Law" (not a true physical law). Metcalf's Law holds that the computational power of a network is proportional to the square of the number of nodes in the network. With the ability to link an

⁴⁹⁵Nick Cook, "US technology will lead the way to improved reconnaissance systems," Jane's Defense Weekly, 13 May 1998, 29; "Teledyne Ryan's Global Hawk Begins Taxi Tests," Aviation Week & Space Technology, 3 November 1997, 38; Dennis Hagan, "Naval Gunfire Support," Surface Warfare (September/October 1997): 35; Fred Belen, "Tactical Information Technology...From the Sea," Proceedings (September 1998): 122.

⁴⁹⁶Captain William Gravell, "The Offensive Punch of Network-Centric Warfare," Surface Warfare (March/April 1998): 15.

enormous number of nodes, NCW's Sensor Grid should be able to assimilate and distribute information from organic sensors, such as radar, non-organic sensors, such as land-based aircraft, and national, other service, or allied sensors, such as satellites.⁴⁹⁷

NCW's Shooter Grid, also known as the Engagement Grid, will allow a networked force to make optimum use of available weapons by pairing weapons to targets quickly and (potentially) automatically. The Shooter Grid should allow any weapons that are within range of a given target to be fired at that target, regardless of the firing platform's ability to track the target independently. When coupled with the Sensor Grid's situational awareness, the Shooter Grid is seen as allowing widely dispersed naval forces to mass fires on a target, to engage targets more quickly and efficiently, and to utilize built-in deconfliction tools to avoid having rules-of-engagement software prohibit attacks.⁴⁹⁸ In addition to the Ring of Fire system described previously, Cooperative Engagement Capability is an early example of the kind of networked Shooter Grid envisioned for NCW.

⁴⁹⁷Leslie West, "Exploiting the Information Revolution: Network-Centric Warfare Realizes Its Promise," Sea Power (March 1998): 38.

⁴⁹⁸Gravell, "The Offensive Punch of Network-Centric Warfare," 16.

Cooperative Engagement Capability (CEC) represents the first implementation of an emerging focus in naval warfighting: the ability to link sensors to shooters in real time. CEC allows individual platforms to share information on airborne threats, and to engage airborne threats using remote sensor data. The 1997 Navy Posture Statement provides the following explanation of CEC:

With CEC, it appears to each shooter's combat system as if every netted sensor is that unit's own sensor. Engagement using remotely provided track data is 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 battlespace, as well as identical identification information.⁴⁹⁹

CEC utilizes a dedicated onboard computer system of cooperative engagement processors, together with a data-distribution system, to provide a composite radar track of airborne targets. CEC is an outgrowth of two similar systems, the Battle Group Anti Air Warfare Commander (BGAAWC) and Force AAW Coordinating Technology (FACT) program.⁵⁰⁰ By combining data from different Aegis radars, CEC can maintain a fire-control-quality radar track

⁴⁹⁹Department of the Navy 1997 Posture Statement (Washington, D.C.: Department of the Navy, 1997), 73.

⁵⁰⁰Norman Friedman, Naval Institute Guide To World Naval Weapons Systems 1994 Update (Annapolis, MD: Naval Institute Press, 1994), 38-39.

continuously, without the "fadeouts" common when a single radar attempts to hold a track.

In order to share information in real-time while remaining highly jam-resistant, CEC-equipped Aegis ships and E-2C Hawkeye radar surveillance aircraft use very short transmit/receive windows and line-of-sight signals. The transmit/receive functions are automatic, controlled by the cooperative engagement processors. Although units can exchange data only in pairs, the speed achieved through computer control of the data exchange process makes the sharing of information effectively instantaneous.⁵⁰¹

The clearest advantage provided by CEC is the extension of a ship's anti-air engagement envelope to the maximum range of its weapons, rather than the ship's radar horizon. Because CEC provides remote fire control, a ship can fire on a target well before the ship's radar can detect the target, provided that another CEC radar has detected the target. The concept of remote fire control was tested successfully in 1996 in Hawaii, when a CEC radar and data transmitter located on a hilltop sent targeting information to Lake Erie, allowing engagement of a low-flying target drone.⁵⁰²

⁵⁰¹Cooperative Engagement Capability: A Revolution in Air Defense, U.S. Navy booklet (no publisher or date), 2.

⁵⁰²Ibid., 13; Glenn Goodman, "Extending the Horizon," Armed Forces Journal International (April 1996): 58; Captain Jim Patton, "Keeping Up With the Revolution," Proceedings (July 1996): 41.

In addition to the advantage of extended range, CEC also should provide the capability to defeat self-screening jammers in anti-ship cruise missiles. Such jammers typically radiate electronic noise in a cone of around thirty degrees in their direction of flight, thereby jamming the target ship's radar. A ship located off of the missiles' flight path likely would be outside the jammers' field of interference, and should be able to provide the target ship's defensive missiles with fire control data.⁵⁰³

Perhaps the most significant advantage offered by CEC will be the ability to share the E-2C's airborne radar picture with ships operating in the littoral area. Land features can produce radar "shadows", preventing a ship's radar from detecting low-flying targets inland. The E-2C's radar should be able to "peer over" many terrain features that ships' radars cannot, as well as providing much greater detection range. Also, the radar "clutter" of the littoral region, which can include weather, sand storms, birds, buildings, and electronic interference or jamming, can prevent a single ship from maintaining or verifying radar contacts, making CEC's composite radar picture very helpful.⁵⁰⁴ Given the speed of jet aircraft and cruise

⁵⁰³Cooperative Engagement Capability, 11.

⁵⁰⁴Commander Robert Engel, "Bringing Aegis to the Littorals," Proceedings (January 1998): 42.

missiles, and the current Navy emphasis on operating close to shore, spotting targets as early as possible obviously is of great importance.

CEC has entered low-rate initial production as of January 1998, and has been installed in four ships: USS John F. Kennedy (CV-67), USS Wasp (LHD-1), USS Hue City (CG-66), and USS Vicksburg (CG-69). In addition, USS Anzio (CG-68) and several P-3 aircraft were fitted with CEC components in 1997 for a concept evaluation test program.⁵⁰⁵ In July 1998, the Hue City and Vicksburg were reported to have software compatibility problems between their Aegis systems and the CEC system, preventing both systems from operating at the same time.⁵⁰⁶ As described previously, the current Aegis computer system involves over fifteen million lines of computer code, indicating the magnitude of the challenge involved in integrating the two systems. These problems aside, the CEC program is moving ahead, with the final report of the Under Secretary of Defense for Development, Operational Test, and Evaluation due early in 1999.⁵⁰⁷

The Information Backplane, which will link the Sensor Grid and Shooter Grid, is moving forward under the title of

⁵⁰⁵Vision, Presence, Power, 72.

⁵⁰⁶Bender, "USN digitisation effort is hit by integration flaw," 9.

⁵⁰⁷Vision, Presence, Power, 72.

the Copernicus program. The 1998 Navy Posture Statement describes Copernicus:

This common vision [Copernicus] 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 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).⁵⁰⁸

IT-21 forms the major component of Copernicus, and is seen as the most critical component of NCW. Accordingly, the Navy already has allocated financial resources, as well as human effort, towards the IT-21 program. IT-21 will provide a fleet-wide intranet, allowing for the exchange of information via secure military communications networks and existing civilian communications networks. The Enterprise CVBG recently used IT-21 technology in planning and conducting air strikes against Iraq, and saw mission planning eased by the ready availability of information.⁵⁰⁹ The ability to send and receive information, at every level and in regard to any aspect of operations, is a fundamental requirement of NCW:

⁵⁰⁸Forward. . . From the Sea: Anytime, Anywhere. U.S. Navy 1998 Posture Statement (Washington, D.C.: Department of the Navy, 1998), Section VIII, pg 15.

⁵⁰⁹Robert Holzer, "U.S. Navy: IT-21 Shines in Debut Desert Fox Action," Defense News, 25 January 1999, 6.

For Network-Centric Warfare to be viable, an Information Backplane must be developed to support information flow among the sensor, C2, and shooter grids. . . . IT-21 provides critical infrastructure necessary to establish the Information Backplane. The information systems backplane provides the critical warfighter end-to-end capability that extends from personal computers (PCs) on local area network segments connected to metropolitan area networks and critical ship-to-shore interface sites. . . . Without the IT-21 Information Backplane, Network-Centric Warfare cannot occur.⁵¹⁰

After NCW's architecture is in place, the concept is expected to provide tremendous advantages to U.S. naval forces by providing "information dominance." In conjunction with the Sensor Grid, new computer-assisted command and control processes are expected to enhance the ability of U.S. forces to make the best use of information dominance.⁵¹¹ Commanders should be able to view the battlespace in real time, enjoying accurate knowledge about the location and activities of friendly and enemy forces.⁵¹² Individual units will be able to access the intranet for information, allowing them to utilize the data provided by remote sensors in real time. Remote databases will be

⁵¹⁰Vision, Presence, Power, 21-22.

⁵¹¹Cebrowski and Gartska, "Network-Centric Warfare," 33-34.

⁵¹²Commander Austin Boyd, "Space Provides Real-Time Combat Identification," Proceedings (January 1996): 75.

available for pulling up needed information, such as the latest weather or intelligence reports for the theater.⁵¹³

Vice Admiral Arthur Cebrowski, the "Godfather of NCW", has stated that, "Network-Centric Warfare enables a shift from attrition-style warfare to a much faster and more effective style characterized by the new concepts of speed of command and self-synchronization."⁵¹⁴ Speed of command will derive from superior information and communications, allowing the commander's intent to be enacted rapidly. Self-synchronization will result from the ability of any unit in the force to cooperate adaptively with other units as the situation demands, able to solve problems at the unit level rather than requiring orders from above.⁵¹⁵

In the littoral setting, the advantages gained through NCW will be of great importance, both for power projection and for defense against littoral threats. Given the position naval forces likely will be required to take close to an enemy's shore, threats may appear and have to be defended against within a very short time frame. Anti-ship cruise missiles, for example, could cover the distance from

⁵¹³Nutwell, "IT-21 Intranet Provides Big Reachbacks," 37.

⁵¹⁴Cebrowski and Gartska, "Network-Centric Warfare," 32.

⁵¹⁵Roger Barnett, "Grasping 2010 with Naval Forces," occasional paper 2-97, U.S. Naval War College, 10.

shore to the twenty-five-mile position of an ARG in as little as one minute. By combining the radar and sensor data of all units in a networked force, the ability of each platform within the force to defend itself should be improved greatly. The ability to recognize, target, and attack enemy positions ashore likewise should be improved. Although still in the early concept development stage, the NCW qualities of speed of command and self-synchronization should indeed provide a sizable advantage to U.S. forces, providing military dominance by virtue of superior information.

Summary

As the sea services prepare to enter the twenty-first century, it is important that they evaluate the systems and capabilities that may be needed in the projected international setting. While it is not necessary, or even possible, to predict with certainty who the opponent of the future will be, it is possible to predict the nature of the Navy-Marine Corps team's twenty-first century military requirements.

Since the sea services have adopted complementary strategic visions based on operations in the littoral area, those systems and capabilities that will be needed in the littoral can be identified. These capabilities include amphibious landing, naval surface fire support, sea-based

aviation (aircraft carriers and their embarked air wings), future surface combatants, mine countermeasures, anti-submarine warfare, theater missile defense, and NBC detection, protection, and decontamination capability.

The Marines' ability to get themselves and their equipment ashore will depend on several systems expected to enter service in the next decade. The LHD-1 class of big-deck amphibious ships are nearly complete, with six of the seven ships already delivered. The LPD-17 class ships will begin to enter service early in the next century. When combined with existing LHA-1 class and LST-41/49 class ships, these vessels will comprise the amphibious ready groups of the future. To get the Marines from their ships to shore, the AAV and MV-22 Osprey will be vast improvements over the AAV7A1 and CH-46E that they will replace. Each of the new vehicles bring major improvements in speed, delivery range, and survivability to Marine amphibious and vertical operations.

Once the Marines get ashore, they will be able to call for support from several Navy land-attack systems. The 5-inch naval gun, one of the oldest individual weapons in the Navy, is being re-engineered to provide long-range, precision gunfire support to Marine forces ashore, a capability that had been greatly degraded with the retirement of the Iowa-class battleships. By utilizing a new rocket assisted round and GPS/INS guidance, the new 5-

Three new ship types have been proposed for service in the next century, each optimized for projecting U.S. power ashore. The DD-21 land attack destroyer, which should enter service in the next decade, will possess several systems for providing fire support, including a larger and longer-ranged version of the 5-inch ERGM. The arsenal ship proposal, although presently shelved, could provide a large amount of on-call precision firepower to regional commanders. Finally, the Ohio-class SSBNs slated for decommissioning in 2002 have been nominated for conversion to SSGN configuration, providing a smaller, more survivable version of the arsenal ship, while also providing special forces delivery and intelligence gathering capability.

For any military operations in the littorals, whether small-scale operations or major regional conflicts, mine countermeasures will be crucial. There is perhaps no more cost effective means of employing sea denial than through defensive mining, and potential adversaries should be expected to utilize mines in the future. The ability to detect, locate, and neutralize mines is an absolute necessity for littoral warfare, a fact underscored by the Tripoli and Princeton experience in 1991. Although perhaps still under-emphasized, U.S. mine warfare capability should be much improved by the arrival of several new systems in the next decade, including airborne, surface, and submersible minehunting and neutralization systems.

Of equal importance to mine warfare will be anti-submarine warfare. Similar to mines in its ability to influence U.S. operations even when not detected, the submarine has the added advantages of mobility, stand-off attack capability, and surveillance. Many modern diesel-electric submarines are very quiet when operating submerged, making them especially difficult to detect in the littoral setting, which can feature high background noise, strong thermal layers, and distorted sonar performance. While the Navy still retains many of the platforms and systems that made it the best anti-submarine force in the world just a decade ago, the recent lack of training and funding for anti-submarine systems have caused a significant decrease in overall capability. Re-establishing the former level of anti-submarine proficiency is an imperative for the Navy's new littoral strategy.

Theater missile defense is perhaps the single most important capability being developed for the twenty-first century. A small adversary, without the conventional might even in its own region to confront the United States, could gain sufficient leverage through the threat of NBC attacks, delivered by ballistic missiles, to keep regional facilities closed to U.S. forces. In the event of a regional conflict, using ballistic missiles to deliver chemical or biological weapons onto regional facilities could render those facilities useless to U.S. forces, thus leveling the field

by neutralizing U.S. air power and preventing the delivery of U.S. sea lift. In either case, the possession of effective, sea-based missile defenses would allow adversary ballistic missile threats or actual attacks to be defended against, protecting U.S. forces, regional facilities, and allied population centers. Just as carrier-based aircraft are able to operate without host nation support, so could a sea-based theater missile defense system. Thus U.S. missile defenses could be in place essentially all the time in areas of U.S. interest, rather than having to be flown to a crisis region from CONUS. By 2003 the Lower Tier system should be deployed, while Upper Tier should be in service by 2008.

All branches of the U.S. armed forces currently are focusing on improving their level of NBC defenses. Since forward-deployed naval units likely will continue to be the first on the scene when a crisis arises, it is imperative that their NBC defenses be improved on. The Marines are the forces most likely to be at risk in a future conflict, as they may be tasked with conducting a forced entry to secure facilities for the follow-on forces. Accordingly, the Marines have conducted much successful work on chemical detection systems, although their personal protective capability requires further improvement. Biological agent detection, however, remains a very difficult problem, as most biological agents do not produce effects for hours or days, sometimes weeks, after exposure. Also, both the Navy

and Marines must address the problem of decontamination after a chemical attack, and of providing vaccines or treatments for biological attacks.

In addition to the systems and capabilities being developed, the Navy is in the early stages of developing an information-based warfighting concept, known as Network-Centric Warfare. Intended to take advantage of the rapid advances currently taking place in the areas of communications, computers, and sensors, it is forecast that Network-Centric Warfare will provide U.S. forces with information superiority sufficient to impart military superiority as well.

The systems and capabilities described in this chapter, some of which have been around for many years and some of which still are being developed, are vital for the post-Cold War security environment. The United States cannot be sure where it may have to use military force to defend national interests in the future, but the likelihood that the United States will have to resort to force seems as high or higher than during the Cold War. Potential adversaries have adopted new weapons and strategies. If the Navy-Marine Corps team is to be prepared for the twenty-first century, and is to be employed primarily in the littorals, they too must avail themselves of new weapons, new defenses, and new concepts.

Chapter V will examine three suggested alternatives to forward presence as a strategy for protecting American interests. The alternatives are proposals for the posture and employment of the entire U.S. military, not just naval forward presence forces. While each alternative has champions to argue its merits, it is the position of this thesis that forward presence, consisting primarily of U.S. naval forces, is and will remain superior to alternative strategies for protecting American interests.

CHAPTER V

PROPOSED ALTERNATIVES TO FORWARD PRESENCE

Although the United States currently relies on the presence of U.S. forces around the world to safeguard U.S. interests, the strategy employed by the United States is not fixed by any binding law, treaty, or convention. Unlike the existence of the Navy, which is specifically spelled out in the Constitution, the national security strategy employed by the United States is subject to change at the pleasure of the sitting administration. While power projection through forward presence is the basis of the present strategy, naturally there are other possible strategies. Three alternative proposals for U.S. national security strategy will be presented in this chapter. These alternatives are: a smaller, CONUS-based military that would deploy overseas only in crisis periods; a smaller, CONUS-based military that would rely heavily, almost exclusively, on air power to resolve crises; and a much smaller, CONUS-based military with few if any security obligations beyond the borders of the United States.

The "Pull-Back" Strategy: A Smaller, CONUS-based Military

The first alternative proposal for U.S. national security strategy is to reduce the size of the armed forces beyond even their 1999 levels, pull most U.S. forces back to CONUS, keeping only a few forces forward-deployed to provide a token presence, and deploy the armed forces overseas only when a crisis must be resolved with military force. The proponents of this strategy cite a number of arguments to make the case that this strategy is both feasible and appropriate for the post-Cold War setting.

The most common argument for this strategy is that, with the demise of the Soviet Union and with China and Russia not yet able to challenge the United States as peers, there is no plausible threat to U.S. national security. The United States reigns supreme over the world, and can safely withdraw from its present role as the world's policeman (an inappropriate role to begin with). If any regional state should have the bad judgment to challenge or assail a U.S. interest, U.S. forces can deploy to the offender's region, restore order and the status quo, and then return home. There is no realistic scenario in which American security and prosperity can be threatened by any other state, so why exert ourselves unnecessarily? Even George Kennan, a giant figure of the Cold War containment strategy, is quoted as advocating such a "pull-back" strategy: "What we should

want, in these circumstances, is the minimum, not the maximum, of external involvement."⁵¹⁶

Part of the rationale of the desire for "the minimum, not the maximum," is the belief that domestic concerns should take priority over international concerns in the post-Cold War era. After all, we "fought" a forty-five year war against the Soviets in order to enjoy peace and prosperity at home. Why not do so now that the Soviets are no more? Regional instability largely is irrelevant to the security of the United States, and the rare regional crisis that does pose a threat can be dealt with summarily. Thus the United States should turn its focus inward to domestic political and economic concerns, and ignore most of the events in the international arena.⁵¹⁷

Perhaps the most often-used argument given in support of the pull-back strategy, one that has grown almost to have a life of its own, is that the so-called "Revolution in Military Affairs" (RMA) will allow high-technology U.S. systems to substitute for a numerically strong, forward-deployed military. With an insurmountable technological edge over the rest of the world, there is no opponent who

⁵¹⁶Christopher Layne, "From Preponderance to Offshore Balancing," in Brown et al., America's Strategic Choices, 282.

⁵¹⁷Johnson and Krulak, "Forward Presence In A Violent World," 4.

cannot be overcome: "It [RMA] appears to offer the United States the prospect of military power beyond that of any other country on the planet, now and well into the next century."⁵¹⁸ Technology therefore substitutes for forces and strategy: we are the best, we will remain the best, and anyone who challenges us will be overwhelmed by U.S.

technological mastery:

In an era of satellite reconnaissance, supercomputers, instant telecommunications, and rapid-reacting U.S. forces based at home, the United States can respond quickly to emerging crises and therefore need not maintain a permanent physical presence abroad. . . . Changes in technology render the old ways of projecting power obsolete.⁵¹⁹

The favorite choice of RMA proponents as the "poster boy" for security through technology is the B-2 bomber (which will be the focus of the second alternative strategy), armed with a variety of smart and brilliant weapons:

Stealth and precision-attack abilities, together with vastly improved situational awareness and surveillance capabilities, are among the most important tenets of the RMA, which in many

⁵¹⁸Eliot Cohen, "A Revolution in Warfare," Foreign Affairs (March/April 1996): 54.

⁵¹⁹Rodman, America Adrift, 66. See also O'Hanlon, "Can High Technology Bring U.S. Troops Home?" 73: "Many of its [RMA] proponents argue that with the United States able to strike at any potential enemy anywhere in the world, overseas military bases and deployments will become much less important."

circumstances can permit leveraged tradeoffs between technology and manpower.⁵²⁰

Another argument of RMA proponents is that, by employing technology instead of manpower, the risks involved in military action to U.S. servicemen will be reduced greatly.⁵²¹ Although this argument is fundamentally correct, it sometimes is distorted into a vision of bloodless U.S. victory regardless of the specific scenario. The more technology used, the lower the risk to U.S. servicemen. Therefore at some level of technology risk drops to zero, and any military action can be casualty-free.

Also argued in favor of the pull-back strategy is the position that the United States no longer can afford the kinds and numbers of forces that are required for forward presence. With no plausible threat to demand a large, capable military at the pitch of readiness, vigilantly standing guard around the world, the United States cannot justify the continued expenditure of hundreds of billions of dollars on a forward presence military.⁵²²

⁵²⁰Charles Perry, Robert Pfaltzgraff, and Joseph Conway, Long-Range Bombers & the Role of Airpower in the New Century (Cambridge, Mass: Institute for Foreign Policy Analysis, 1995), xi.

⁵²¹Dismukes, "The U.S. Military Presence Abroad," 51.

⁵²²Johnson and Krulak, "Forward Presence In A Violent World," 4.

To preempt the arguments that a pull-back strategy would involve greater incidence of regional crises, with a corresponding increase in U.S. deployments to fight regional wars, pull-back advocates cite the historical record of U.S. warfighting abroad. The United States has been involved in only three of the ten "great power wars" since achieving independence from Britain, and could safely have stayed out of two of the three wars it did fight in. Only World War Two posed a sufficient threat to the United States to force intervention.⁵²³ Thus the increased incidence of regional crises, if any, need not lead to U.S. intervention unless desired.

Finally, there is the argument that the United States should give up its position as the world's policeman, that the United States has, "undertaken an imperial role without discharging the classic duties of imperial rule," and that it must, "learn to exercise far greater caution and restraint than it has recently displayed in the use of military power."⁵²⁴ The pull-back strategy does just that, and envisions the deployment and use of force only in the

⁵²³Brown et al., America's Strategic Choices, 278-279.

⁵²⁴David Hendrickson, "The End of American History; American Security, the National Purpose, and the New World Order," in Graham Allison and Gregory Treverton, eds., Rethinking America's Security: Beyond the Cold War to New World Order (New York: W.W. Norton & Co., 1992), 400-401.

most dire of crises. Even Iraq's invasion of Kuwait could have been ignored, according to this logic, as it did not sufficiently threaten U.S. interests to justify war.⁵²⁵ Despite recent statements about the new world order, the United States should no longer accept the burden of policing a chaotic world, instead focusing on its own internal security and prosperity.

What would a pull-back military look like? Clearly it would be smaller than the current force size, but would it consist of the same capabilities, or would it have a different set of criteria for military missions and capabilities? Would the three services remain roughly balanced in emphasis, with Joint Vision 2010's follow-on document as the guiding principle for U.S. forces, or would one service move to the forefront in protecting American interests?

While all attempts to describe a pull-back force structure must be considered hypothetical, it is reasonable to make several assumptions about what it would look like. The strategic nuclear forces would retain their crucial role, and indeed would be increasingly important in deterring others from direct attack on the United States. As smaller states around the world begin to acquire nuclear weapons, as it seems likely that they will, and in light of

⁵²⁵Ibid., 399.

the existing arsenals in China and Russia, the United States would have to retain the position of advantage in regard to nuclear weapons and nuclear escalation in a crisis. Smaller states that wish to avoid conventional defeat in a war against the United States might come to see nuclear weapons as providing the needed leverage to achieve their aims, thus requiring that the United States retain what has been called "escalation dominance." As stated by Colin Gray, "Although the United States likely will have little practical need of its nuclear arsenal, if that need should arise, nothing else would do."⁵²⁶

The Navy likely would be elevated in emphasis over the Army and Air Force in terms of size, as the absolute requirement for the deployment of U.S. forces from CONUS would be naval supremacy. The Navy would not need to be as large as it is today, but would have to be large enough to be more than a match for any regional navy or alliance of regional navies.⁵²⁷ The principal mission areas of the Navy would be those needed to keep the SLOCs open: ASW, AAW, and MCM.⁵²⁸ In addition, heavy use would be made of prepositioning ships for Army heavy equipment and supplies,

⁵²⁶Gray, "Tomorrow's Forecast," 42.

⁵²⁷Brown, et al., America's Strategic Choices, 271.

⁵²⁸Perla et al., Future Sea-Based Aviation, 55.

as well as fast sea lift ships.⁵²⁹ Getting the prepositioning ships, as well as the sea lift ships coming from CONUS, safely into port in the crisis area would be the principal duty of the Navy.

The Air Force would be the preeminent fighting service, as air power and high-tech precision weapons would do most of the fighting, but the Air Force would not need to be as large as today's.⁵³⁰ Since future aircraft are expected to be capable of flying to targets in a theater from bases well outside the theater, or even directly from CONUS, today's large fleet of short-legged tactical aircraft would be reduced, replaced by medium- and long-range bombers able to carry large numbers of precision weapons on each trip.⁵³¹ Only a modest number of F-15 or F-16 type tactical aircraft would remain active, to be deployed into a theater for air defense purposes. The impact of RMA technologies and stealth aircraft would make each aircraft more effective, allowing fewer aircraft to do the job of today's large tactical air forces. As in the Gulf War model, air power would set the stage for the final victory on the

⁵²⁹Dismukes, "The U.S. Military Presence Abroad," 51.

⁵³⁰Charles Perry, Laurence Rothenberg, and Jacquelyn Davis, Airpower Synergies in the New Strategic Era (Cambridge, Mass: Institute for Foreign Policy Analysis, 1997), 41.

⁵³¹Dismukes, "The U.S. Military Presence Abroad," 51.

ground by paralyzing the adversary's forces and command links.

Of great importance for a pull-back strategy would be space power, since the ability to monitor events abroad could no longer be provided by on-scene forces. Also, the air power assets being deployed from CONUS or other out-of-theater bases, such as Guam or Diego Garcia, would need targeting information that could be updated in real time, requiring space-based surveillance.⁵³²

Finally, the Army likely would be smaller even than today's Army. The ground forces in Europe and Korea no longer would be needed, nor would forces have to be deployed to Kuwait, and certainly not to Bosnia or Kosovo. The Army would need to maintain three or four heavy divisions, whose personnel could be flown quickly to a theater to mate up with prepositioned equipment, and two light divisions. The highly mobile 82nd Airborne division would be the model for the light divisions, all of which would be structured for air deployment anywhere in the world on short notice. The ability to air lift Army ground forces anywhere in the world largely would obviate the need for Marine amphibious forces, which would have to deploy by sea from CONUS simply to get to the theater.⁵³³ Maximum use of air lift would be made in

⁵³²Perry et al., Long-Range Bombers, 10;

⁵³³William Odom, "Transforming the Military," Foreign Affairs (July/August 1997): 58.

the deployment of Army forces, with sea lift serving to provide the heavy equipment and supplies needed to bolster the prepositioning ships.

Although air power would be expected to produce the shock and degradation of the enemy's strength needed for the ultimate resolution of the conflict, the services still would observe much the same joint warfighting philosophy that exists today, although on a smaller scale. The Navy would be responsible for getting the Army and Air Force safely into the theater, after which time the Army and Air Force would set about defeating the enemy. Thus the pull-back strategy is not a shift in military warfighting philosophy, but in the national security posture of the armed forces in peacetime.

What weaknesses exist in the pull-back strategy? Given that many of the arguments presented in support of the pull-back strategy seem reasonable in and of themselves, what faults can be found in the pull-back strategy? More importantly, is the pull-back strategy a viable alternative to forward presence? The answer must be a resounding "no."

First, and most importantly, the pull-back strategy would place the United States in a reactive posture, able only to respond to events after the fact.⁵³⁴ Adversaries who harbor aggressive intent thus might be tempted to pursue

⁵³⁴Dismukes, "The U.S. Military Presence Abroad," 52.

a *fait accompli* strategy, striking quickly and then attempting to hold onto their gains. For example, China might throw its military across the Taiwan Strait, subdue and occupy Taiwan, and then warn off a U.S. response with the threat of a war that would have to be fought in China's front yard, hundreds of miles from U.S. logistical bases, against a state able to deploy thousands of mines, submarines, and cruise missiles to keep U.S. forces away.⁵³⁵

Iran or Iraq likewise might decide to attack one of the small GCC nations, and then combine sea denial in the Strait of Hormuz with NBC blackmail to prevent U.S. intervention. Given the very narrow majority in the U.S. Senate vote in support of the 1990 Gulf War, it is not impossible to imagine the cost of deploying to the Gulf, without the benefit of Saudi Arabia's major facilities or the support of a multi-national coalition, being judged too high to tolerate. Given the fact that it took six months before the United States was ready to dislodge Iraq in 1991, when Saudi Arabia's facilities and multi-national support were available, the prospect of repeating the 1990-1991 effort

⁵³⁵It is just such a strategy that is posited in a recent U.S. Navy war game, conducted in cooperation with the Office of Net Assessment. Set in the year 2020, the game portrays a Chinese invasion of a re-unified Korea. China's strategy is to overwhelm Korea quickly, employ sea denial in the Sea of Japan and the China Sea, and force the United States into a political settlement. See "U.S. Navy RMA 2020 War Game Draft Final Report." Conducted by the Office of Net Assessment, 21-23 April 1998, in Tyson's Corner, Virginia.

with a smaller military would be unattractive to say the least.

By basing most U.S. forces in CONUS, the United States in effect would hand over the initiative to adversaries. Without forces on the scene at all times, the kinds of preventive steps afforded by forward presence would not be available, forcing the United States to re-establish acceptable conditions in a region rather than preventing unacceptable conditions from arising in the first place.⁵³⁶ Thus the United States would have two choices when a crisis arose: accepting the new status quo, or going to war.⁵³⁷ Any change in conditions that did not justify going to war, or that did not present good chances of going to war successfully and at acceptable cost, could be forced on the United States for lack of other options.

The only measures available to the United States for signaling interest in a region would be diplomatic, and the only means of backing up diplomatic efforts would be through deterrence.⁵³⁸ As described earlier, deterrence depends on capability and credibility to be effective. While a CONUS-

⁵³⁶Commander Christopher Wode, "Beyond Bombers vs. Carriers," Armed Forces Journal International (April 1995): 29; Goure and Mauldin, Naval Forward Presence: Status, Prospects, 5.

⁵³⁷Krulak, "An Enduring Instrument," 8.

⁵³⁸Dismukes, National Security Strategy and Forward Presence, 39.

based U.S. military would retain its capability, it is questionable whether much credibility would remain for deploying overseas if the issue was not clearly a vital U.S. interest. Adding to the problem is the fact that the adversary's leadership, not U.S. leadership, would have to perform the mental equation of how much U.S. interest was involved and how much misbehavior could be gotten away with.

In the period when a crisis was becoming visible, there would be no opportunity for increasing the signals of U.S. interest through additional naval forces, increased tempo of operations in the region, conducting limited military operations, or any of the other means of conducting naval diplomacy. Also, if U.S. deterrent efforts failed, they would fail catastrophically. That is, the United States would not be able to fall back on defense in the failure of deterrence, because the forces needed to defend would be thousands of miles away in CONUS. U.S. forward presence forces, on the other hand, would be able to defend U.S. interests when deterrence failed, hopefully preventing the aggressor from achieving his aims.

In addition to these faults of a CONUS-based posture, there is reason to question whether the deployment of U.S. forces in periods of crisis would be viable logistically.⁵³⁹

⁵³⁹Rear Admiral Thomas Lynch, "A Critical Look at Who Does What," Proceedings (May 1995): 88.

Moving forces and equipment from CONUS, as well as delivering MPS equipment, still would require access to major port and airfield facilities.⁵⁴⁰ With those facilities captured or under attack by ballistic or cruise missiles, most if not all equipment being delivered by air or sea would have to arrive far from the theater and then travel by land, requiring both a massive logistical effort and likely the permission to move through another state's territory. The tactical aircraft needed for air defense in the theater still would require major airfields from which to operate, posing the same problems as the maritime delivery of equipment.⁵⁴¹

Unless the United States had many months in which to build up its forces, it is doubtful that a trans-oceanic deployment could be conducted to reverse an act of aggression. If Saudi Arabia and Kuwait were occupied by Iran or Iraq, waiting six to twelve months while U.S. forces and supplies were built up would not be acceptable, since the loss of Saudi and Kuwaiti oil would cripple the economies of most U.S. allies in the meantime. Where U.S. forces might be built up would pose another major problem in this scenario.

⁵⁴⁰O'Hanlon, "Can High Technology Bring U.S. Troops Home?" 83.

⁵⁴¹Krulak, "An Enduring Instrument," 11.

Provided that U.S. forces were able to reach the theater, they would lack familiarity with local conditions and operational patterns, things that forward presence forces monitor daily in regions around the world. The forces of any regional allies that could be convinced to join the United States would lack interoperability with U.S. forces, reducing their ability to render assistance. In addition, simply convincing regional allies to participate would be problematic. The most important factor in convincing allies to assist the United States is likely to be those allies' perception of U.S. willingness to act alone if necessary.⁵⁴² With the bulk of the U.S. military stationed at home, U.S. willingness to act alone may not be credible to regional allies.⁵⁴³ Finally, U.S. forces should be expected to have less than outstanding combat proficiency if their use is perceived as very unlikely, since expensive live training and frequent exercises likely would occur less often.⁵⁴⁴

⁵⁴²Dismukes, National Security Strategy and Forward Presence, 45.

⁵⁴³Rodman, America Adrift, 67.

⁵⁴⁴John Pay, "Full Circle: The US Navy and Its Carriers, 1974-1993," in Geoffrey Till, ed., Seapower: Theory and Practice, special issue of The Journal of Strategic Studies (March 1994): 136.

Lastly, despite the belief in RMA concepts by many in the defense establishment, technology cannot substitute for a coherent strategy in U.S. national security. The Gulf War's impact on the thinking of many defense planners and authors is probably the most important factor in the new wave of RMA enthusiasm. The orders-of-magnitude superiority of U.S. forces over Iraqi forces often is extrapolated into future scenarios without regard to differences of quality, geography, culture, or will.⁵⁴⁵ While technological advantage is important in U.S. national security and military strategies, it is not sufficient by itself as a means of protecting vital interests or prevailing on the battlefield.

A sound strategy supported by appropriate forces is the basic requirement for protecting U.S. interests. Attempting to protect interests from afar, through the deterrent threat of deploying halfway around the world to restore order and rescue U.S. interests, is neither sound nor feasible. Thus the pull-back strategy, which rests solely on deterrence to prevent assaults on U.S. interests, and can only respond to aggression after the fact, is no strategy at all. The pull-back strategy equates to waiting for trouble to occur, while hoping that it will not, then expending enormous effort to

⁵⁴⁵Stephen Biddle, "Victory Misunderstood: What the Gulf War Tells Us About the Future of Conflict," International Security (Fall 1996): 173-179.

set things right again when regional adversaries exceed the limits of U.S. tolerance. While perhaps attractive to some for financial, technological, or moral-philosophical reasons, the pull-back strategy is not a viable means of protecting U.S. interests and security.

"Virtual Presence:" Global Air Power and Space Surveillance

The second alternative to forward presence centers around recent technological advances in the areas of air power and surveillance. Through such programs and systems as GPS, space-based sensors, smart and brilliant weapons, and stealth aircraft, proponents of global air power have produced the concept of "virtual presence." Virtual presence rests on the assumptions that U.S. surveillance capability can find and track any object on earth, in any weather and despite any concealment efforts, in real time, and that stealth aircraft carrying highly lethal smart weapons can destroy any target on earth from bases far removed from the theater, even from CONUS.⁵⁴⁶

First articulated by then-Air Force Chief of Staff General Merrill McPeak in 1994, virtual presence envisions U.S. air power providing the means to resolve any crisis, and obviating the need for more "traditional" military

⁵⁴⁶Sheila Widnall and Ronald Fogleman, "Global Presence," Joint Force Quarterly (Spring 1995): 96-99.

instruments, such as armored forces or amphibious forces.⁵⁴⁷ With U.S. aircraft able to move into any region quickly, and with U.S. space assets watching over every area of the earth, no impending crisis could develop to the point that U.S. interests were threatened without being reversed by air power.⁵⁴⁸ The National Defense Panel, established in 1996 as an independent cross-check on the Quadrennial Defense Review, accepted many of the claims of air power advocates, stating that greater use should be made of long-range bombers and precision weapons.⁵⁴⁹

The centerpiece of the virtual presence concept is the B-2 Spirit stealth bomber. With inter-continental range and the ability to carry a large load of PGMs, the B-2 is the embodiment of the high-tech systems counted on by RMA advocates to allow a smaller force to meet U.S. national security requirements:

The capacity of the quite revolutionary technologies embodied in the B-2 to influence the behavior of regional actors lies in the unprecedented combination of operational features they make possible in one system, encompassing long-range power projection capabilities able to reach virtually any region in

⁵⁴⁷James Canan, "McPeak Sums It Up," Air Force Magazine (August 1994): 31.

⁵⁴⁸General Ronald Fogleman, USAF, "The Air Force and Joint Vision 2010," Joint Force Quarterly (Winter 1996-97): 25.

⁵⁴⁹John Tirpak, "The NDP and the Transformation Strategy," Air Force Magazine (March 1998): 22.

the world from CONUS bases with only one refueling.⁵⁵⁰

Consistently touted as the means to apply U.S. military power to 100 percent of the earth's surface, without the need for any support facilities overseas and with impunity from air defenses, the B-2 combines with space surveillance to replace physical presence with virtual presence.⁵⁵¹

A supporting agent in virtual presence is the Air Force's air expeditionary force (AEF) concept, typically a group of twenty-four to thirty aircraft capable of deploying rapidly to bases in a theater. In annual exercises such as BRIGHT STAR (U.S.-Egypt), the Air Force deploys "alpha packages" of tankers, F-15 and F-16 aircraft, and ground personnel to forward bases on short notice, to provide a rapid air power response to emerging events.⁵⁵² General John Jumper, commander of U.S. Air Forces in Europe, has stated that access to the needed bases likely will not be withheld by allies in a theater, and that ballistic missiles and CBW attacks will not be significant impediments to the AEF concept, allowing CONUS-based air power to maintain presence from afar.⁵⁵³

⁵⁵⁰Perry et al., Long-Range Bombers, 31.

⁵⁵¹Goodman, "Virtual Overseas Presence," 12.

⁵⁵²Canan, "Airpower from Home Base," 23.

⁵⁵³"Operating Abroad," Air Force Magazine (December 1998): 28.

The result of air power's elevation to global status, at least for backers in the Air Force, has been to truncate the United States' warfighting strategy to a single phase: the halt phase. With rapid deployment of aircraft armed with PGMs, supported by space-based surveillance assets, adversaries can be stopped in their tracks, and their tactical and strategic options quickly whittled down to surrender or obliteration through the destruction of their forces.⁵⁵⁴ For example, it is claimed that three B-2 bombers could produce enough armor kills with anti-armor PGMs to halt an attack by three armored brigades in a matter of minutes.⁵⁵⁵

The various PGMs, including emerging GPS-aided munitions (GAMs) as well as older laser or optical guided weapons, are claimed to allow a force of half as many U.S. aircraft to inflict Gulf War numbers of kills, while reducing risk to U.S. pilots.⁵⁵⁶ In the words of one air power advocate:

I would maintain that from that point [the halt phase] on, the enemy's strategic options decline. He is either leaving for home or dying in place, and a

⁵⁵⁴Elaine Grossman, "Duel of Doctrines," Air Force Magazine (December 1998): 30.

⁵⁵⁵Perry et al., Long-Range Bombers, 41-42.

⁵⁵⁶John Tirpak, "Brilliant Weapons," Air Force Magazine (February 1998): 48; "The Long Reach of On-Call Airpower," Air Force Magazine (December 1998): 22.

follow-on counteroffensive may not be necessary. A ground war becomes an option rather than an inevitability.⁵⁵⁷

Air and space power thus maintain presence in distant regions of the world through the knowledge among other governments that U.S. airplanes could arrive within days or hours to punish aggressive acts.⁵⁵⁸ With PGMs and global reach, U.S. air power by itself can deter aggression, and defend U.S. interests if deterrence fails:

That ability [to regain the initiative in a crisis] may be derived from strikes at global range on short notice with devastating intensity and accuracy. . . . Global attack and precision strike are thus key to the U.S. national security posture.⁵⁵⁹

General McPeak, addressing the fact that the adversary's perception is what matters in deterrence, has stated that regional actors will recognize the global reach of U.S. bombers and the continual presence of U.S.

⁵⁵⁷Major General (Retired) Charles Link, USAF, quoted in James Kitfield, "To Halt An Enemy," Air Force Magazine (January 1998): 65.

⁵⁵⁸Tirpak, "The Long Reach of On-Call Airpower," 22: "The USAF's B-1B, B-2A, and B-52H bombers, from a cold start at their home bases in the continental United States, could attack virtually anywhere on Earth in 18 hours. . . could destroy hundreds of armored targets on a single pass, would be able to stop an enemy column on the march." See also Glenn Goodman, "The Power Of Information," Armed Forces Journal International (July 1995): 24: "In most instances, information, combined with forces that can rapidly respond with the right mix of capabilities, can achieve U.S. goals."

⁵⁵⁹Jeffrey Jackson, "Global Attack and Precision Strike," in Goure and Szara, Air and Space Power in the New Millennium, 106.

satellites, and that, "air and space forces provide global presence, not a localized presence."⁵⁶⁰

Additional advantages gained through long-range air power and PGMs include safety from attack on the bases supporting long-range bombers, which can be located far from a theater, and the reduction by several orders of magnitude of the number of U.S. servicemen put at risk. By providing the means to, "conduct relatively risk-free counterforce strikes" against enemy NBC facilities, and through exposing fewer servicemen to enemy fire, long-range air power is advanced as the safest and most economical means of applying U.S. combat power.⁵⁶¹

Under a virtual presence strategy, the Air Force would be the mainstay of U.S. military power. Long-range bombers would be required in much larger numbers than the 187 called for in the Quadrennial Defense Review, while tactical fighters would be needed in smaller numbers. The B-2 in particular would be needed in larger numbers, perhaps as many as 100. With higher production expected to bring down B-2 unit cost by as much as two-thirds, from around 2.2 billion dollars to 865 million dollars per aircraft, a larger B-2 fleet would be affordable within the overall

⁵⁶⁰Canan, "McPeak Sums It Up," 34; John Correll, "Let's You and Him Fight," Air Force Magazine (June 1994): 4.

⁵⁶¹Horner, "What We Should Have Learned," 54, 55.

defense budget as other systems were cut back.⁵⁶² Aerial re-fueling and air lift assets would be needed in large numbers, to allow aerial re-fueling of bombers and to get AEF supplies and personnel into a theater quickly.

Space assets would be of equal importance to aircraft, and could justify the establishment of an Air Force space corps, or even an independent Space Force. The ability to defend U.S. satellites from attack, and to attack and neutralize other nations' space assets, likely would be prominent features of a virtual presence strategy.⁵⁶³

Although U.S. space surveillance capability is very high today, it is posited that even greater improvements would need to be made in order to achieve the kind of global awareness described in the virtual presence strategy.

The Navy likely would be sized and structured very much as under the pull-back strategy. Needing only to keep the military SLOCs open for transporting Army equipment and supplies to a distant theater, ASW, MCM, and AAW would be the primary features of the Navy.

The Army would be reduced to perhaps as few as five divisions, with the armored divisions' heavy gear stored

⁵⁶²At the original number of 132 B-2 bombers, the unit cost was expected to be 480 million dollars. Producing 100 would have cost 865 million per plane, while the current force of twenty-one aircraft will cost over two billion dollars each. See Perry et al., Long-Range Bombers, 72.

⁵⁶³Friedman, The Future of War, 363-366.

mainly aboard prepositioning ships. Two light divisions would be structured for rapid air deployment. The principal function of Army units would be to provide air defenses for Air Force bases, and to stand by for whatever ground combat remained to be conducted after U.S. air power had been applied to the enemy.

What are the faults of the virtual presence strategy? As the pull-back strategy did, the virtual presence strategy employs many valid arguments in creating the larger argument for presence through long-range air power. The B-2, for example, no doubt is an aeronautical and military marvel of high-technology systems. PGMs have indeed performed much better than iron bombs, as much as twelve times better according to various studies.⁵⁶⁴ And air power does offer a means to minimize the number of U.S. servicemen placed at risk in applying military force. Do the individual arguments in favor of virtual presence support the larger claim, that virtual presence can and should replace physical presence? Again the answer must be "no." Just as the pull-back strategy's arguments ultimately are unconvincing, so too does the virtual presence strategy fail to convince in the end.

⁵⁶⁴Perry et al., Long-Range Bombers, 18, cites the Gulf War Air Power Survey in claiming that PGMs enjoyed twelve times better kill ratios than iron bombs.

The one overwhelming flaw in the virtual presence concept is the incorrect belief that the ability to kill any target on earth, at any time and from any distance--if possible at all, a dubious assumption to begin with--is the same as providing presence.⁵⁶⁵ While such a capability may well be invaluable in a future war, the belief that global reach and global strike capability is synonymous with presence is a gross conceptual error.⁵⁶⁶ The kinds of strikes portrayed by virtual presence advocates--stopping three armored brigades on the march with PGMs--are wartime missions. Presence is the peacetime employment of military forces to influence others across a full range of actions and across the spectrum of violence. Thus claiming that global air power can provide presence is to argue apples and oranges.

Bombers, especially the B-2 bomber, are unique in their ability to deliver a large amount of destructive force, over a great distance and in a short time. However, bombers also are largely one-dimensional. The only option afforded to a commander by available bombers is to put bombs on a

⁵⁶⁵Wode, "Beyond Bombers and Carriers," 29.

⁵⁶⁶DeYoung, "Sea Power Is Grand Strategy," 77; Mauz, "The Value of Being There," 27: "To be sure, bombers have a role in conflict, and they also contribute to deterrence, but their contribution to overseas presence is limited and to suggest that they can compare to naval forces is nonsense."

target.⁵⁶⁷ Unless the situation calls for a destructive strike on some target, bombers provide little value.

The analogy often used is that air power is either "on or off", with no ability to move up or down the spectrum of activity. For example, during the entire period during the 1980s when U.S. forces were deployed to the Persian Gulf, attempting to safeguard Saudi and Kuwaiti oil shipments during the Iran-Iraq war, not a single strike mission was flown in the theater.⁵⁶⁸ There were no instances in which the United States could justify turning bomber air power "on", so it was a non-factor.

In crisis response the same limitation applies. How would B-2 bombers have resolved the crisis at the U.S. embassy in Somalia in 1991? How would bombers go about monitoring and intercepting Iraqi oil smuggling? Unless the crisis calls for the destruction of a certain target set, bombers are likely to be of little or no value to U.S. commanders.⁵⁶⁹ Since presence more often than not involves

⁵⁶⁷Krulak, "An Enduring Instrument," 10.

⁵⁶⁸David Perin, Comparing Long-Range Bombers and the Carrier Force (Alexandria, VA: Center for Naval Analyses, 1994), 9.

⁵⁶⁹Appendix A, Table 11 and Table 12, compare the utility of bombers and carrier battle groups in peacetime crisis response. As shown in these illustrations, unless the crisis calls for strike missions, bombers will have very limited ability to contribute.

less-than-war activities, a platform whose only mission is destructive cannot be viewed as a suitable means of providing presence.

While air power advocates may claim that bombers' military capabilities will produce a deterrent effect, and that this deterrent effect should operate on regional actors in the same manner as presence forces, history does not support this argument. The B-36 bomber offers a near-exact parallel to the current B-2 theory of global air power. The B-36 was claimed to be capable of attacking any location on earth quickly, from bases beyond the reach of enemy weapons, and so would be able to influence events and protect U.S. interests. Alas, the Korean War proved otherwise, just as Saddam Hussein's decision to invade Kuwait, and to stay there after receiving demands from the U.N. that he leave, came in the face of truly global U.S. air power.⁵⁷⁰

Deterrence depends, as always, on the adversary's perception to be successful.⁵⁷¹ For an adversary with first-rate intelligence gathering capability, able to identify and analyze the range of U.S. capabilities, and to extrapolate the damage likely to be done if those capabilities are unleashed, a non-visible bomber force may serve to deter. However, for less sophisticated actors,

⁵⁷⁰Johnson, "Carries Are Forward Presence," 39.

⁵⁷¹Siegel, To Deter, Compel, and Reassure, 3.

such as most regional states, visibility remains at the heart of deterrence, and bombers are poorly-suited to providing and maintaining visibility.⁵⁷²

A further serious flaw in the virtual presence paradigm is that the historical model that serves as the basis for many air power claims--the Gulf War--had conditions so unique as to be highly unlikely to repeat themselves in the future. Thus air power may not be applicable, or at least may not be decisive, in future conflicts. Even the perception of the Gulf War has changed over the last eight years in regard to air power, with many now believing that air power was not as effective as portrayed at the time.⁵⁷³

Unless a future conflict involves desert terrain, largely immobile armored forces without any significant air defenses, a six-month period in which to build up logistics and gather intelligence, an enemy command and control structure that has been decapitated at the outset and never re-established, the withholding of enemy CBW capability, and no possibility of U.S. space assets being interfered with, it is unlikely that air power would enjoy the complete

⁵⁷²Colin Gray, Explorations In Strategy (Westport, Conn: Greenwood Press, 1996), 75: "Sustained local presence in the air typically is physically impracticable." Dietz, "Presence Is in the Beholder's Eye," 112.

⁵⁷³Till, "Maritime Strategy and the Twenty-First Century," 186.

freedom of operation experienced in 1991. Marine Corps

General Paul Van Riper states the matter clearly:

If we're looking to repeat Desert Storm, then I have little problem with the Air Force argument . . . What we have are a lot of buzzwords floating around associated with the Revolution in Military Affairs . . . It's ludicrous to suggest that such concepts as 'information dominance' will now somehow make all the military doctrine that came before it irrelevant.⁵⁷⁴

In addition, it is likely that even the B-2 would need a fighter escort when operating in daylight. While enemies may not know when or from which direction a B-2 is approaching, they can defend likely targets and rely on visual detection in daytime. If the B-2 can be seen it becomes a slow, vulnerable target. Also, it is not inconceivable that an enemy undergoing an RMA of its own might field the means to triangulate the B-2's targeting radar signal in real time, allowing fighters to intercept incoming B-2s.⁵⁷⁵ Finally, given current U.S. research into radars capable of defeating stealth, it is reasonable to assume that others are working on the same problem. If another nation were able to solve this technical problem, it is possible that the B-2 could lose its greatest asset.⁵⁷⁶

⁵⁷⁴Kitfield, "To Halt an Enemy," 63.

⁵⁷⁵O'Hanlon, "Can High Technology Bring U.S. Troops Home?" 80.

⁵⁷⁶David Fulghum, "New Radars Peel Veil From Hidden Targets," Aviation Week & Space Technology, 18 January 1999, 58.

Thus there is reason to doubt the B-2's continued ability to operate with impunity from air defenses.

The AEF concept that supplements global bombers also is based on questionable assumptions. In particular, General Jumper's belief that ballistic missiles and chemical weapons pose no threat to AEF operations is difficult to reconcile with different war games and Red Team studies:

With a few SCUDs, can you take out an airfield? No, you cannot. You can contaminate with chemical weapons, but that is what we practice for. . . . All services have practiced doing these sorts of things.⁵⁷⁷

Alternatives to highly corrosive decontaminants are needed. Current decontaminants leave a corrosive residue on equipment, buildings, vehicles, etc., which impedes combat and support operations and thus threatens mission accomplishment. The services have no effective means to decontaminate aircraft that have been contaminated by toxic agents or materials without taking the aircraft out of service for a long period or damaging key aircraft components.⁵⁷⁸

While military casualties would likely be low, there are no good options for today's theater airbase commander if the enemy is able to continuously restrike/recontaminate his facility. . . . Over time casualties will increase and efficiency will drop, with the anticipated disastrous effects on sortie generation and airlift throughput.⁵⁷⁹

⁵⁷⁷"Operating Abroad," 28-29.

⁵⁷⁸The Impact of Nuclear, Biological, and Chemical Proliferation on U.S. Armed Forces, 14.

⁵⁷⁹Weaver and Glaes, Inviting Disaster, 45.

Access to bases may be no more secure in peacetime, when the United States may wish to engage in less-than-war operations. Again, it is peacetime operations, not wartime strikes, that comprise the great majority of presence missions, and even close allies may hesitate to provide unrestricted access to their facilities for U.S. planes.⁵⁸⁰ As capable as U.S. land-based tactical air power may be, the AEF concept is totally dependent on access to someone else's facilities to be viable.⁵⁸¹

From the weaknesses described here, it is clear that virtual presence is no more realistic an alternative for protecting U.S. interests than the pull-back strategy. In fact, the term "virtual presence" is a misnomer, as the concept does not qualify as a peacetime presence strategy at all, but rather as a high-tech RMA warfighting strategy. Since the only response available to U.S. leaders under a virtual presence strategy would be to order bombs dropped on various targets, in attempting to resolve a crisis the United States would be forced to choose between accepting an undesired action, or employing destructive force via air power to correct the situation, with no intermediate actions available to U.S. leaders.

⁵⁸⁰Goodman, "Virtual Overseas Presence," 12.

⁵⁸¹Perry et al., Airpower Synergies in the New Strategic Era, 56.

In many, indeed in most peacetime presence scenarios, putting bombs on a target simply does not suffice as an appropriate, effective solution. General Krulak makes the point clearly: "I don't care what anyone says, you're not going to manage instability in the Persian Gulf, the Indian Ocean, and the Pacific Ocean from 60,000 feet overhead."⁵⁸² While global strike capability should be developed for use in wartime, when the advantages provided by long-range, stealthy aircraft delivering PGMs clearly would be of great value, the position that global air power and global strike capability can allow virtual presence to replace forward presence has little if any credibility.

Return to an Isolationist Security Policy

A third alternative strategy for U.S. national security, one that has enjoyed some support in recent years, is a return to the kind of isolationist policy followed by the United States between the World Wars. By focusing only on the defense of U.S. citizens and territory, an isolationist policy forgoes even the pretense of protecting U.S. interests abroad. By definition, in an isolationist context the United States has no interests abroad that require protection. Isolationism therefore is not in the same category as the pull-back strategy or the virtual

⁵⁸²Hessman, "For the Corps and for the Nation," 13.

presence strategy, both of which are claimed to be methods of protecting U.S. interests abroad, but nonetheless is an alternative strategy for U.S. national security.

The central tenet of an isolationist policy is the belief that events outside the United States need not concern us. For some isolationists this belief comes from the United States' position of unchallenged power in the post-Cold War world. In this regard, the isolationist strategy can be viewed as the ultimate extension of the pull-back strategy, with no crisis justifying the deployment of U.S. forces. For others, isolationism springs from the belief that the United States should mind its own business in the world, and demand the same treatment from other states. As long as other states do not threaten U.S. citizens or territory, they will not be bothered by the United States. For whatever reasons, isolationists share the same guiding principle: the United States should not extend its influence or power beyond its own borders.

Struggles for power within different regions, possibly involving open war between rival states, are not expected to disappear in the future. For isolationists, however, these regional disputes do not threaten U.S. safety and security, and should be ignored.⁵⁸³ As long as the effects of regional wars do not spill over onto U.S. territory, which

⁵⁸³Yost, "The Future of U.S. Overseas Presence," 81.

seems unlikely as only Canada and Mexico border on the United States, regional wars are of no importance to the United States.⁵⁸⁴

Similarly, the desire to spread democracy abroad is an inappropriate goal for the United States, and should not be attempted. Certainly we support democratic ideals and offer an example to others of democracy's benefits, but how other states choose to rule themselves should be none of our concern. If others are oppressed by brutal dictatorships, or if lawless anarchy reigns in a distant region, it is for the people living there to correct, not the United States.⁵⁸⁵

The vital interests of the United States would amount to only three requirements: the safety of U.S. citizens, the integrity of U.S. territory, and the independence of the U.S. political process. In regard to overseas interests, at most the United States should take some interest in and encourage a balance of power within different regions.⁵⁸⁶

Another argument often cited in making the isolationist case, and indeed one heard for many years before the end of

⁵⁸⁴Earl Ravenal, "The Case for Adjustment," Foreign Policy (Winter 1990-1991): 7-8.

⁵⁸⁵Buchanan, "America First--and Second, and Third," 81.

⁵⁸⁶Ravenal, "The Case for Adjustment," 15.

the Cold War, is that other states, particularly the affluent states of Europe and Asia, should provide for their own defense, allowing U.S. troops and support to be withdrawn.⁵⁸⁷ For example, South Korea has twice the population of North Korea, and an economy nearly an order of magnitude larger than North Korea's. South Korea thus should not need American assistance in defending itself, certainly not assistance on the order of an entire U.S. Army division and supporting air assets.⁵⁸⁸ An isolationist policy would force U.S. allies to "carry the load" for their own defense by withdrawing U.S. protection.⁵⁸⁹

An important point to be noted is that isolationists would not sever commercial interaction along with military support in withdrawing from the world.⁵⁹⁰ U.S. overseas trade would continue as ever, since it would be in the best interest of overseas nations, even those hostile or less than friendly to the United States, to continue to have economic interaction:

The restraint we propose should not be misdescribed as a total withdrawal from the world. On the

⁵⁸⁷Goure and Mauldin, Naval Forward Presence: Status, Prospects, 19.

⁵⁸⁸Buchanan, "America First--and Second, and Third," 80.

⁵⁸⁹Brown et al., America's Strategic Choices, 210.

⁵⁹⁰Yost, "The Future of U.S. Overseas Presence," 81.

contrary, we believe in a vigorous trade with other nations and the thriving commerce of ideas. Military restraint need not, and will not, bring economic protectionism.⁵⁹¹

Even that most strategic of resources, oil, should not require United States military forces to be deployed overseas. Instead, the United States could depend on market forces to maintain the price of oil, and to ensure the availability of the huge amounts of oil required for world economies. Some possible benefits of this course of action might be to prompt the U.S. population and government to lower their demand and dependence on oil, and to promote the development of useful alternatives to fossil fuels.⁵⁹² Even if Saudi and Kuwaiti oilfields came into the possession of Iraq or Iran, their oil still would be available on the world market, as the oil would have no value unless sold, and market forces again would serve to prevent artificial manipulation of the oil market.⁵⁹³

The armed forces required by the United States would be highly capable, but very small and structured for defense, not power projection. Accordingly, ballistic missile defense and the strategic nuclear forces would be of paramount importance.⁵⁹⁴ Space systems and high technology

⁵⁹¹Brown et al., America's Strategic Choices, 200.

⁵⁹²Ravenal, "The Case for Adjustment," 9.

⁵⁹³Brown et al., America's Strategic Choices, 220.

⁵⁹⁴Buchanan, "America First--and Second, and Third,"

surveillance and strike systems also would be important, possibly requiring the establishment of a separate Space Force.⁵⁹⁵

The conventional forces would make maximum use of high technology as a force multiplier, an effort made easier by the United States' technological lead over other nations. With better technology and a defensive posture, the services could be reduced to as few as six ground divisions, ten or eleven Air Force wings, and as few as one hundred ships.⁵⁹⁶

By withdrawing to CONUS, the requirements placed on the military would be streamlined greatly. The services would need only to defend CONUS and the sea and air approaches, to retain strong retaliatory nuclear forces, and to employ those retaliatory forces along with missile defenses in order to deter NBC attack.⁵⁹⁷ The rest of the world could be left alone, with regional affairs and events taking care of themselves.

The problem, and the reason that isolationism is not a viable strategy for the United States, is that the world

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⁵⁹⁵Yost, "The Future of U.S. Overseas Presence," 81.

⁵⁹⁶Buchanan, "America First--and Second, and Third," 80; Ravenal, "The Case for Adjustment," 17.

⁵⁹⁷Perla et al., Future Sea-Based Aviation, 55; Ravenal, "The Case for Adjustment," 15.

does not take care of itself, at least not peacefully and in ways that will be favorable to the United States. If the five thousand-plus years of written history are any guide, there will always be states and entities with hostile ambitions, bent on taking by force what others possess:

The world does not sort itself out on its own. . . . International stability is never a given. It is never the norm. When achieved, it is the product of self-conscious action by the great powers, and most particularly of the greatest power, which now and for the foreseeable future is the United States. If America wants stability, it will have to create it. . . . There will constantly be new threats disturbing our peace.⁵⁹⁸

While isolationism might have been sufficient in the early nineteenth century, when all of America's resource requirements could be met domestically and the British Navy served to safeguard trade on the high seas, today and in the future isolationism cannot be seen as a credible choice for U.S. national security. As elaborated in Chapter II, the United States has interests in nearly every region of the world. Only the most narrowly defined interests of safety and security reside within the borders of the United States. Whether or not this should be the case is immaterial: it is the case, and U.S. strategy must deal with what is, not with what we might like to be.

⁵⁹⁸Charles Krauthammer, "The Unipolar Moment," in Allison and Trevorton, Rethinking America's Security, 301-302.

If Texas and Alaska could provide our oil demands, and if Canada and Mexico could satisfy our import and export markets, an isolationist strategy would be viable, if not necessarily appropriate. However, the reality is that we do have interests overseas, there are threats to those interests, and we cannot protect our interests by withdrawing into isolation.⁵⁹⁹

The results of adopting an isolationist strategy might be slow to manifest themselves, especially in the current international setting. The U.S. position of unrivaled power could allow the United States to muddle along in isolation for several years, even a decade or more, before being forced to address a situation that had become threatening to U.S. interests.⁶⁰⁰

History, on the other hand, suggests that the United States would experience a rapid rise in misbehavior worldwide, which would impinge on U.S. interests sooner rather than later. Regional bullies should be expected to push hard against the envelope of U.S. tolerance, and to threaten, either directly or indirectly, the safety and security of the United States. Charles Krauthammer, in a remarkable critique of recent U.S. foreign policy, explains why this is so:

⁵⁹⁹Johnsen, The Future Roles of U.S. Military Power, 3.

⁶⁰⁰Yost, "The Future of U.S. Overseas Presence," 81.

The basic difference between the international system and domestic society is that in domestic society there exists a monopoly of the means of coercion, an enforcer, a sovereign. There is generally also a preexisting community of norms.

Neither of these conditions obtains in the international arena. . . . And, in any social system, whether of individuals or nation-states, where there is no enforcer, there can be no real law.⁶⁰¹

The years between World War One and World War Two provide the clearest example of the perils of isolationism for the United States. Convinced after World War One that the best way to avoid another destructive war was to withdraw from the world, the United States practiced a determined isolationism right up until the 7th of December, 1941.⁶⁰² Ignoring the threat to Europe posed by Hitlerian Germany, and the threat to Asia posed by a militant Japan, the United States surrendered the initiative in world events.⁶⁰³ When the United States could no longer ignore the outside world, after isolationism had been forcibly refuted by the Japanese carrier task force at Pearl Harbor, four years of tremendous effort and cost were required to restore U.S. security. There is no reason to think that

⁶⁰¹Charles Krauthammer, "A World Imagined," The New Republic, 15 March 1999, 23.

⁶⁰²Allison and Treverton, Rethinking America's Security, 301.

⁶⁰³Jordan et al., American National Security, 12-13. Ellsworth et al., eds., America's National Interests, 10.

today's world will order itself any more peaceably than the world of eighty years ago.

Summary

The current U.S. strategy of power projection through forward presence is grounded in the experience of the past and the logical security requirements of the future. As with any strategy, alternatives to forward presence exist, and have been argued forcefully by various authors. While championed by thoughtful and well-intentioned persons, the alternatives presented in this chapter cannot be judged acceptable in replacing forward presence in U.S. security strategy.

The first alternative strategy, the pull-back strategy, can be seen as an attempt to enjoy great power status without exerting great power effort in the world. While maintaining a military similar in structure and capabilities to the current force, although significantly smaller, the pull-back strategy would not maintain that force near U.S. interests, counting instead on the deterrent threat of U.S. forces to protect interests. With RMA systems making up for the reduced size and physical absence of the U.S. military, U.S. forces could respond from CONUS to any act that threatened U.S. interests, and overwhelm any opponent through technological superiority. Arguments also are made that the United States can no longer justify the cost of a

large forward presence military, as no plausible threats exist to U.S. security.

The pull-back strategy may also be viewed as a reversal of the "world policeman" role taken on by the United States since the end of the Cold War. Since there is no plausible threat to U.S. safety, domestic interests should take priority over international affairs, obviating the need for deploying military force all over the world.

Despite the logic of many pull-back arguments when viewed in isolation, the whole turns out to be less than the sum of the parts. The most obvious flaw in the pull-back strategy is its total reliance on deterrence to defend U.S. interests, and the strictly reactive nature of a CONUS-based military. If deterrence fails, no defensive options are likely to exist, a condition virtually certain to encourage regional bullies and bad actors to contemplate *fait accompli* strategies.

None of the intermediate steps afforded by naval forward presence and naval diplomacy would be available, forcing the United States to accept an aggressor's actions or deploy overseas to fight a regional war. The cost of deployment could exceed the loss involved in accepting the new conditions, making it more likely that aggressors would be able to keep their gains. If the decision was made to deploy, U.S. allies would lack interoperability with U.S. forces, making those allies' contribution less effective.

Finally, there is reason to be skeptical about the RMA's ability to solve any strategic problem through technology. The substitution of technology for strategy is one of the pitfalls of buying into the RMA school of thought, and should be avoided in all cases. Technology is important in U.S. security and military strategy, but technology cannot become strategy.

The second alternative described in this chapter, the use of global air power to produce virtual presence, is miscast by its advocates as a means of defending U.S. interests abroad. While possibly a potent warfighting concept, virtual presence through global air power in no way can substitute for the physical presence of naval forces in protecting U.S. interests, a role that mostly involves peacetime activities.

Supported by such Air Force luminaries as former Chief of Staff McPeak, virtual presence envisions the growth of space surveillance and long-range air power into an omnipresent force, able to see and stop any misbehavior, in any location, at any time and in time to be effective. The B-2 bomber, probably the most advanced system in the U.S. military, is held up as the means to stop or correct any threat to U.S. interests. By raining PGMs on adversary forces, if necessary from bases in CONUS, the B-2 and supporting air expeditionary forces can prevent enemy plans from succeeding, thereby protecting U.S. interests.

Presumably adversaries will recognize the iron logic of U.S. strategy and refrain from challenging U.S. air power.

Virtual presence is better-suited as a wartime strategy, when the ability to destroy targets from great distance, with highly accurate and lethal PGMs, would be very valuable. Even in this context, however, there is reason to doubt that the virtual presence strategy is sufficient by itself, without the need for Army or Navy forces to take part. Ironically, the B-2 is stealthy in inverse proportion to the technological level of the sensor it is attempting to evade. Able largely to avoid detection by radar or infrared systems, it is as visible to the naked eye as any other aircraft, making it highly vulnerable in daytime. Thus the B-2 would need either to operate only at night, probably not an option in a fast-moving ground war, or to have an escort of short-range fighters. The limitation of vulnerability to attack on supporting air bases again intrudes into the problem, as ballistic missiles and NBC weapons should be capable of neutralizing airfields within a theater.

The weakness of the virtual presence concept is that it attempts to apply a wartime activity--dropping bombs--to solve problems and protect U.S. interests in peacetime. Virtual presence offers no options for U.S. commanders, whether in day-to-day operations or crisis response, except to destroy something of the enemy's. Thus virtual presence

relies strictly on the deterrent threat of launching an air campaign against any nation that threatens U.S. interests, with no capacity for less-than-war activities. It is a strategy manifestly unfit for the conditions that the U.S. must work with the majority of the time, and to suggest that it provides any kind of presence, virtual or otherwise, is at best a statement of misguided enthusiasm from the De Seversky school of air power.

Finally, the possibility of returning to an isolationist posture has gained some currency since the Cold War ended. Based on the belief that what goes on outside the United States does not and should not concern us, the isolationist strategy calls for the return of all U.S. forces to CONUS, where their only role would be preventing an attack on U.S. territory. The services would be reduced greatly, although still provided with the best and most advanced systems available.

The vital interests of the United States would be the safety of U.S. citizens, the integrity of U.S. territory, and the freedom of the U.S. political process from outside influence. Nothing else on earth would require protection, or be worth fighting for. Our many allies would have to fend for themselves in terms of defense, although we would maintain healthy trade with all amenable nations. Even access to oil, on which our economy, and therefore our quality of life, depends, would not require active measures

of protection. Either through the invisible hand of the world oil market, or through the pragmatism of the state in possession of the world's oil, U.S. oil demands could be met at affordable cost.

If history teaches us anything, it is that peaceful coexistence is not the natural order of things for sovereign states. This lesson is of large importance today, since the United States depends on resources from abroad, as well as the survival of world economic markets even more dependent on oil than our own. This reason alone is sufficient to disqualify isolationism as an acceptable strategy for the United States. In addition to the need for secure access to resources, the United States would surrender all but diplomatic means of influencing others. Even the pull-back strategy hedges by retaining the forces to set things right when others trespass on U.S. interests. An isolationist America would have no ability to maintain favorable conditions abroad. While viable and not entirely inappropriate two hundred years ago, this strategy cannot be considered a realistic possibility today.

The three alternatives presented here are not intended to encompass every possible strategy for U.S. national security. The three alternatives were selected because each has significant backing within the U.S. defense establishment, and in the case of isolationism, within the U.S. population. However, after examining the shortcomings

of each, it is clear that forward presence, and especially naval forward presence, is the most appropriate and effective strategy for U.S. national security. With interests and threats residing far from U.S. territory, U.S. forces likewise must be positioned far from U.S. territory if interests are to be protected. No other option provides a realistic means of protecting U.S. interests, influencing events in the United States' favor, and defending U.S. interests when armed force is called for. Thus the Navy-Marine Corps team's forward presence mission will retain its importance in the post-Cold War international environment, and will continue to influence events, protect American interests, and underwrite the security of the United States.

CHAPTER VI

CONCLUSIONS

The United States Navy has been operating around the world for nearly two centuries, since Thomas Jefferson sent American warships to the Mediterranean in 1801. Although the shape of American sea power has changed in the intervening years, from sail power to nuclear power, from a surface Navy to a submarine, surface, air, and space Navy, the fundamental requirement of sea power has remained the same for the United States. Today's Navy is just as essential to the safety and prosperity of the United States as was the Navy of John Paul Jones, and will remain so in the next century.

The United States is a maritime nation, dependent on the sea for the majority of trade with other nations. While aircraft allow goods to cross great distances in a matter of hours, air lift is extremely expensive and inefficient for the transportation of bulk cargo, and is incapable of transporting bulk resources such as oil. The sea remains the economic highway of U.S. trade, a fact that has not changed since the first British colony was established at Jamestown. The immutable laws of physics limit the returns

on air lift, making sea lift the most efficient means of transporting goods over long distances.

The efficiency of sea lift is of great importance to the United States, as most U.S. trading partners and many necessary resources lie across the oceans. Unlike the continental states of Europe, the United States must look to the sea for trade with nations other than Canada and Mexico. In contrast to the maritime trading states of ancient Greece or Persia, the United States must cross the two greatest oceans in the world, the Atlantic and Pacific, in order to deliver goods to other nations. Merchant sea lift therefore is an enduring requirement for the United States, and, as observed by Mahan, the need for a Navy springs from the existence of peaceful shipping. The need for a Navy is an equally enduring feature of American existence, a need important enough to be called for by name in the Constitution.

In addition to the protection of U.S. trade, the Navy provides the means to defend the United States from attack. By virtue of the freedom of movement enjoyed by ships at sea, U.S. naval forces help to ensure that the fight, if and when it comes, will be conducted as far from the U.S. homeland as possible. Due to the need to watch over U.S. maritime commerce, and to protect the United States itself, forward presence has long been judged the best employment for the Navy-Marine Corps team.

Three strategic "hubs" warrant special attention in the form of naval forward presence forces. These are the Mediterranean Sea, the Persian Gulf, and Northeast Asia. Combining U.S. interests, crucial U.S. trading partners, and clear threats to those interests and trading partners, these three regions are the principal focus of U.S. naval deployments. Indicative of the importance of these regions is the assignment of a numbered fleet to each: the Sixth Fleet in the Mediterranean, the Fifth Fleet in the Gulf, and the Seventh Fleet in the western Pacific.

Threats to U.S. interests exist in two general forms. The first is a peer or near-peer rival, such as the former Soviet Union. While the United States presently enjoys the absence of any such peer threat, the status and health of China and Russia bear watching, as either could develop sufficient power and influence to challenge the United States on a global scale. The other type of threat, which receives greater emphasis in the post-Cold War setting, comes from the existence of "bad actors" in important regions. Saddam Hussein is merely the best-known of these regional bad actors, each of whom has sufficient leverage through proximity to U.S. interests to require U.S. attention. Iran, Iraq, and North Korea are the clearest regional threats, and are the basis for the two-MRC requirement in U.S. defense planning.

Each of the services has a role to play in protecting U.S. interests, and each service has forces located around the world to provide forward presence. The Army has been present in Korea since 1950, as have units of the Air Force. The Army recently has taken position in Kuwait on a permanent basis, with Air Force units deployed to several Gulf nations. And of course, both the Army and Air Force have been key members of NATO for nearly fifty years.

While the deployment of Army and Air Force assets provides valuable presence in support of U.S. interests, the position on land of Army and Air Force personnel and equipment means that the permission of a foreign nation must be secured for their deployment. Naval forces are free from the political problems of deploying on another state's territory, and have the additional advantage of easy mobility. Anywhere that there is salt water, the sea services can operate in the protection of U.S. interests. It is through the combination of mobility and freedom from the permission of other states to come and go that naval forces are superior to land-based forces in providing presence.

When naval forces are present in a region, the United States has available a wide range of options for influencing events, protecting interests, and responding to emerging crises. Under the broad concept of naval diplomacy are such activities as conventional deterrence, signaling U.S.

interest in a region or state, providing support to allies, employing limited military force, enforcing sanctions, and protecting and enforcing freedom of the seas.

The wide range of actions that can be undertaken by naval forces highlight the difference between forces that are forward-based, such as Army units in Korea, and forces that are forward-deployed. Forward-based units usually are positioned in a specific location to counter a specific threat, and are not readily available to react to other events. Forward-deployed forces, on the other hand, can be re-positioned to respond to events, and can move quickly within a region, or even to another region, in support of U.S. interests.

Forward presence forces also take part in two important activities intended to maintain wartime readiness. First, forward presence forces are able to conduct joint training and exercises with U.S. allies, which maintain combat skills and interoperability. Allied participation is a central feature of U.S. planning, and allies must be interoperable with U.S. forces to assist in wartime. Second, by operating in a region on a daily basis, forward presence forces develop a good knowledge and understanding of conditions in the region. Local and regional intelligence, conditions affecting sonar or radar, patterns of movement within the region, geographic features of significance, the operational patterns and tempo of potential adversaries--all can be

monitored and updated by forces operating in the region. Without current information on regional conditions, U.S. forces would be at a disadvantage in wartime, a disadvantage that could translate into increased casualties, a longer and more difficult campaign, and even the inability to resolve a crisis or conflict on favorable terms. While some conditions in a region can be monitored with space-based or other surveillance assets, many local conditions require forces on the scene for observation.

When crises arise in distant regions, naval forces are capable of quick response, and of more flexible response than land-based forces. Naval forces require only the orders of the National Command Authority to move into a crisis area, making them largely immune to political, religious, or other obstacles that frequently plague land-based forces. Naval forces also can vary their position and level of visibility, in contrast to land-based forces, and can maintain a degree of ambiguity that can heighten an adversary's apprehension. In addition, naval forces can be withdrawn or moved back from a crisis area with less political impact than the removal of land-based forces.

One of the more frequent types of crisis in recent years has been situations of violence, or impending violence, that threaten the safety of U.S. citizens abroad. Whether involving civil war, general anarchy, or even natural disasters, these situations often require the

ability to remove a large number of civilians quickly, and may require military force to safeguard evacuees until they are safely out of harm's way. Known as non-combatant evacuation operations, this activity has become a Marine Corps specialty.

With the ability to move quickly from ships at sea to locations on land, and able to bring along organic firepower and air support when needed, the amphibious ready group has proven itself invaluable in getting U.S. citizens out of trouble in distant locations. Capable of a wide variety of special missions, the amphibious ready group provides the means to place U.S. combat forces, with supporting firepower, into a crisis area to conduct evacuations, intelligence gathering, covert operations, or other short-of-war activities. The ability to operate from international waters allows such missions to be conducted without restraint from other states' political leadership, often a critical concern when time is a limiting factor.

If a crisis involves military aggression, it may be necessary to respond with the deployment of U.S. military power to fight a regional war, such as the 1990-91 Gulf War. If U.S. Army and Air Force units are to deploy to a theater, their arrival will depend on the ability of forward-deployed forces to keep open the facilities needed by U.S. air and sea lift. An increasingly important aspect of keeping ports and airfields open in the future will be ballistic missile

defense. Two Navy missile defense systems currently are in development, and should enter service in the next decade.

Since the breakup of the Soviet Union, the Navy has shifted its emphasis from the open ocean to the littorals, focusing on projecting power ashore rather than blue water operations. Without a plausible threat to the movement of U.S. ships on the high seas, and with the current national security strategy's focus on regional threats, the shift to a littoral focus is appropriate. The only nations likely to possess the means of challenging the Navy on the open oceans, China and Russia, are many years, if not decades, from being able to do so. Thus the use of the Navy to influence events ashore directly is a logical move.

With the shift from blue water to the littorals, the Navy will need to re-assess its systems and capabilities for the new environment. Gone is the space buffer afforded by the open ocean, where naval forces could maintain separation from opposing forces. The littoral typically is a very crowded place, with a large volume of air and sea traffic. Also, the need to provide greater support to Marine forces is producing several new systems and capabilities, and placing greater importance on some existing warfare areas.

The amphibious forces of the Navy-Marine Corps team are undergoing significant change, as new systems begin to replace aging Vietnam-era equipment. The new LHD-1 Wasp-class amphibious ships are great improvements over the LPH-1

Two Jima-class ships, providing a very large flight deck, large well deck, and carrying space for a large amount of Marine Corps manpower and equipment. It has even been suggested that the Navy shift funds allocated for refitting and overhauling the LHA-1 Tarawa-class ships to purchasing more LHD-1s, a move that would appear to provide the greatest return on the Navy's investment.

The Marines are preparing to take delivery of two very important systems, each providing a tremendous improvement in amphibious capability over its predecessor. The AAV amphibious vehicle and the MV-22 Osprey tilt-rotor aircraft will provide great increases in the speed with which Marine forces can be put ashore, as well as the distance from which Marine landings can be launched. These increases in range and speed are highly important in the context of the Marines' Operational Maneuver From The Sea concept.

In order to provide greater support for Marine forces ashore, the Navy is improving its shore bombardment capability, a mission that has suffered for many years from an inadequate weapon, the 5-inch gun. Possessing only thirteen-mile range, the 5-inch gun is no longer suitable for Marine Corps operations that will attempt to avoid defended landing areas, instead maneuvering directly against enemy centers of gravity that may be many miles inland. Through modifications to the gun and shell, and the incorporation of GPS guidance, the new ERGM shell will allow

supporting fires at ranges up to sixty-three miles. The VGAS system, intended for installation on the next-generation surface combatant, may extend this range out to one hundred miles.

Naval aviation, including both aircraft carriers and their embarked aircraft, is at a critical transition point between the present and the future. Existing aircraft carriers are seen by many as too large, too expensive, too vulnerable, and unnecessary in the post-Cold War setting. With advances in RPVs, the lack of a threat requiring air power on the open ocean, and the emergence of the AEF concept in the Air Force, carriers often are labeled as Cold War relics, the most expensive method possible for putting a bomb on a target. Although undoubtedly expensive to purchase and operate, carriers bring much more than bomb-dropping capability to U.S. commanders. Carrier air wings are capable of a multitude of missions, all of which can be conducted independent of host nation permission, a feature commonly overlooked by carrier critics. Carriers have no peer when it comes to providing presence, and will remain a necessity as long as tactical air power remains a necessity.

The centerpiece of the Navy's carrier air wings in the next decade will be the FA-18E/F Super Hornet, an enlarged version of the existing FA-18C/D. Intended to replace the A-6E in the strike role and the F-14 in the fighter-interceptor role, the Super Hornet is a throwback to the

days of the F-4 Phantom, an outstanding multi-mission, multi-service aircraft in the 1960s and 1970s. However, the Super Hornet also entails some risk for the Navy, as it is intended to serve only until the Joint Strike Fighter enters service. If the Joint Strike Fighter program is delayed for any length of time, the age of the FA-18 program could become a liability, forcing carrier air wings to deploy with what is essentially an early 1970s design. Nonetheless, the first production Super Hornets have been delivered to the Navy, and should enter squadron service early in the next decade.

Three specific mission areas will be of greatly increased importance for the Navy's littoral strategy. Mine countermeasures, neglected for many years as irrelevant to the Cold War scenario of a mid-ocean battle against the Soviets, have been given renewed emphasis in recent years. Mines are one of the most cost-effective of naval weapons, potentially allowing a state with no naval forces to defend against even a superpower navy. With the littoral strategy calling for operations near the shore, the ability to detect, locate, and neutralize mines is of tremendous importance, and must be improved over current levels.

Anti-submarine warfare likewise must be improved if the Navy-Marine Corps team is to operate in the littoral areas of the world. While a mere ten years have passed since the Navy of Ronald Reagan raised ASW to an art form, the recent

lack of emphasis on ASW training and modernization has led to much atrophy in this critical mission area. Even old diesel submarines, operated by poorly-trained crews, cannot be ignored when U.S. naval forces operate in littoral areas, requiring that urgent attention be given to this area of naval warfighting.

An emerging mission area will be of paramount importance in the new international environment. Ballistic missile defense was demonstrated as a necessary capability in 1991, when Iraq used "militarily insignificant" SCUD missiles as strategic political weapons, attempting to draw Israel into the Gulf War in order to splinter the coalition. If used to deliver NBC warheads, ballistic missiles could render facilities useless, lead to massive U.S. casualties, and coerce U.S. allies into remaining neutral in a crisis. Thus the two Navy missile defense programs, Navy Area and Navy Theater Wide, must continue to receive the full attention and support of naval leaders.

A related capability of great importance is NBC defense, detection, and decontamination. Chemical and biological weapons in particular have emerged in recent years as a kind of "poor man's nuclear weapon," allowing small states to employ military and political leverage similar to that of nuclear weapons at a fraction of the cost. Inexpensive and relatively easy to produce, chemical weapons are known to exist in many regional arsenals, and

biological weapons are suspected to be nearly as widespread as chemical. Both chemical and biological weapons, delivered by ballistic missiles, could make it impossible for U.S. air power and sea lift to utilize regional facilities, possibly preventing the United States from being able to deploy into a theater.

Two equally dubious mindsets concerning chemical and biological weapons seem to prevail among many service leaders and planners. The first is that U.S. nuclear weapons will deter the use of chemical or biological weapons in a regional conflict, an assumption based on the Cold War deterrence model of mutually assured destruction. The second assumption is that, if chemical or biological weapons are used, their impact will be marginal and U.S. forces will suffer little loss of combat capability. Both assumptions are contradicted by existing Red Team analyses, by the different nature of potential regional regimes to be deterred, and by the lack of adequate detection and decontamination equipment and procedures among the services. While all of the services are addressing NBC defense and protection, it may take a chemical or biological "Pearl Harbor" to drive home the effectiveness of these weapons.

Finally, a new vision of warfighting for the twenty-first century is being developed by the Navy. Known as Network-Centric Warfare, the concept will be an important improvement in situational awareness, speed of command, and

engagement capability. Through the sharing of information in real time, the networking of sensors and shooters, and several automated command and control processes, Network-Centric Warfare should improve the combat capabilities of Navy-Marine task forces operating in the littorals, where events are likely to develop more quickly, and with less warning, than on the open ocean.

Cooperative Engagement Capability, the first operational component of Network-Centric Warfare, has been tested successfully on several occasions, and is likely to be approved for installation in the fleet in 1999. Allowing any networked platform with appropriate weapons to engage an air or missile target, without having to track the target independently, CEC should improve greatly the ability of U.S. naval forces to defend themselves against aircraft, cruise missiles, and ballistic missiles.

While forward presence has been the chosen military posture of the United States since World War Two, the end of the bi-polar Cold War setting has led many defense planners and analysts to question whether forward presence is appropriate for the new international setting. The lack of a world peer, on the order of the old Soviet Union, combined with the United States' unchallenged position as the military and economic superpower of the world, has produced several calls for changing the national security strategy employed by the United States.

One proposed alternative is to maintain the structure and mission capabilities of the military, but reduce the overall size of the military and station most forces in CONUS. By retaining the ability to deploy overseas in a crisis, and threatening to punish any attacks on U.S. interests, the pull-back strategy is an attempt to maintain great power status without exerting great power effort. The flaws of such a strategy are obvious.

First, U.S. strategy would rest largely on deterrence, as the forces needed to defend U.S. interests would be located far from those interests. Secondly, when deterrence fails (as it should be expected to do), the U.S. response would be reactive, only able to address conditions after the fact. Quick-grab strategies thus would be encouraged among regional powers, who might judge that U.S. deployment was not credible to protect a less-than-vital U.S. interest. Third, the deployment of U.S. forces to a distant region could become a logistical problem too great to overcome, forcing the U.S. leadership to re-assess the choice of deploying at all. Thus the pull-back strategy is not viable for U.S. national security in the post-Cold War setting.

The second alternative is to return U.S. forces to CONUS, and rely on global air power and space surveillance to monitor and regulate events surrounding U.S. interests. Based on belief in RMA technologies and the long-standing doctrine of air power according to Billy Mitchell, air power

and space surveillance would replace physical presence with virtual presence, allowing a much smaller military to protect U.S. interests abroad.

While the B-2 bomber and emerging smart and brilliant weapons should provide a large improvement in U.S. warfighting capability, there is no basis in fact or common sense for believing that presence can exist through CONUS-based air power alone. The most serious flaw in the virtual presence concept is that it is wrongly applied to peacetime presence operations, in which visibility and sustainability are key. Virtual presence is more suitable for wartime operations, where stealth aircraft have proven their worth. However, by limiting U.S. options to accepting an adversary's actions or conducting a bombing campaign, virtual presence is wholly unsatisfactory as a peacetime presence strategy.

The third alternative is a return to the isolationism of the 1920s and 1930s. As there is no credible threat to the U.S. homeland, the forces of the United States should be brought home, and the United States should withdraw from world events. Based on the belief that what other states do and how they interact is their own business, and placing faith in fair market practices to ensure the availability of oil and resources, isolationism observes few if any U.S. interests besides the safety of U.S. citizens, territory, and democratic government.

Although isolationism perhaps resonates with the belief of many individuals in the philosophy of "live and let live," it is not appropriate for the interaction of nations, where no common understanding of acceptable norms or restraint on misbehavior exist. Events outside the United States do affect our safety and prosperity, a fact of life since the late 1940s, when the U.S. became a net energy importer. When combined with our economic dependence on the health of foreign economies, and the dependence of all modern industrial states on oil, the Persian Gulf by itself is sufficient to invalidate an isolationist posture.

The need for forward presence forces will continue in the post-Cold War world, just as it existed during the Cold War. While the threat has changed, and become perhaps more uncertain in its nature, the need to maintain U.S. military power in proximity to national interests is a lasting requirement in U.S. national security. Where the threat is well-defined and capable of striking out with little warning, as in Iraq or North Korea, land-based ground and air forces are appropriate for maintaining presence and defensive capability.

For dealing with the current uncertainty in the origin and location of threats to U.S. interests, however, land-based forces are at a distinct disadvantage. Forced to take position on the sovereign territory of another state, land-based forces must overcome political obstacles to their

deployment, political restraint on their freedom of action, and the political impact that their withdrawal might cause in the eyes of U.S. allies. While very valuable, indeed invaluable, towards the wartime end of the spectrum of operations, land-based forces are much less valuable in the peacetime presence operations, intended to hedge against uncertain threats, that comprise the great majority of U.S. military action abroad.

Naval forces, through their historical characteristics of global mobility and freedom of access in international waters, are the most useful in meeting uncertain threats, and of sustaining U.S. power near national interests. With over fifty years' experience in at-sea replenishment and logistical support, U.S. naval forces can take station in any of the world's seas, and maintain station for weeks or months, even years through the rotation of ships and battle groups.

This is presence--the permanent occupation of strategically important positions near U.S. interests, free to take any necessary action, subject only to the orders of the National Command Authority. With combat power, organic logistics, and command and control capability already present in underway battlegroups, deployed naval forces are essentially at full wartime readiness all the time, and can respond instantly to emerging crises. Naval forces offer the NCA a full range of options in crisis response, ranging

from non-combatant evacuations to limited military operations to wartime strikes. Operating in all mediums--on land, on and under the sea, in the air, and increasingly in space--naval forces are likely to possess the means of responding to any crisis that may occur in the littorals of the world.

While the international environment has changed dramatically with the demise of the Soviet Union, the fundamental need for sea power in U.S. security has not changed. Barring a truly revolutionary change in the laws of physics and aerodynamics as we understand them today, sea power will remain a constant necessity for the United States, regardless of the presence or absence of a peer-level threat. Through the continued deployment of U.S. naval forces to vital regions of the world, and through the ceaseless vigilance of U.S. naval forces in protecting U.S. national interests, the Navy-Marine Corps team will continue to be

. . .a safeguard unto the United States
of America, and a security for such as
pass on the seas upon their lawful
occasions.

--Book of Common Prayer;
Prayer for the Navy

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follow-on counteroffensive may not be necessary. A ground war becomes an option rather than an inevitability.⁵⁵⁷

Air and space power thus maintain presence in distant regions of the world through the knowledge among other governments that U.S. airplanes could arrive within days or hours to punish aggressive acts.⁵⁵⁸ With PGMs and global reach, U.S. air power by itself can deter aggression, and defend U.S. interests if deterrence fails:

That ability [to regain the initiative in a crisis] may be derived from strikes at global range on short notice with devastating intensity and accuracy. . . . Global attack and precision strike are thus key to the U.S. national security posture.⁵⁵⁹

General McPeak, addressing the fact that the adversary's perception is what matters in deterrence, has stated that regional actors will recognize the global reach of U.S. bombers and the continual presence of U.S.

⁵⁵⁷Major General (Retired) Charles Link, USAF, quoted in James Kitfield, "To Halt An Enemy," Air Force Magazine (January 1998): 65.

⁵⁵⁸Tirpak, "The Long Reach of On-Call Airpower," 22: "The USAF's B-1B, B-2A, and B-52H bombers, from a cold start at their home bases in the continental United States, could attack virtually anywhere on Earth in 18 hours. . . could destroy hundreds of armored targets on a single pass, would be able to stop an enemy column on the march." See also Glenn Goodman, "The Power Of Information," Armed Forces Journal International (July 1995): 24: "In most instances, information, combined with forces that can rapidly respond with the right mix of capabilities, can achieve U.S. goals."

⁵⁵⁹Jeffrey Jackson, "Global Attack and Precision Strike," in Goure and Szara, Air and Space Power in the New Millennium, 106.

satellites, and that, "air and space forces provide global presence, not a localized presence."⁵⁶⁰

Additional advantages gained through long-range air power and PGMs include safety from attack on the bases supporting long-range bombers, which can be located far from a theater, and the reduction by several orders of magnitude of the number of U.S. servicemen put at risk. By providing the means to, "conduct relatively risk-free counterforce strikes" against enemy NBC facilities, and through exposing fewer servicemen to enemy fire, long-range air power is advanced as the safest and most economical means of applying U.S. combat power.⁵⁶¹

Under a virtual presence strategy, the Air Force would be the mainstay of U.S. military power. Long-range bombers would be required in much larger numbers than the 187 called for in the Quadrennial Defense Review, while tactical fighters would be needed in smaller numbers. The B-2 in particular would be needed in larger numbers, perhaps as many as 100. With higher production expected to bring down B-2 unit cost by as much as two-thirds, from around 2.2 billion dollars to 865 million dollars per aircraft, a larger B-2 fleet would be affordable within the overall

⁵⁶⁰Canan, "McPeak Sums It Up," 34; John Correll, "Let's You and Him Fight," Air Force Magazine (June 1994): 4.

⁵⁶¹Horner, "What We Should Have Learned," 54, 55.

defense budget as other systems were cut back.⁵⁶² Aerial re-fueling and air lift assets would be needed in large numbers, to allow aerial re-fueling of bombers and to get AEF supplies and personnel into a theater quickly.

Space assets would be of equal importance to aircraft, and could justify the establishment of an Air Force space corps, or even an independent Space Force. The ability to defend U.S. satellites from attack, and to attack and neutralize other nations' space assets, likely would be prominent features of a virtual presence strategy.⁵⁶³

Although U.S. space surveillance capability is very high today, it is posited that even greater improvements would need to be made in order to achieve the kind of global awareness described in the virtual presence strategy.

The Navy likely would be sized and structured very much as under the pull-back strategy. Needing only to keep the military SLOCs open for transporting Army equipment and supplies to a distant theater, ASW, MCM, and AAW would be the primary features of the Navy.

The Army would be reduced to perhaps as few as five divisions, with the armored divisions' heavy gear stored

⁵⁶²At the original number of 132 B-2 bombers, the unit cost was expected to be 480 million dollars. Producing 100 would have cost 865 million per plane, while the current force of twenty-one aircraft will cost over two billion dollars each. See Perry et al., Long-Range Bombers, 72.

⁵⁶³Friedman, The Future of War, 363-366.

mainly aboard prepositioning ships. Two light divisions would be structured for rapid air deployment. The principal function of Army units would be to provide air defenses for Air Force bases, and to stand by for whatever ground combat remained to be conducted after U.S. air power had been applied to the enemy.

What are the faults of the virtual presence strategy? As the pull-back strategy did, the virtual presence strategy employs many valid arguments in creating the larger argument for presence through long-range air power. The B-2, for example, no doubt is an aeronautical and military marvel of high-technology systems. PGMs have indeed performed much better than iron bombs, as much as twelve times better according to various studies.⁵⁶⁴ And air power does offer a means to minimize the number of U.S. servicemen placed at risk in applying military force. Do the individual arguments in favor of virtual presence support the larger claim, that virtual presence can and should replace physical presence? Again the answer must be "no." Just as the pull-back strategy's arguments ultimately are unconvincing, so too does the virtual presence strategy fail to convince in the end.

⁵⁶⁴Perry et al., Long-Range Bombers, 18, cites the Gulf War Air Power Survey in claiming that PGMs enjoyed twelve times better kill ratios than iron bombs.

The one overwhelming flaw in the virtual presence concept is the incorrect belief that the ability to kill any target on earth, at any time and from any distance--if possible at all, a dubious assumption to begin with--is the same as providing presence.⁵⁶⁵ While such a capability may well be invaluable in a future war, the belief that global reach and global strike capability is synonymous with presence is a gross conceptual error.⁵⁶⁶ The kinds of strikes portrayed by virtual presence advocates--stopping three armored brigades on the march with PGMs--are wartime missions. Presence is the peacetime employment of military forces to influence others across a full range of actions and across the spectrum of violence. Thus claiming that global air power can provide presence is to argue apples and oranges.

Bombers, especially the B-2 bomber, are unique in their ability to deliver a large amount of destructive force, over a great distance and in a short time. However, bombers also are largely one-dimensional. The only option afforded to a commander by available bombers is to put bombs on a

⁵⁶⁵Wode, "Beyond Bombers and Carriers," 29.

⁵⁶⁶DeYoung, "Sea Power Is Grand Strategy," 77; Mauz, "The Value of Being There," 27: "To be sure, bombers have a role in conflict, and they also contribute to deterrence, but their contribution to overseas presence is limited and to suggest that they can compare to naval forces is nonsense."

target.⁵⁶⁷ Unless the situation calls for a destructive strike on some target, bombers provide little value.

The analogy often used is that air power is either "on or off", with no ability to move up or down the spectrum of activity. For example, during the entire period during the 1980s when U.S. forces were deployed to the Persian Gulf, attempting to safeguard Saudi and Kuwaiti oil shipments during the Iran-Iraq war, not a single strike mission was flown in the theater.⁵⁶⁸ There were no instances in which the United States could justify turning bomber air power "on", so it was a non-factor.

In crisis response the same limitation applies. How would B-2 bombers have resolved the crisis at the U.S. embassy in Somalia in 1991? How would bombers go about monitoring and intercepting Iraqi oil smuggling? Unless the crisis calls for the destruction of a certain target set, bombers are likely to be of little or no value to U.S. commanders.⁵⁶⁹ Since presence more often than not involves

⁵⁶⁷Krulak, "An Enduring Instrument," 10.

⁵⁶⁸David Perin, Comparing Long-Range Bombers and the Carrier Force (Alexandria, VA: Center for Naval Analyses, 1994), 9.

⁵⁶⁹Appendix A, Table 11 and Table 12, compare the utility of bombers and carrier battle groups in peacetime crisis response. As shown in these illustrations, unless the crisis calls for strike missions, bombers will have very limited ability to contribute.

less-than-war activities, a platform whose only mission is destructive cannot be viewed as a suitable means of providing presence.

While air power advocates may claim that bombers' military capabilities will produce a deterrent effect, and that this deterrent effect should operate on regional actors in the same manner as presence forces, history does not support this argument. The B-36 bomber offers a near-exact parallel to the current B-2 theory of global air power. The B-36 was claimed to be capable of attacking any location on earth quickly, from bases beyond the reach of enemy weapons, and so would be able to influence events and protect U.S. interests. Alas, the Korean War proved otherwise, just as Saddam Hussein's decision to invade Kuwait, and to stay there after receiving demands from the U.N. that he leave, came in the face of truly global U.S. air power.⁵⁷⁰

Deterrence depends, as always, on the adversary's perception to be successful.⁵⁷¹ For an adversary with first-rate intelligence gathering capability, able to identify and analyze the range of U.S. capabilities, and to extrapolate the damage likely to be done if those capabilities are unleashed, a non-visible bomber force may serve to deter. However, for less sophisticated actors,

⁵⁷⁰Johnson, "Carries Are Forward Presence," 39.

⁵⁷¹Siegel, To Deter, Compel, and Reassure, 3.

such as most regional states, visibility remains at the heart of deterrence, and bombers are poorly-suited to providing and maintaining visibility.⁵⁷²

A further serious flaw in the virtual presence paradigm is that the historical model that serves as the basis for many air power claims--the Gulf War--had conditions so unique as to be highly unlikely to repeat themselves in the future. Thus air power may not be applicable, or at least may not be decisive, in future conflicts. Even the perception of the Gulf War has changed over the last eight years in regard to air power, with many now believing that air power was not as effective as portrayed at the time.⁵⁷³

Unless a future conflict involves desert terrain, largely immobile armored forces without any significant air defenses, a six-month period in which to build up logistics and gather intelligence, an enemy command and control structure that has been decapitated at the outset and never re-established, the withholding of enemy CBW capability, and no possibility of U.S. space assets being interfered with, it is unlikely that air power would enjoy the complete

⁵⁷²Colin Gray, Explorations In Strategy (Westport, Conn: Greenwood Press, 1996), 75: "Sustained local presence in the air typically is physically impracticable." Dietz, "Presence Is in the Beholder's Eye," 112.

⁵⁷³Till, "Maritime Strategy and the Twenty-First Century," 186.

freedom of operation experienced in 1991. Marine Corps

General Paul Van Riper states the matter clearly:

If we're looking to repeat Desert Storm, then I have little problem with the Air Force argument . . . What we have are a lot of buzzwords floating around associated with the Revolution in Military Affairs . . . It's ludicrous to suggest that such concepts as 'information dominance' will now somehow make all the military doctrine that came before it irrelevant.⁵⁷⁴

In addition, it is likely that even the B-2 would need a fighter escort when operating in daylight. While enemies may not know when or from which direction a B-2 is approaching, they can defend likely targets and rely on visual detection in daytime. If the B-2 can be seen it becomes a slow, vulnerable target. Also, it is not inconceivable that an enemy undergoing an RMA of its own might field the means to triangulate the B-2's targeting radar signal in real time, allowing fighters to intercept incoming B-2s.⁵⁷⁵ Finally, given current U.S. research into radars capable of defeating stealth, it is reasonable to assume that others are working on the same problem. If another nation were able to solve this technical problem, it is possible that the B-2 could lose its greatest asset.⁵⁷⁶

⁵⁷⁴Kitfield, "To Halt an Enemy," 63.

⁵⁷⁵O'Hanlon, "Can High Technology Bring U.S. Troops Home?" 80.

⁵⁷⁶David Fulghum, "New Radars Peel Veil From Hidden Targets," Aviation Week & Space Technology, 18 January 1999, 58.

Thus there is reason to doubt the B-2's continued ability to operate with impunity from air defenses.

The AEF concept that supplements global bombers also is based on questionable assumptions. In particular, General Jumper's belief that ballistic missiles and chemical weapons pose no threat to AEF operations is difficult to reconcile with different war games and Red Team studies:

With a few SCUDs, can you take out an airfield? No, you cannot. You can contaminate with chemical weapons, but that is what we practice for. . . . All services have practiced doing these sorts of things.⁵⁷⁷

Alternatives to highly corrosive decontaminants are needed. Current decontaminants leave a corrosive residue on equipment, buildings, vehicles, etc., which impedes combat and support operations and thus threatens mission accomplishment. The services have no effective means to decontaminate aircraft that have been contaminated by toxic agents or materials without taking the aircraft out of service for a long period or damaging key aircraft components.⁵⁷⁸

While military casualties would likely be low, there are no good options for today's theater airbase commander if the enemy is able to continuously restrike/recontaminate his facility. . . . Over time casualties will increase and efficiency will drop, with the anticipated disastrous effects on sortie generation and airlift throughput.⁵⁷⁹

⁵⁷⁷"Operating Abroad," 28-29.

⁵⁷⁸The Impact of Nuclear, Biological, and Chemical Proliferation on U.S. Armed Forces, 14.

⁵⁷⁹Weaver and Glaes, Inviting Disaster, 45.

Access to bases may be no more secure in peacetime, when the United States may wish to engage in less-than-war operations. Again, it is peacetime operations, not wartime strikes, that comprise the great majority of presence missions, and even close allies may hesitate to provide unrestricted access to their facilities for U.S. planes.⁵⁸⁰ As capable as U.S. land-based tactical air power may be, the AEF concept is totally dependent on access to someone else's facilities to be viable.⁵⁸¹

From the weaknesses described here, it is clear that virtual presence is no more realistic an alternative for protecting U.S. interests than the pull-back strategy. In fact, the term "virtual presence" is a misnomer, as the concept does not qualify as a peacetime presence strategy at all, but rather as a high-tech RMA warfighting strategy. Since the only response available to U.S. leaders under a virtual presence strategy would be to order bombs dropped on various targets, in attempting to resolve a crisis the United States would be forced to choose between accepting an undesired action, or employing destructive force via air power to correct the situation, with no intermediate actions available to U.S. leaders.

⁵⁸⁰Goodman, "Virtual Overseas Presence," 12.

⁵⁸¹Perry et al., Airpower Synergies in the New Strategic Era, 56.

In many, indeed in most peacetime presence scenarios, putting bombs on a target simply does not suffice as an appropriate, effective solution. General Krulak makes the point clearly: "I don't care what anyone says, you're not going to manage instability in the Persian Gulf, the Indian Ocean, and the Pacific Ocean from 60,000 feet overhead."⁵⁸² While global strike capability should be developed for use in wartime, when the advantages provided by long-range, stealthy aircraft delivering PGMs clearly would be of great value, the position that global air power and global strike capability can allow virtual presence to replace forward presence has little if any credibility.

Return to an Isolationist Security Policy

A third alternative strategy for U.S. national security, one that has enjoyed some support in recent years, is a return to the kind of isolationist policy followed by the United States between the World Wars. By focusing only on the defense of U.S. citizens and territory, an isolationist policy forgoes even the pretense of protecting U.S. interests abroad. By definition, in an isolationist context the United States has no interests abroad that require protection. Isolationism therefore is not in the same category as the pull-back strategy or the virtual

⁵⁸²Hessman, "For the Corps and for the Nation," 13.

presence strategy, both of which are claimed to be methods of protecting U.S. interests abroad, but nonetheless is an alternative strategy for U.S. national security.

The central tenet of an isolationist policy is the belief that events outside the United States need not concern us. For some isolationists this belief comes from the United States' position of unchallenged power in the post-Cold War world. In this regard, the isolationist strategy can be viewed as the ultimate extension of the pull-back strategy, with no crisis justifying the deployment of U.S. forces. For others, isolationism springs from the belief that the United States should mind its own business in the world, and demand the same treatment from other states. As long as other states do not threaten U.S. citizens or territory, they will not be bothered by the United States. For whatever reasons, isolationists share the same guiding principle: the United States should not extend its influence or power beyond its own borders.

Struggles for power within different regions, possibly involving open war between rival states, are not expected to disappear in the future. For isolationists, however, these regional disputes do not threaten U.S. safety and security, and should be ignored.⁵⁸³ As long as the effects of regional wars do not spill over onto U.S. territory, which

⁵⁸³Yost, "The Future of U.S. Overseas Presence," 81.

seems unlikely as only Canada and Mexico border on the United States, regional wars are of no importance to the United States.⁵⁸⁴

Similarly, the desire to spread democracy abroad is an inappropriate goal for the United States, and should not be attempted. Certainly we support democratic ideals and offer an example to others of democracy's benefits, but how other states choose to rule themselves should be none of our concern. If others are oppressed by brutal dictatorships, or if lawless anarchy reigns in a distant region, it is for the people living there to correct, not the United States.⁵⁸⁵

The vital interests of the United States would amount to only three requirements: the safety of U.S. citizens, the integrity of U.S. territory, and the independence of the U.S. political process. In regard to overseas interests, at most the United States should take some interest in and encourage a balance of power within different regions.⁵⁸⁶

Another argument often cited in making the isolationist case, and indeed one heard for many years before the end of

⁵⁸⁴Earl Ravenal, "The Case for Adjustment," Foreign Policy (Winter 1990-1991): 7-8.

⁵⁸⁵Buchanan, "America First--and Second, and Third," 81.

⁵⁸⁶Ravenal, "The Case for Adjustment," 15.

the Cold War, is that other states, particularly the affluent states of Europe and Asia, should provide for their own defense, allowing U.S. troops and support to be withdrawn.⁵⁸⁷ For example, South Korea has twice the population of North Korea, and an economy nearly an order of magnitude larger than North Korea's. South Korea thus should not need American assistance in defending itself, certainly not assistance on the order of an entire U.S. Army division and supporting air assets.⁵⁸⁸ An isolationist policy would force U.S. allies to "carry the load" for their own defense by withdrawing U.S. protection.⁵⁸⁹

An important point to be noted is that isolationists would not sever commercial interaction along with military support in withdrawing from the world.⁵⁹⁰ U.S. overseas trade would continue as ever, since it would be in the best interest of overseas nations, even those hostile or less than friendly to the United States, to continue to have economic interaction:

The restraint we propose should not be misdescribed as a total withdrawal from the world. On the

⁵⁸⁷Goure and Mauldin, Naval Forward Presence: Status, Prospects, 19.

⁵⁸⁸Buchanan, "America First--and Second, and Third," 80.

⁵⁸⁹Brown et al., America's Strategic Choices, 210.

⁵⁹⁰Yost, "The Future of U.S. Overseas Presence," 81.

contrary, we believe in a vigorous trade with other nations and the thriving commerce of ideas. Military restraint need not, and will not, bring economic protectionism.⁵⁹¹

Even that most strategic of resources, oil, should not require United States military forces to be deployed overseas. Instead, the United States could depend on market forces to maintain the price of oil, and to ensure the availability of the huge amounts of oil required for world economies. Some possible benefits of this course of action might be to prompt the U.S. population and government to lower their demand and dependence on oil, and to promote the development of useful alternatives to fossil fuels.⁵⁹² Even if Saudi and Kuwaiti oilfields came into the possession of Iraq or Iran, their oil still would be available on the world market, as the oil would have no value unless sold, and market forces again would serve to prevent artificial manipulation of the oil market.⁵⁹³

The armed forces required by the United States would be highly capable, but very small and structured for defense, not power projection. Accordingly, ballistic missile defense and the strategic nuclear forces would be of paramount importance.⁵⁹⁴ Space systems and high technology

⁵⁹¹Brown et al., America's Strategic Choices, 200.

⁵⁹²Ravenal, "The Case for Adjustment," 9.

⁵⁹³Brown et al., America's Strategic Choices, 220.

⁵⁹⁴Buchanan, "America First--and Second, and Third,"

surveillance and strike systems also would be important, possibly requiring the establishment of a separate Space Force.⁵⁹⁵

The conventional forces would make maximum use of high technology as a force multiplier, an effort made easier by the United States' technological lead over other nations. With better technology and a defensive posture, the services could be reduced to as few as six ground divisions, ten or eleven Air Force wings, and as few as one hundred ships.⁵⁹⁶

By withdrawing to CONUS, the requirements placed on the military would be streamlined greatly. The services would need only to defend CONUS and the sea and air approaches, to retain strong retaliatory nuclear forces, and to employ those retaliatory forces along with missile defenses in order to deter NBC attack.⁵⁹⁷ The rest of the world could be left alone, with regional affairs and events taking care of themselves.

The problem, and the reason that isolationism is not a viable strategy for the United States, is that the world

80.

⁵⁹⁵Yost, "The Future of U.S. Overseas Presence," 81.

⁵⁹⁶Buchanan, "America First--and Second, and Third," 80; Ravenal, "The Case for Adjustment," 17.

⁵⁹⁷Perla et al., Future Sea-Based Aviation, 55; Ravenal, "The Case for Adjustment," 15.

does not take care of itself, at least not peacefully and in ways that will be favorable to the United States. If the five thousand-plus years of written history are any guide, there will always be states and entities with hostile ambitions, bent on taking by force what others possess:

The world does not sort itself out on its own. . . . International stability is never a given. It is never the norm. When achieved, it is the product of self-conscious action by the great powers, and most particularly of the greatest power, which now and for the foreseeable future is the United States. If America wants stability, it will have to create it. . . . There will constantly be new threats disturbing our peace.⁵⁹⁸

While isolationism might have been sufficient in the early nineteenth century, when all of America's resource requirements could be met domestically and the British Navy served to safeguard trade on the high seas, today and in the future isolationism cannot be seen as a credible choice for U.S. national security. As elaborated in Chapter II, the United States has interests in nearly every region of the world. Only the most narrowly defined interests of safety and security reside within the borders of the United States. Whether or not this should be the case is immaterial: it is the case, and U.S. strategy must deal with what is, not with what we might like to be.

⁵⁹⁸Charles Krauthammer, "The Unipolar Moment," in Allison and Treverton, Rethinking America's Security, 301-302.

If Texas and Alaska could provide our oil demands, and if Canada and Mexico could satisfy our import and export markets, an isolationist strategy would be viable, if not necessarily appropriate. However, the reality is that we do have interests overseas, there are threats to those interests, and we cannot protect our interests by withdrawing into isolation.⁵⁹⁹

The results of adopting an isolationist strategy might be slow to manifest themselves, especially in the current international setting. The U.S. position of unrivaled power could allow the United States to muddle along in isolation for several years, even a decade or more, before being forced to address a situation that had become threatening to U.S. interests.⁶⁰⁰

History, on the other hand, suggests that the United States would experience a rapid rise in misbehavior worldwide, which would impinge on U.S. interests sooner rather than later. Regional bullies should be expected to push hard against the envelope of U.S. tolerance, and to threaten, either directly or indirectly, the safety and security of the United States. Charles Krauthammer, in a remarkable critique of recent U.S. foreign policy, explains why this is so:

⁵⁹⁹Johnsen, The Future Roles of U.S. Military Power, 3.

⁶⁰⁰Yost, "The Future of U.S. Overseas Presence," 81.

The basic difference between the international system and domestic society is that in domestic society there exists a monopoly of the means of coercion, an enforcer, a sovereign. There is generally also a preexisting community of norms.

Neither of these conditions obtains in the international arena. . . . And, in any social system, whether of individuals or nation-states, where there is no enforcer, there can be no real law.⁶⁰¹

The years between World War One and World War Two provide the clearest example of the perils of isolationism for the United States. Convinced after World War One that the best way to avoid another destructive war was to withdraw from the world, the United States practiced a determined isolationism right up until the 7th of December, 1941.⁶⁰² Ignoring the threat to Europe posed by Hitlerian Germany, and the threat to Asia posed by a militant Japan, the United States surrendered the initiative in world events.⁶⁰³ When the United States could no longer ignore the outside world, after isolationism had been forcibly refuted by the Japanese carrier task force at Pearl Harbor, four years of tremendous effort and cost were required to restore U.S. security. There is no reason to think that

⁶⁰¹Charles Krauthammer, "A World Imagined," The New Republic, 15 March 1999, 23.

⁶⁰²Allison and Treverton, Rethinking America's Security, 301.

⁶⁰³Jordan et al., American National Security, 12-13. Ellsworth et al., eds., America's National Interests, 10.

today's world will order itself any more peaceably than the world of eighty years ago.

Summary

The current U.S. strategy of power projection through forward presence is grounded in the experience of the past and the logical security requirements of the future. As with any strategy, alternatives to forward presence exist, and have been argued forcefully by various authors. While championed by thoughtful and well-intentioned persons, the alternatives presented in this chapter cannot be judged acceptable in replacing forward presence in U.S. security strategy.

The first alternative strategy, the pull-back strategy, can be seen as an attempt to enjoy great power status without exerting great power effort in the world. While maintaining a military similar in structure and capabilities to the current force, although significantly smaller, the pull-back strategy would not maintain that force near U.S. interests, counting instead on the deterrent threat of U.S. forces to protect interests. With RMA systems making up for the reduced size and physical absence of the U.S. military, U.S. forces could respond from CONUS to any act that threatened U.S. interests, and overwhelm any opponent through technological superiority. Arguments also are made that the United States can no longer justify the cost of a

large forward presence military, as no plausible threats exist to U.S. security.

The pull-back strategy may also be viewed as a reversal of the "world policeman" role taken on by the United States since the end of the Cold War. Since there is no plausible threat to U.S. safety, domestic interests should take priority over international affairs, obviating the need for deploying military force all over the world.

Despite the logic of many pull-back arguments when viewed in isolation, the whole turns out to be less than the sum of the parts. The most obvious flaw in the pull-back strategy is its total reliance on deterrence to defend U.S. interests, and the strictly reactive nature of a CONUS-based military. If deterrence fails, no defensive options are likely to exist, a condition virtually certain to encourage regional bullies and bad actors to contemplate *fait accompli* strategies.

None of the intermediate steps afforded by naval forward presence and naval diplomacy would be available, forcing the United States to accept an aggressor's actions or deploy overseas to fight a regional war. The cost of deployment could exceed the loss involved in accepting the new conditions, making it more likely that aggressors would be able to keep their gains. If the decision was made to deploy, U.S. allies would lack interoperability with U.S. forces, making those allies' contribution less effective.

Finally, there is reason to be skeptical about the RMA's ability to solve any strategic problem through technology. The substitution of technology for strategy is one of the pitfalls of buying into the RMA school of thought, and should be avoided in all cases. Technology is important in U.S. security and military strategy, but technology cannot become strategy.

The second alternative described in this chapter, the use of global air power to produce virtual presence, is miscast by its advocates as a means of defending U.S. interests abroad. While possibly a potent warfighting concept, virtual presence through global air power in no way can substitute for the physical presence of naval forces in protecting U.S. interests, a role that mostly involves peacetime activities.

Supported by such Air Force luminaries as former Chief of Staff McPeak, virtual presence envisions the growth of space surveillance and long-range air power into an omnipresent force, able to see and stop any misbehavior, in any location, at any time and in time to be effective. The B-2 bomber, probably the most advanced system in the U.S. military, is held up as the means to stop or correct any threat to U.S. interests. By raining PGMs on adversary forces, if necessary from bases in CONUS, the B-2 and supporting air expeditionary forces can prevent enemy plans from succeeding, thereby protecting U.S. interests.

Presumably adversaries will recognize the iron logic of U.S. strategy and refrain from challenging U.S. air power.

Virtual presence is better-suited as a wartime strategy, when the ability to destroy targets from great distance, with highly accurate and lethal PGMs, would be very valuable. Even in this context, however, there is reason to doubt that the virtual presence strategy is sufficient by itself, without the need for Army or Navy forces to take part. Ironically, the B-2 is stealthy in inverse proportion to the technological level of the sensor it is attempting to evade. Able largely to avoid detection by radar or infrared systems, it is as visible to the naked eye as any other aircraft, making it highly vulnerable in daytime. Thus the B-2 would need either to operate only at night, probably not an option in a fast-moving ground war, or to have an escort of short-range fighters. The limitation of vulnerability to attack on supporting air bases again intrudes into the problem, as ballistic missiles and NBC weapons should be capable of neutralizing airfields within a theater.

The weakness of the virtual presence concept is that it attempts to apply a wartime activity--dropping bombs--to solve problems and protect U.S. interests in peacetime. Virtual presence offers no options for U.S. commanders, whether in day-to-day operations or crisis response, except to destroy something of the enemy's. Thus virtual presence

relies strictly on the deterrent threat of launching an air campaign against any nation that threatens U.S. interests, with no capacity for less-than-war activities. It is a strategy manifestly unfit for the conditions that the U.S. must work with the majority of the time, and to suggest that it provides any kind of presence, virtual or otherwise, is at best a statement of misguided enthusiasm from the De Seversky school of air power.

Finally, the possibility of returning to an isolationist posture has gained some currency since the Cold War ended. Based on the belief that what goes on outside the United States does not and should not concern us, the isolationist strategy calls for the return of all U.S. forces to CONUS, where their only role would be preventing an attack on U.S. territory. The services would be reduced greatly, although still provided with the best and most advanced systems available.

The vital interests of the United States would be the safety of U.S. citizens, the integrity of U.S. territory, and the freedom of the U.S. political process from outside influence. Nothing else on earth would require protection, or be worth fighting for. Our many allies would have to fend for themselves in terms of defense, although we would maintain healthy trade with all amenable nations. Even access to oil, on which our economy, and therefore our quality of life, depends, would not require active measures

of protection. Either through the invisible hand of the world oil market, or through the pragmatism of the state in possession of the world's oil, U.S. oil demands could be met at affordable cost.

If history teaches us anything, it is that peaceful coexistence is not the natural order of things for sovereign states. This lesson is of large importance today, since the United States depends on resources from abroad, as well as the survival of world economic markets even more dependent on oil than our own. This reason alone is sufficient to disqualify isolationism as an acceptable strategy for the United States. In addition to the need for secure access to resources, the United States would surrender all but diplomatic means of influencing others. Even the pull-back strategy hedges by retaining the forces to set things right when others trespass on U.S. interests. An isolationist America would have no ability to maintain favorable conditions abroad. While viable and not entirely inappropriate two hundred years ago, this strategy cannot be considered a realistic possibility today.

The three alternatives presented here are not intended to encompass every possible strategy for U.S. national security. The three alternatives were selected because each has significant backing within the U.S. defense establishment, and in the case of isolationism, within the U.S. population. However, after examining the shortcomings

of each, it is clear that forward presence, and especially naval forward presence, is the most appropriate and effective strategy for U.S. national security. With interests and threats residing far from U.S. territory, U.S. forces likewise must be positioned far from U.S. territory if interests are to be protected. No other option provides a realistic means of protecting U.S. interests, influencing events in the United States' favor, and defending U.S. interests when armed force is called for. Thus the Navy-Marine Corps team's forward presence mission will retain its importance in the post-Cold War international environment, and will continue to influence events, protect American interests, and underwrite the security of the United States.

CHAPTER VI

CONCLUSIONS

The United States Navy has been operating around the world for nearly two centuries, since Thomas Jefferson sent American warships to the Mediterranean in 1801. Although the shape of American sea power has changed in the intervening years, from sail power to nuclear power, from a surface Navy to a submarine, surface, air, and space Navy, the fundamental requirement of sea power has remained the same for the United States. Today's Navy is just as essential to the safety and prosperity of the United States as was the Navy of John Paul Jones, and will remain so in the next century.

The United States is a maritime nation, dependent on the sea for the majority of trade with other nations. While aircraft allow goods to cross great distances in a matter of hours, air lift is extremely expensive and inefficient for the transportation of bulk cargo, and is incapable of transporting bulk resources such as oil. The sea remains the economic highway of U.S. trade, a fact that has not changed since the first British colony was established at Jamestown. The immutable laws of physics limit the returns

on air lift, making sea lift the most efficient means of transporting goods over long distances.

The efficiency of sea lift is of great importance to the United States, as most U.S. trading partners and many necessary resources lie across the oceans. Unlike the continental states of Europe, the United States must look to the sea for trade with nations other than Canada and Mexico. In contrast to the maritime trading states of ancient Greece or Persia, the United States must cross the two greatest oceans in the world, the Atlantic and Pacific, in order to deliver goods to other nations. Merchant sea lift therefore is an enduring requirement for the United States, and, as observed by Mahan, the need for a Navy springs from the existence of peaceful shipping. The need for a Navy is an equally enduring feature of American existence, a need important enough to be called for by name in the Constitution.

In addition to the protection of U.S. trade, the Navy provides the means to defend the United States from attack. By virtue of the freedom of movement enjoyed by ships at sea, U.S. naval forces help to ensure that the fight, if and when it comes, will be conducted as far from the U.S. homeland as possible. Due to the need to watch over U.S. maritime commerce, and to protect the United States itself, forward presence has long been judged the best employment for the Navy-Marine Corps team.

Three strategic "hubs" warrant special attention in the form of naval forward presence forces. These are the Mediterranean Sea, the Persian Gulf, and Northeast Asia. Combining U.S. interests, crucial U.S. trading partners, and clear threats to those interests and trading partners, these three regions are the principal focus of U.S. naval deployments. Indicative of the importance of these regions is the assignment of a numbered fleet to each: the Sixth Fleet in the Mediterranean, the Fifth Fleet in the Gulf, and the Seventh Fleet in the western Pacific.

Threats to U.S. interests exist in two general forms. The first is a peer or near-peer rival, such as the former Soviet Union. While the United States presently enjoys the absence of any such peer threat, the status and health of China and Russia bear watching, as either could develop sufficient power and influence to challenge the United States on a global scale. The other type of threat, which receives greater emphasis in the post-Cold War setting, comes from the existence of "bad actors" in important regions. Saddam Hussein is merely the best-known of these regional bad actors, each of whom has sufficient leverage through proximity to U.S. interests to require U.S. attention. Iran, Iraq, and North Korea are the clearest regional threats, and are the basis for the two-MRC requirement in U.S. defense planning.

Each of the services has a role to play in protecting U.S. interests, and each service has forces located around the world to provide forward presence. The Army has been present in Korea since 1950, as have units of the Air Force. The Army recently has taken position in Kuwait on a permanent basis, with Air Force units deployed to several Gulf nations. And of course, both the Army and Air Force have been key members of NATO for nearly fifty years.

While the deployment of Army and Air Force assets provides valuable presence in support of U.S. interests, the position on land of Army and Air Force personnel and equipment means that the permission of a foreign nation must be secured for their deployment. Naval forces are free from the political problems of deploying on another state's territory, and have the additional advantage of easy mobility. Anywhere that there is salt water, the sea services can operate in the protection of U.S. interests. It is through the combination of mobility and freedom from the permission of other states to come and go that naval forces are superior to land-based forces in providing presence.

When naval forces are present in a region, the United States has available a wide range of options for influencing events, protecting interests, and responding to emerging crises. Under the broad concept of naval diplomacy are such activities as conventional deterrence, signaling U.S.

interest in a region or state, providing support to allies, employing limited military force, enforcing sanctions, and protecting and enforcing freedom of the seas.

The wide range of actions that can be undertaken by naval forces highlight the difference between forces that are forward-based, such as Army units in Korea, and forces that are forward-deployed. Forward-based units usually are positioned in a specific location to counter a specific threat, and are not readily available to react to other events. Forward-deployed forces, on the other hand, can be re-positioned to respond to events, and can move quickly within a region, or even to another region, in support of U.S. interests.

Forward presence forces also take part in two important activities intended to maintain wartime readiness. First, forward presence forces are able to conduct joint training and exercises with U.S. allies, which maintain combat skills and interoperability. Allied participation is a central feature of U.S. planning, and allies must be interoperable with U.S. forces to assist in wartime. Second, by operating in a region on a daily basis, forward presence forces develop a good knowledge and understanding of conditions in the region. Local and regional intelligence, conditions affecting sonar or radar, patterns of movement within the region, geographic features of significance, the operational patterns and tempo of potential adversaries--all can be

monitored and updated by forces operating in the region. Without current information on regional conditions, U.S. forces would be at a disadvantage in wartime, a disadvantage that could translate into increased casualties, a longer and more difficult campaign, and even the inability to resolve a crisis or conflict on favorable terms. While some conditions in a region can be monitored with space-based or other surveillance assets, many local conditions require forces on the scene for observation.

When crises arise in distant regions, naval forces are capable of quick response, and of more flexible response than land-based forces. Naval forces require only the orders of the National Command Authority to move into a crisis area, making them largely immune to political, religious, or other obstacles that frequently plague land-based forces. Naval forces also can vary their position and level of visibility, in contrast to land-based forces, and can maintain a degree of ambiguity that can heighten an adversary's apprehension. In addition, naval forces can be withdrawn or moved back from a crisis area with less political impact than the removal of land-based forces.

One of the more frequent types of crisis in recent years has been situations of violence, or impending violence, that threaten the safety of U.S. citizens abroad. Whether involving civil war, general anarchy, or even natural disasters, these situations often require the

ability to remove a large number of civilians quickly, and may require military force to safeguard evacuees until they are safely out of harm's way. Known as non-combatant evacuation operations, this activity has become a Marine Corps specialty.

With the ability to move quickly from ships at sea to locations on land, and able to bring along organic firepower and air support when needed, the amphibious ready group has proven itself invaluable in getting U.S. citizens out of trouble in distant locations. Capable of a wide variety of special missions, the amphibious ready group provides the means to place U.S. combat forces, with supporting firepower, into a crisis area to conduct evacuations, intelligence gathering, covert operations, or other short-of-war activities. The ability to operate from international waters allows such missions to be conducted without restraint from other states' political leadership, often a critical concern when time is a limiting factor.

If a crisis involves military aggression, it may be necessary to respond with the deployment of U.S. military power to fight a regional war, such as the 1990-91 Gulf War. If U.S. Army and Air Force units are to deploy to a theater, their arrival will depend on the ability of forward-deployed forces to keep open the facilities needed by U.S. air and sea lift. An increasingly important aspect of keeping ports and airfields open in the future will be ballistic missile

defense. Two Navy missile defense systems currently are in development, and should enter service in the next decade.

Since the breakup of the Soviet Union, the Navy has shifted its emphasis from the open ocean to the littorals, focusing on projecting power ashore rather than blue water operations. Without a plausible threat to the movement of U.S. ships on the high seas, and with the current national security strategy's focus on regional threats, the shift to a littoral focus is appropriate. The only nations likely to possess the means of challenging the Navy on the open oceans, China and Russia, are many years, if not decades, from being able to do so. Thus the use of the Navy to influence events ashore directly is a logical move.

With the shift from blue water to the littorals, the Navy will need to re-assess its systems and capabilities for the new environment. Gone is the space buffer afforded by the open ocean, where naval forces could maintain separation from opposing forces. The littoral typically is a very crowded place, with a large volume of air and sea traffic. Also, the need to provide greater support to Marine forces is producing several new systems and capabilities, and placing greater importance on some existing warfare areas.

The amphibious forces of the Navy-Marine Corps team are undergoing significant change, as new systems begin to replace aging Vietnam-era equipment. The new LHD-1 Wasp-class amphibious ships are great improvements over the LPH-1

Two Jima-class ships, providing a very large flight deck, large well deck, and carrying space for a large amount of Marine Corps manpower and equipment. It has even been suggested that the Navy shift funds allocated for refitting and overhauling the LHA-1 Tarawa-class ships to purchasing more LHD-1s, a move that would appear to provide the greatest return on the Navy's investment.

The Marines are preparing to take delivery of two very important systems, each providing a tremendous improvement in amphibious capability over its predecessor. The AAV amphibious vehicle and the MV-22 Osprey tilt-rotor aircraft will provide great increases in the speed with which Marine forces can be put ashore, as well as the distance from which Marine landings can be launched. These increases in range and speed are highly important in the context of the Marines' Operational Maneuver From The Sea concept.

In order to provide greater support for Marine forces ashore, the Navy is improving its shore bombardment capability, a mission that has suffered for many years from an inadequate weapon, the 5-inch gun. Possessing only thirteen-mile range, the 5-inch gun is no longer suitable for Marine Corps operations that will attempt to avoid defended landing areas, instead maneuvering directly against enemy centers of gravity that may be many miles inland. Through modifications to the gun and shell, and the incorporation of GPS guidance, the new ERGM shell will allow

supporting fires at ranges up to sixty-three miles. The VGAS system, intended for installation on the next-generation surface combatant, may extend this range out to one hundred miles.

Naval aviation, including both aircraft carriers and their embarked aircraft, is at a critical transition point between the present and the future. Existing aircraft carriers are seen by many as too large, too expensive, too vulnerable, and unnecessary in the post-Cold War setting. With advances in RPVs, the lack of a threat requiring air power on the open ocean, and the emergence of the AEF concept in the Air Force, carriers often are labeled as Cold War relics, the most expensive method possible for putting a bomb on a target. Although undoubtedly expensive to purchase and operate, carriers bring much more than bomb-dropping capability to U.S. commanders. Carrier air wings are capable of a multitude of missions, all of which can be conducted independent of host nation permission, a feature commonly overlooked by carrier critics. Carriers have no peer when it comes to providing presence, and will remain a necessity as long as tactical air power remains a necessity.

The centerpiece of the Navy's carrier air wings in the next decade will be the FA-18E/F Super Hornet, an enlarged version of the existing FA-18C/D. Intended to replace the A-6E in the strike role and the F-14 in the fighter-interceptor role, the Super Hornet is a throwback to the

days of the F-4 Phantom, an outstanding multi-mission, multi-service aircraft in the 1960s and 1970s. However, the Super Hornet also entails some risk for the Navy, as it is intended to serve only until the Joint Strike Fighter enters service. If the Joint Strike Fighter program is delayed for any length of time, the age of the FA-18 program could become a liability, forcing carrier air wings to deploy with what is essentially an early 1970s design. Nonetheless, the first production Super Hornets have been delivered to the Navy, and should enter squadron service early in the next decade.

Three specific mission areas will be of greatly increased importance for the Navy's littoral strategy. Mine countermeasures, neglected for many years as irrelevant to the Cold War scenario of a mid-ocean battle against the Soviets, have been given renewed emphasis in recent years. Mines are one of the most cost-effective of naval weapons, potentially allowing a state with no naval forces to defend against even a superpower navy. With the littoral strategy calling for operations near the shore, the ability to detect, locate, and neutralize mines is of tremendous importance, and must be improved over current levels.

Anti-submarine warfare likewise must be improved if the Navy-Marine Corps team is to operate in the littoral areas of the world. While a mere ten years have passed since the Navy of Ronald Reagan raised ASW to an art form, the recent

lack of emphasis on ASW training and modernization has led to much atrophy in this critical mission area. Even old diesel submarines, operated by poorly-trained crews, cannot be ignored when U.S. naval forces operate in littoral areas, requiring that urgent attention be given to this area of naval warfighting.

An emerging mission area will be of paramount importance in the new international environment. Ballistic missile defense was demonstrated as a necessary capability in 1991, when Iraq used "militarily insignificant" SCUD missiles as strategic political weapons, attempting to draw Israel into the Gulf War in order to splinter the coalition. If used to deliver NBC warheads, ballistic missiles could render facilities useless, lead to massive U.S. casualties, and coerce U.S. allies into remaining neutral in a crisis. Thus the two Navy missile defense programs, Navy Area and Navy Theater Wide, must continue to receive the full attention and support of naval leaders.

A related capability of great importance is NBC defense, detection, and decontamination. Chemical and biological weapons in particular have emerged in recent years as a kind of "poor man's nuclear weapon," allowing small states to employ military and political leverage similar to that of nuclear weapons at a fraction of the cost. Inexpensive and relatively easy to produce, chemical weapons are known to exist in many regional arsenals, and

biological weapons are suspected to be nearly as widespread as chemical. Both chemical and biological weapons, delivered by ballistic missiles, could make it impossible for U.S. air power and sea lift to utilize regional facilities, possibly preventing the United States from being able to deploy into a theater.

Two equally dubious mindsets concerning chemical and biological weapons seem to prevail among many service leaders and planners. The first is that U.S. nuclear weapons will deter the use of chemical or biological weapons in a regional conflict, an assumption based on the Cold War deterrence model of mutually assured destruction. The second assumption is that, if chemical or biological weapons are used, their impact will be marginal and U.S. forces will suffer little loss of combat capability. Both assumptions are contradicted by existing Red Team analyses, by the different nature of potential regional regimes to be deterred, and by the lack of adequate detection and decontamination equipment and procedures among the services. While all of the services are addressing NBC defense and protection, it may take a chemical or biological "Pearl Harbor" to drive home the effectiveness of these weapons.

Finally, a new vision of warfighting for the twenty-first century is being developed by the Navy. Known as Network-Centric Warfare, the concept will be an important improvement in situational awareness, speed of command, and

engagement capability. Through the sharing of information in real time, the networking of sensors and shooters, and several automated command and control processes, Network-Centric Warfare should improve the combat capabilities of Navy-Marine task forces operating in the littorals, where events are likely to develop more quickly, and with less warning, than on the open ocean.

Cooperative Engagement Capability, the first operational component of Network-Centric Warfare, has been tested successfully on several occasions, and is likely to be approved for installation in the fleet in 1999. Allowing any networked platform with appropriate weapons to engage an air or missile target, without having to track the target independently, CEC should improve greatly the ability of U.S. naval forces to defend themselves against aircraft, cruise missiles, and ballistic missiles.

While forward presence has been the chosen military posture of the United States since World War Two, the end of the bi-polar Cold War setting has led many defense planners and analysts to question whether forward presence is appropriate for the new international setting. The lack of a world peer, on the order of the old Soviet Union, combined with the United States' unchallenged position as the military and economic superpower of the world, has produced several calls for changing the national security strategy employed by the United States.

One proposed alternative is to maintain the structure and mission capabilities of the military, but reduce the overall size of the military and station most forces in CONUS. By retaining the ability to deploy overseas in a crisis, and threatening to punish any attacks on U.S. interests, the pull-back strategy is an attempt to maintain great power status without exerting great power effort. The flaws of such a strategy are obvious.

First, U.S. strategy would rest largely on deterrence, as the forces needed to defend U.S. interests would be located far from those interests. Secondly, when deterrence fails (as it should be expected to do), the U.S. response would be reactive, only able to address conditions after the fact. Quick-grab strategies thus would be encouraged among regional powers, who might judge that U.S. deployment was not credible to protect a less-than-vital U.S. interest. Third, the deployment of U.S. forces to a distant region could become a logistical problem too great to overcome, forcing the U.S. leadership to re-assess the choice of deploying at all. Thus the pull-back strategy is not viable for U.S. national security in the post-Cold War setting.

The second alternative is to return U.S. forces to CONUS, and rely on global air power and space surveillance to monitor and regulate events surrounding U.S. interests. Based on belief in RMA technologies and the long-standing doctrine of air power according to Billy Mitchell, air power

and space surveillance would replace physical presence with virtual presence, allowing a much smaller military to protect U.S. interests abroad.

While the B-2 bomber and emerging smart and brilliant weapons should provide a large improvement in U.S. warfighting capability, there is no basis in fact or common sense for believing that presence can exist through CONUS-based air power alone. The most serious flaw in the virtual presence concept is that it is wrongly applied to peacetime presence operations, in which visibility and sustainability are key. Virtual presence is more suitable for wartime operations, where stealth aircraft have proven their worth. However, by limiting U.S. options to accepting an adversary's actions or conducting a bombing campaign, virtual presence is wholly unsatisfactory as a peacetime presence strategy.

The third alternative is a return to the isolationism of the 1920s and 1930s. As there is no credible threat to the U.S. homeland, the forces of the United States should be brought home, and the United States should withdraw from world events. Based on the belief that what other states do and how they interact is their own business, and placing faith in fair market practices to ensure the availability of oil and resources, isolationism observes few if any U.S. interests besides the safety of U.S. citizens, territory, and democratic government.

Although isolationism perhaps resonates with the belief of many individuals in the philosophy of "live and let live," it is not appropriate for the interaction of nations, where no common understanding of acceptable norms or restraint on misbehavior exist. Events outside the United States do affect our safety and prosperity, a fact of life since the late 1940s, when the U.S. became a net energy importer. When combined with our economic dependence on the health of foreign economies, and the dependence of all modern industrial states on oil, the Persian Gulf by itself is sufficient to invalidate an isolationist posture.

The need for forward presence forces will continue in the post-Cold War world, just as it existed during the Cold War. While the threat has changed, and become perhaps more uncertain in its nature, the need to maintain U.S. military power in proximity to national interests is a lasting requirement in U.S. national security. Where the threat is well-defined and capable of striking out with little warning, as in Iraq or North Korea, land-based ground and air forces are appropriate for maintaining presence and defensive capability.

For dealing with the current uncertainty in the origin and location of threats to U.S. interests, however, land-based forces are at a distinct disadvantage. Forced to take position on the sovereign territory of another state, land-based forces must overcome political obstacles to their

deployment, political restraint on their freedom of action, and the political impact that their withdrawal might cause in the eyes of U.S. allies. While very valuable, indeed invaluable, towards the wartime end of the spectrum of operations, land-based forces are much less valuable in the peacetime presence operations, intended to hedge against uncertain threats, that comprise the great majority of U.S. military action abroad.

Naval forces, through their historical characteristics of global mobility and freedom of access in international waters, are the most useful in meeting uncertain threats, and of sustaining U.S. power near national interests. With over fifty years' experience in at-sea replenishment and logistical support, U.S. naval forces can take station in any of the world's seas, and maintain station for weeks or months, even years through the rotation of ships and battle groups.

This is presence--the permanent occupation of strategically important positions near U.S. interests, free to take any necessary action, subject only to the orders of the National Command Authority. With combat power, organic logistics, and command and control capability already present in underway battlegroups, deployed naval forces are essentially at full wartime readiness all the time, and can respond instantly to emerging crises. Naval forces offer the NCA a full range of options in crisis response, ranging

from non-combatant evacuations to limited military operations to wartime strikes. Operating in all mediums--on land, on and under the sea, in the air, and increasingly in space--naval forces are likely to possess the means of responding to any crisis that may occur in the littorals of the world.

While the international environment has changed dramatically with the demise of the Soviet Union, the fundamental need for sea power in U.S. security has not changed. Barring a truly revolutionary change in the laws of physics and aerodynamics as we understand them today, sea power will remain a constant necessity for the United States, regardless of the presence or absence of a peer-level threat. Through the continued deployment of U.S. naval forces to vital regions of the world, and through the ceaseless vigilance of U.S. naval forces in protecting U.S. national interests, the Navy-Marine Corps team will continue to be

. . .a safeguard unto the United States
of America, and a security for such as
pass on the seas upon their lawful
occasions.

--Book of Common Prayer;
Prayer for the Navy

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APPENDIX A

Table

1. Top 15 Importers to USA.....	377
2. Top 15 Destinations for US Exports.....	378
3. Comparison of Persian Gulf Forces.....	379
4. Comparison of Travel Times from Persian Gulf to Europe.....	380
5. US Navy Missions by Region.....	381
6. Proactive and Reactive Missions by Region.....	382
7. Events in the Persian Gulf 1987.....	383
8. Date, Location, Mission, and Involved Naval Forces, 1991-1998.....	386
9. MEU(SOC) Special Missions.....	389
10. Factors Affecting CVN Lifetime Costs.....	390
11. Comparison of Bomber and Carrier Responses to Crises.....	391
12. Comparison of Bomber and Carrier Mission Capabilities.....	393

Figure

1. Strait of Hormuz.....	394
2. Oil Shipments Through Strait of Malacca.....	395
3. Alternative East-West Routes to Malacca.....	396

Table 1

TOP 15 IMPORTERS TO THE UNITED STATES

Millions of Dollars	Totals	Percentage of Total
Total Imported Commodities	743,400	100
Total of Top 15 Trade Partners	593,900	79.9
1. Canada	145,100	19.5
2. Japan	123,600	16.6
3. Mexico	61,700	8.3
4. China	45,600	6.1
5. Germany	36,800	5.0
6. Taiwan	29,000	3.9
7. United Kingdom	26,900	3.6
8. South Korea	24,200	3.3
9. Singapore	18,600	2.5
10. Malaysia	17,500	2.4
11. France	17,200	2.3
12. Italy	16,500	2.2
13. Thailand	11,400	1.5
14. Hong Kong	10,300	1.4
15. Venezuela	9,700	1.3

Source: Kim Holmes and Thomas Moore. Restoring American Leadership: A U.S. Foreign and Defense Policy Blueprint. Washington, D.C.: The Heritage Foundation, 1996.

Table 2

TOP 15 DESTINATIONS FOR U.S. EXPORTS

Millions of Dollars	Totals	Percentage of Total
Total Exported Commodities	583,900	100
Total of Top 15 Trade Partners	439,200	75.2
1. Canada	126,000	21.8
2. Japan	64,300	11.0
3. Mexico	46,300	7.9
4. United Kingdom	28,800	4.9
5. South Korea	25,400	4.4
6. Germany	22,400	3.8
7. Taiwan	19,300	3.3
8. Netherlands	16,600	2.8
9. Singapore	15,300	2.6
10. France	14,200	2.4
11. Hong Kong	14,200	2.4
12. Belgium	12,500	2.1
13. China	11,700	2.0
14. Brazil	11,400	2.0
15. Australia	10,800	1.8

Source: Kim Holmes and Thomas Moore. Restoring American Leadership: A U.S. Foreign and Defense Policy Blueprint. Washington, D.C.: The Heritage Foundation, 1996.

Table 3
PERSIAN GULF FORCE LEVELS

<u>Country</u>	<u>Manpower</u>	<u>Tanks</u>	<u>Artillery</u>	<u>Aircraft</u>
Iran	518,000	1,390	2,000	300
Iraq	387,000	2,700	3,800	280
S. Arabia	105,000	1,000	300	336
UAE	64,000	225	225	100
Kuwait	15,300	225	60	76
Bahrain	11,000	100	40	24
Qatar	11,000	34	40	11

Source: Terence Taylor. The Military Balance 1997/98.
London: International Institute for Strategic
Studies, 1997.

Table 4

COMPARISON OF TRAVEL TIMES FROM THE PERSIAN GULF TO EUROPE

Persian Gulf to Europe Journey: SUMED vs. Cape Route

Time (Days)

To:	Rotterdam	Fos (France)	Augusta (Sicily)
VIA:			
Cape of Good Hope	42	41	42
SUMED*	29	22	20
Savings In Time (Days)	13	19	22

Distance (Nautical Miles)

To:	Rotterdam	Fos	Augusta
VIA:			
Cape of Good Hope	11,170	10,784	11,136
SUMED	6,213	4,499	3,870
Savings In Distance (Nautical Miles)	4,957	6,285	7,266

* Includes five days to offload oil at SUMED terminal, pump through SUMED pipeline, and re-load oil into tanker.

Source: The Suez Canal / SUMED Complex: Global Shipping and Trade Implications in the Event of Closure.
 Washington, D.C.: Office of Naval Intelligence,
 1996.

Table 5
US NAVY MISSIONS BY REGION

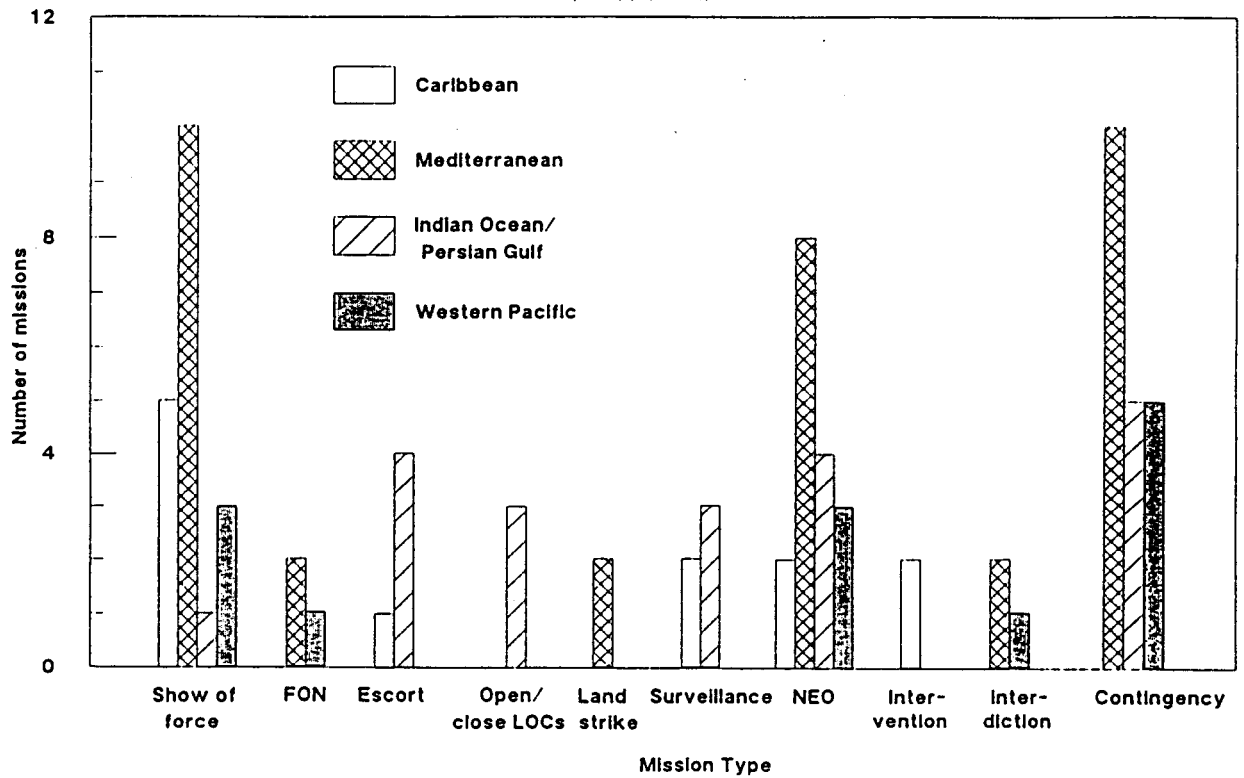


Table 6

PROACTIVE AND REACTIVE MISSIONS BY REGION

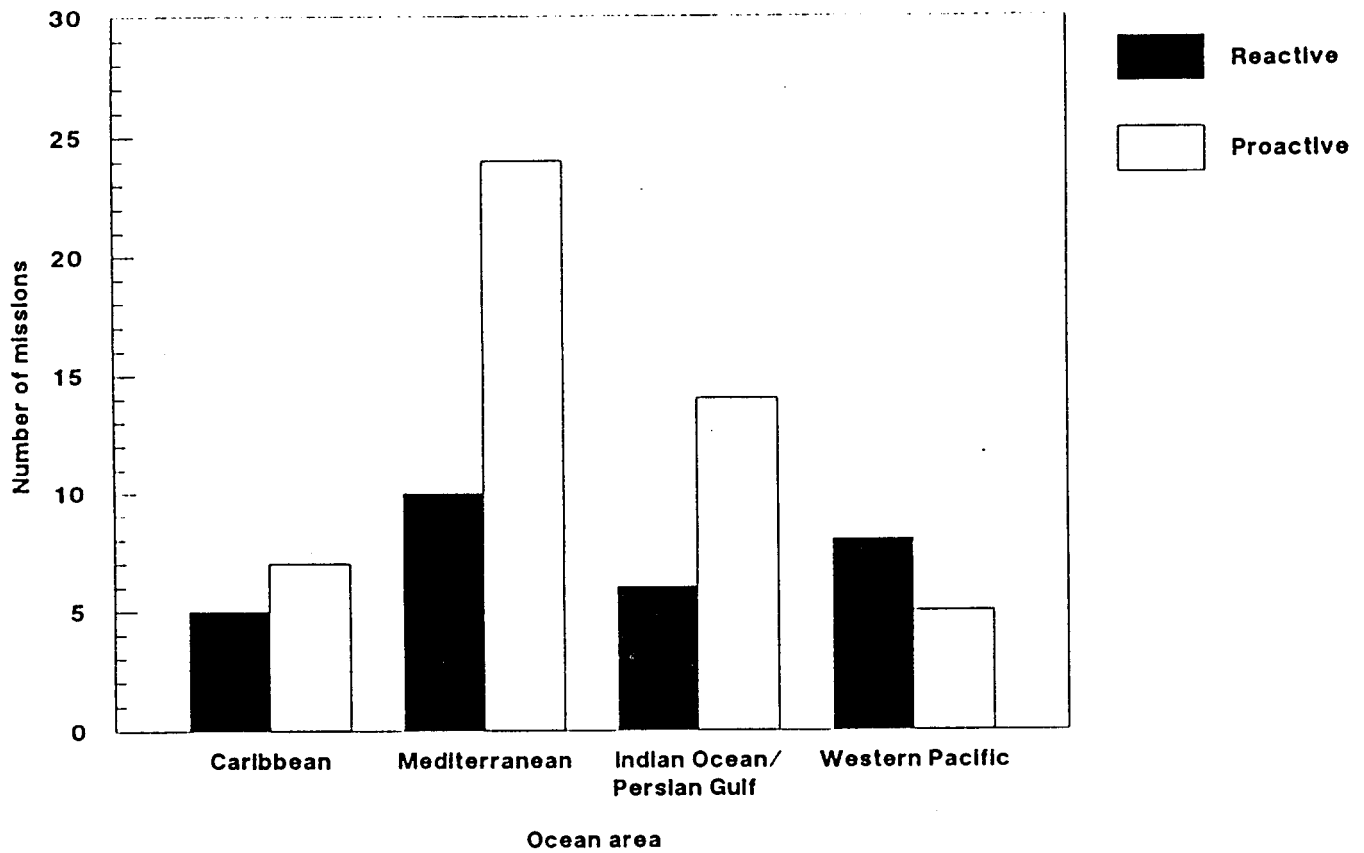


Table 7

EVENTS IN THE PERSIAN GULF 1987

17 May	Iraqi missile attack on USS <u>Stark</u> (FFG-31).
25 May	U.S. Navy warships escort a Kuwaiti-flagged freighter carrying U.S. arms to Bahrain.
21-22 Jul.	First U.S.-escorted convoy of reflagged Kuwaiti tankers, including SS <u>Bridgeton</u> , begins.
24 Jul.	<u>Bridgeton</u> hit and disabled by mine about 20 miles west of Farsi Island.
30 Jul.	U.S. Navy SH-3 Sea King helicopter crashes into the Gulf while trying to land aboard USS <u>La Salle</u> (AGF-3). Five are rescued: four die.
10 Aug.	F-14 Tomcat from USS <u>Constellation</u> (CV-64) fires two Sparrow missiles at radar blip thought to be Iranian F-4 showing hostile intent toward U.S. P-3 Orion maritime patrol aircraft. Neither missile hit any airborne object. The <u>Texaco Caribbean</u> , under charter to a U.S. firm, hits a mine outside of the Persian Gulf in the international anchorage off of Fujayrah. It was the first mine encountered outside the Gulf. Several more were detected over the next two days.
24 Aug.	The USS <u>Kidd</u> (DDG-993) fires warning shots across the bows of two dhows when they approach a U.S.-escorted convoy entering the Strait of Hormuz on its way into the Gulf. Later, an Iranian warship approaches the convoy. She is met by the USS <u>Jarrett</u> (FFG-33) and <u>Guadalcanal</u> (LPH-7). The Iranian ship turns away after the <u>Jarrett</u> moves between her and the convoy.
21 Sep.	U.S. frigate-based MH-6 Army special operations helicopters attack and capture the <u>Iran Ajr</u> , an Iranian landing craft being used for covert minelaying, about 50 miles northeast of Bahrain, in an anchorage used by ships before moving into oil-loading terminals. The next day, SEALs board the ship and take her in tow. Ten mines are found on board. Twenty-six Iranians are rescued:

Table 7 (continued)

three are reported killed and two are missing. A U.S. Navy frigate fires warning shots across the bow of an Iranian hovercraft that approached the ships towing the Iran Ajr.

3 Oct. Saudi fighter planes and naval forces reportedly turn back a force of about 60 Iranian speedboats heading toward the Saudi offshore oilfield at Khafji. Saudis reportedly alerted to speedboats by U.S. forces.

4 Oct. U.S. Navy helicopter crashes near the La Salle off Bahrain, killing one and injuring three.

8 Oct. U.S. frigate-based MH-6 helicopters attack four Iranian speedboats about 15 miles southwest of Farsi Island after one of the boats fired on a U.S. helicopter, sinking one and damaging and capturing two. U.S. forces pick up six Iranians, two of whom later die.

9 Oct. Defense Secretary Caspar Weinberger reports that parts for U.S.-made Stinger antiaircraft missiles were found on the two speedboats captured in the 8 October attack.

14 Oct. Administration reportedly rejects informal request from on-scene U.S. task force commander to come to aid of some non-U.S. flag ships under attack.

15 Oct. U.S.-owned, Liberian-flagged tanker Sungari, at anchor nine miles off Kuwait's Mina al-Ahmadi terminal, hit and damaged by Silkworm missile fired by Iran from Fao Peninsula. No casualties, but ship damaged.

16 Oct. Reflagged Kuwaiti tanker Sea Isle City, about ten miles off Mina al-Ahmadi, hit and damaged by Silkworm missile fired by Iran from Fao Peninsula. Eighteen injured, including U.S. master, and ship damaged.

19 Oct. In response to 16 October missile attack, U.S. destroyer and SEALs shell and blow up Iranian oil platform east of Bahrain, and destroy electronic equipment on nearby platform.

1 Nov. U.S. frigate fires machine guns at night on boat believed to be Iranian speedboat making hostile high-speed run at U.S. Military Sealift Command cargo ship Patriot as she was being escorted out of the Gulf near the Strait of Hormuz. Boat later discovered to be United Arab Emirates

Table 7 (continued)

fishing vessel: one Indian fisherman killed: three others on board injured. U.S. Government expresses regret for incident.

12 Dec. Helicopters from the USS Chandler (DDG-996) evacuate 11 people from the Cypriot-registered tanker Pivot after the tanker was attacked by Iranian speedboats. A helicopter chartered by CBS News evacuates another 29.

23 Dec. Norwegian-flagged oil tanker attacked by Iranian forces reportedly turns down offer from U.S. Navy helicopter to help evacuate crew.

24 Dec. Iranian speedboat fires shots at U.S. frigate-based helicopter, perhaps only to warn it away, when helicopter flies to investigate Liberian-flagged tanker attacked by Iranian speedboats.

25 Dec. U.S. Navy helicopter evacuates 11 people from South Korean-flagged freighter Hyundai attacked by Iranian frigate about 20 miles northeast of Sharjar, near Abu Musa Island. A helicopter from a British frigate evacuates another nine.

Source: Ronald O'Rourke. "The Tanker War." Proceedings Naval Review (May 1988): 33.

Table 8

DATE, LOCATION, MISSION, AND INVOLVED NAVAL FORCES
1991 - 1998

<u>Dates</u>	<u>Location-Operation</u>	<u>U.S. Naval Forces</u>
Jan. 1991	Somalia-NEO	USS Guam ARG USS Trenton ARG USMC Force Recon, SEALs
Jan. 1992- -1998	S. Iraq-No Fly Zone Enforcement; Maritime Intercepts	CVBGs SAGs
Dec. 1992	Somalia-humanitarian	USS Ranger CVBG USS Tripoli ARG 15th MEU(SOC)
Jul. 1993- -1997	Adriatic/Balkans- No Fly Zone enforcement; Maritime Intercepts	CVBGs ARGs MEU(SOC)s
Jan. 1993- -Mar. 1994	Somalia-humanitarian	CVBGs ARGs
Jan. 1993	Iraq-carrier strikes	USS Kitty Hawk CVBG
Jun. 1993	Iraq/Red Sea-Tomahawk missile strikes	USS Peterson USS Chancellorsville USS Roosevelt CVBG
Oct. 1993	Somalia-response to increasing casualties	USS America CVBG USS Guadalcanal ARG
Nov. 1993- -Aug. 1994	Haiti-UN blockade	ARGs SEALs
Apr.-Aug. 1994	Rwanda-relief/NEO	USS Peleliu ARG 11th MEU(SOC) USS Tripoli ARG 15th MEU(SOC)

Table 8 (continued)

<u>Dates</u>	<u>Location-Operation</u>	<u>U.S. Naval Forces</u>
Sep. 1994	Haiti-intervention	USS Eisenhower CVBG USS Wasp ARG
Oct. 1994	Iraq/Red Sea- deterrence; support for Kuwait	USS Washington CVBG USS Tripoli ARG 15th MEU(SOC)
Oct. 1994- Mar. 1995	Haiti-nation building	Military Sealift Command
Feb.-Mar. 1995	Somalia-withdrawal of UN forces	USS Belleau Wood ARG USS Essex ARG
Jun. 1995	Adriatic Sea-rescue of Captain Scott O'Grady	USS Roosevelt CVBG USS Kearsarge ARG 24th MEU(SOC)
Aug.-Sep. 1995	Adriatic Sea-Bosnia strikes	USS Roosevelt CVBG USS America CVBG USS Kearsarge ARG
Aug. 1995	Iraq/Red Sea- deterrence; support for Kuwait	USS Lincoln CVBG USS New Orleans SAG
Dec. 1995- Dec. 1996	Adriatic/Balkans- Dayton Peace Accords enforcement	CVBGs ARGs
Mar. 1996	China/Taiwan-freedom of navigation ops; deterrence	USS Independence CVBG USS Nimitz CVBG
Sep. 1996	Iraq-carrier strikes	USS Carl Vinson CVBG
Mar.-Jun. 1997	Adriatic-NEO; embassy security	USS Nassau ARG 26th MEU(SOC)
Apr.-May 1997	Eastern Atlantic- standby off Zaire to conduct NEO	USS Nassau ARG 26th MEU(SOC) USS Kearsarge ARG 22nd MEU(SOC)

Table 8 (continued)

<u>Dates</u>	<u>Location-Operation</u>	<u>U.S. Naval Forces</u>
Jun. 1997	West Africa- humanitarian	USS Kearsarge ARG 22nd MEU(SOC)
Oct. 1997- 1998	Iran/Iraq/Arabian Gulf-deterrence; support UNSCOM	USS Nimitz CVBG USS Washington CVBG USS Independence CVBG USS Peleliu ARG 13th MEU(SOC) USS Guam ARG 24th MEU(SOC)

Source: Vision, Presence, Power: A Program Guide to the U.S. Navy 1998 Edition. Washington, D.C.: Department of the Navy, 1998

Table 9

MEU(SOC) SPECIAL MISSIONS

1. Noncombatant Evacuation Operations
2. Humanitarian Assistance
3. Civic Actions
4. Clandestine Reconnaissance/Surveillance
5. In-Extremis Hostage Rescue
6. Initial Terminal Guidance
7. Mobile Training Teams
8. Maritime Interdiction
9. Seizure/Destruction of Offshore Oil Rigs
10. Limited Objective Attacks
11. Tactical Recovery of Aircraft and Personnel
12. Deception Operations
13. Security Operations
14. Specialized Demolition
15. Show of Force Operations
16. Electronic Warfare
17. Amphibious Raids
18. Operations in Urban Terrain
19. Counter-Intelligence Operations
20. Reinforcement Operations
21. Fire Support Control

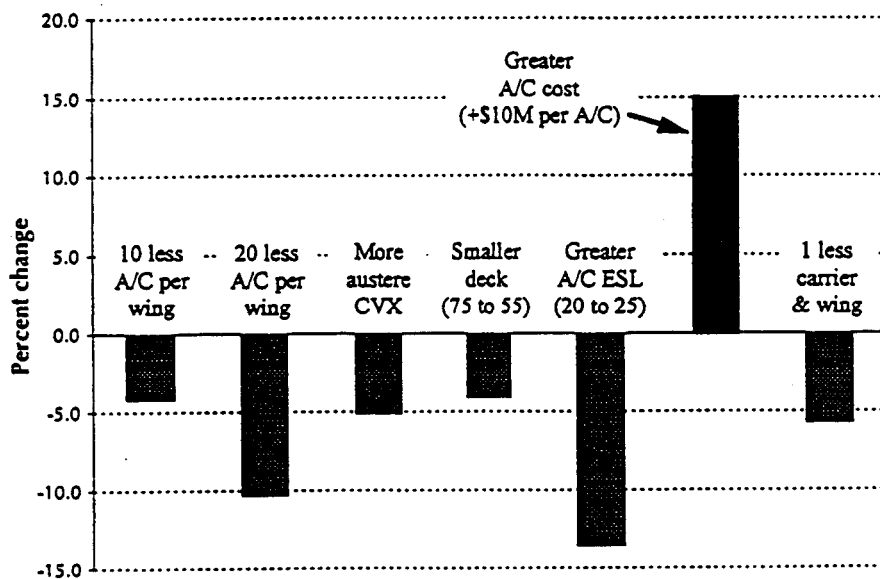
Source: Captain Neil Carns and Captain Stanton Coerr. "A True Force In Readiness." Proceedings (August 1994): 35.

Table 10

FACTORS AFFECTING CVN LIFETIME COSTS

Preliminary data

How 7 variables affect the percent change in average annual CVW APN(1-4) plus CVX SCN



Preliminary data

Source: John Hall. Long-Term Affordability of Sea-Based TACAIR: Some Preliminary Examples. Alexandria, VA: Center for Naval Analyses, 1997.

Table 11

COMPARISON OF CARRIER AND BOMBER RESPONSES TO CRISES

CVBG Responses to Crises Since the Vietnam War

Year	Crisis	CVs	Year	Crisis	CVs
1974	Cyprus	2	1983	Iran-Iraq	1
1975	Cyprus Unrest	1	1983	Korea-Burma	1
1975	Eagle Pull, Cambodia	1	1983	Grenada	1
1975	Frequent Wind, Viet.	4	1983	Syria	1
1975	Mayaguez	2	1984	Central America	1
1975	Lebanon	1	1984	Persian Gulf	1
1976	Kenya-Uganda	1	1984	Saudi Hijacking	1
1976	Korean Tree Incident	1	1984	Cuba	1
1977	Uganda	1	1985	U.S. Pers. in Lebanon	1
1978	Ogaden War	1	1985	TWA 847 Hijacking	1
1978	Afghanistan	1	1985	Achille Lauro	1
1978	Iranian Revolution	1	1985	Egypt Air Hijacking	1
1979	China-Vietnam	1	1986	OVL-FON Ops	3
1979	Yemen	1	1986	La Belle Disco, Libya	2
1979	Soviet Troops in Cuba	1	1986	Pakistan Hijacking	1
1979	Afghan/Iran Hostages	2	1987	Persian Gulf Ops	2
1979	Park-Chung Hee	1	1987	Hostages in Lebanon	1
1980	Korea	1	1988	Summer Olympics	2
1980	Iran-Iraq War	2	1988	Maldives Coup	1
1981	Syria	2	1989	Lebanon Civil War	1
1981	Libya	2	1989	Panama Elections	1
1981	Sadat-Sudan	1	1989	China Civil Unrest	1
1981	Central America	2	1989	Hostages in Lebanon	2
1982	Israeli Invasion	1	1989	Philippines	2
1982	Peacekeeping Force	2	1990	Operation Desert Shield	3
1982	Palestinian Massacre	2	1991	Operation Desert Storm	6
1983	Libya-Sudan	1	1992	Op. Southern Watch	1
1983	Honduras	1	1993	Somalia	1
1983	Libya-Chad	1	1993	Op. Southern Watch	1
1983	Marine Barracks Bomb	2	1993	Operation Deny Flight	1

(Source: CNA Research Memorandum 90-246)

Source: David Perin. Comparing Long-Range Bombers and the Carrier Force. Alexandria, VA: Center for Naval Analyses, 1994.

Table 11 (continued)

COMPARISON OF CARRIER AND BOMBER RESPONSES TO CRISES

Bombers in Presence Missions, Combat, and Shows of Force Since the Vietnam War

(Source: The USAF and National Security, SAF/OSX 1991)

- AUG 76 "Following the murder of two army officers, . . . B-52s flew training missions along the DMZ to underscore U.S. concern."
- JAN 80 "B-52s overflew Soviet naval vessels in the Arabian Sea to demonstrate U.S. power-projection capabilities."
- OCT 81 "During Bright Star 82, . . . two B-52Hs [flew] a nonstop mission from North Dakota to a simulated runway target in Egypt."
- DEC 81 "In show-of-force missions in response to mobilization of North Korean forces, B-52 sorties were flown along the border."
- AUG 90 16 B-52s deploy to Diego Garcia in response to Iraqi invasion.
- JAN 91 70 B-52s fly combat missions in Operation Desert Storm.

Source: David Perin. Comparing Long-Range Bombers and the Carrier Force. Alexandria, VA: Center for Naval Analyses, 1994.

Table 12

COMPARISON OF BOMBER AND CARRIER MISSION CAPABILITIES

Tasks in Peacetime and Crises

<u><i>Mission/Task</i></u>	<u><i>CVBGs</i></u>	<u><i>Bombers</i></u>
• Promote regional stability (e.g., routine deployments)	Yes	No
• Protect people and property (e.g., Iran hostage rescue)	Yes	No
• Make a show of force (e.g., Gulf of Libya ops)	Yes	Some
• Protect, quarantine, interdict sea/air traffic (e.g., Earnest Will convoy operations and capture of the <i>Achille Lauro</i> hijackers)	Yes	No
• Forestall/respond to hostile or terrorist acts (e.g., strike Libya)	Yes	Yes
• Intervene in conflicts (e.g., Grenada)	Yes	Some

Source: David Perin. Comparing Long-Range Bombers and the Carrier Force. Alexandria, VA: Center for Naval Analyses, 1994.

Figure 1
STRAIT OF HORMUZ

Strait of Hormuz



Note: Shipping lane boundaries are marked.

Source: Hans Binnendjik and Patrick Clawson. Strategic Assessment 1997: Flashpoints and Force Structure. Washington, D.C.: NDU Press, 1997.

OIL SHIPMENTS THROUGH THE STRAIT OF MALACCA

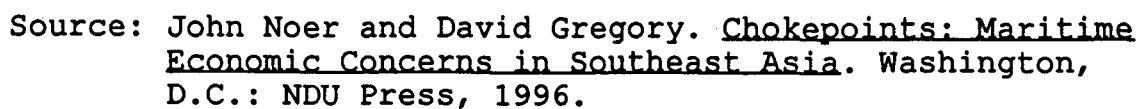
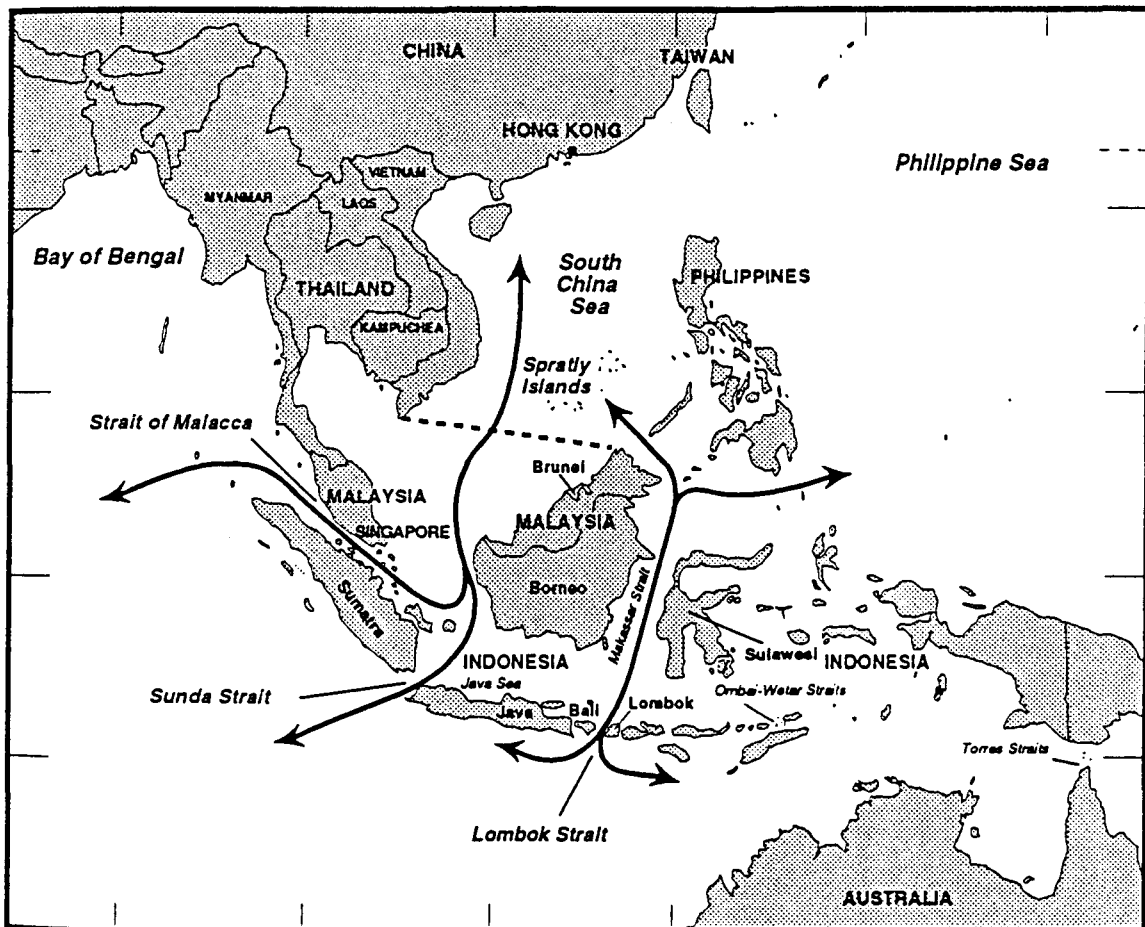


Figure 3

ALTERNATIVE EAST-WEST ROUTES TO MALACCA



Source: John Noer and David Gregory. Chokepoints: Maritime Economic Concerns in Southeast Asia. Washington, D.C.: NDU Press, 1996.

APPENDIX B

IRAN: A CASE STUDY OF THE KEEP-OUT STRATEGY

The Persian Gulf is the region of greatest importance to the United States, by virtue of its oil supplies. Persian Gulf oil supplies the economies of Europe and Asia with the majority of their energy needs, and is projected to grow in importance in the future. While U.S. dependence on Persian Gulf oil is relatively low, the U.S. economy depends on the health of its trading partners, making the secure flow of oil from the Gulf a vital national interest.

The Islamic Republic of Iran, once a solid U.S. ally in the Persian Gulf, has become one of the United States' most bitter opponents since the 1979 Islamic Revolution. Although militarily exhausted at the end of the Iran-Iraq war in 1988, Iran's position astride the Strait of Hormuz provides Iran the means to block a critical SLOC with minimal force. By slowing or stopping the shipment of oil through Hormuz, Iran could threaten the economic health of Europe, Asia, and indirectly the United States.

The ability to disrupt the flow of oil to the industrialized economies of the world provides Iran with leverage for meeting political goals within the Gulf region. Thus it is reasonable to expect that Iran has plans for

interdicting the Strait, either partially or totally. The systems and capabilities being acquired by Iran will be described in the following pages, along with the likely strategy Iran would use in a confrontation with the United States.

Iran has been engaged in a military rebuilding program since 1988, when the Iran-Iraq War ended. Since that time Iran has acquired a wide variety of weapons systems, primarily from Russia and China. Although Iran's purchases have gone into every area of its armed forces, the main focus of Iran's efforts have been made in two areas: naval systems and ballistic missiles.

The nature of the systems Iran has acquired provide a good indication of the strategy Iran appears to be pursuing. After faring poorly against U.S. naval forces in 1987-1988, Iran now appears to be developing the capability to close down the Strait of Hormuz, using naval weapons and forces tailored towards sea denial rather than conventional combat. Given Iran's position astride the full length of the Strait, such a strategy is entirely logical.

By following a strategy of sea denial, Iran is relieved of the need to be able to meet the U.S. Navy--clearly Iran's main adversary--on the open waters of the Persian Gulf or the North Arabian Sea, where the ships and aircraft of the U.S. Fifth and Seventh Fleets would enjoy tremendous advantages in surveillance, targeting, firepower,

air superiority, and tactical coordination. Sea denial requires only that Iran be able to prevent the adversary from transiting the Strait, a task Iran can meet largely from positions ashore. For a nation with no hope of matching even the 5th Fleet, let alone the entire U.S. Navy, in traditional naval combat power, sea denial provides the means to turn a geographical advantage into a military advantage.

For much of its length the Strait is only thirty-three miles wide, with the main shipping channels occupying the center of the Strait. Given this limited width, Iran can easily observe and monitor all surface ships passing through the Strait, even if limited to using optical surveillance systems. Iran also holds four islands located in the middle of the Strait, providing ideal observation positions. In addition, possession of the north shore of the Strait allows Iran to construct, fortify, and camouflage positions for anti-ship missiles, observation posts, SAMs, and ordinary artillery pieces. In order to block the Strait, Iran has turned to the traditional weapons of sea denial, the mine and the submarine, and added to these the anti-ship missile.

Iran has purchased several thousands of mines, some of them advanced influence and rising mines. The most common mine type in Iran's inventory is the contact mine, a weapon scarcely changed since World War One. These mines can be free-floating, allowing them to drift along on the current,

or can be moored to float on or just below the surface. In either case, the mine must be struck by a passing ship in order to detonate. Although technologically crude, such mines are effective and inexpensive.¹ The production of contact mines is well within the capability of virtually any nation, and certainly within Iran's capability, allowing Iran to deploy very large numbers of contact mines.

Influence mines are much more capable than contact mines, and are more suited to use in deep water.² The Chinese EM-52 mine is one example of the influence mines in Iran's possession. Iran reportedly has received 1,800 influence mines as part of its ongoing purchases from Russia.³ Iran gained much operational experience in the use of mines during the Iran-Iraq War, in which Iranian mines were employed to attack the oil shipments of Iraq's financial supporters, Saudi Arabia and Kuwait.

The other sea denial weapon, the submarine, had not been present in the naval forces of the Gulf states until Iran's purchase of three Russian Kilo-class diesel-electric

¹Lyons et. al., The Mine Threat: Show Stoppers or Speed Bumps, 1.

²USS Princeton (CG-59) was badly damaged by an Iraqi influence mine. Ibid.

³James Bruce, "Choking the Strait: Iranian naval firepower and the threat to Gulf shipping," Jane's Intelligence Review (September 1996): 411.

boats.⁴ The Kilo is a very quiet submarine when submerged, a quality that is enhanced by the acoustic nature of the Gulf.⁵ The constant shipping traffic through the Gulf, and particularly the Strait, provides an ideal noise level for a quiet submarine to hide in. The Gulf also has a very strong thermal layer that would impede sonar searches by surface ships.⁶

The Kilo carries eighteen 533mm torpedoes, which are thought to be wake-homing Russian models.⁷ In addition, the Kilo can lay as many as thirty-six mines while submerged, providing the capability for covert deployment of minefields.⁸ Although Iran is unlikely to get anything approaching full effectiveness from its Kilos, the ability to lay mines while submerged is a valuable attribute by itself.⁹

⁴The Kilos were purchased in 1992, 1993, and 1996. "Iran Bolsters Its Fleet With 3rd Russian Sub," New York Times, 20 January 1997, A5.

⁵Robert Holzer, "Iran's Kilo Sub Buys Prompt Surge in ASW Demand," Defense News, 9-15 June 1997, 36.

⁶James Kraska, "Gatekeepers of the Gulf," Proceedings (March 1994): 45.

⁷Taylor, The Military Balance 1997 / 98, 126.

⁸Ed Blanche, "Iran's naval forces: a shadow across the Gulf?" Jane's Navy International (March 1997): 14.

⁹Any warship is a large concentration of complex systems, a submarine doubly so. Each system requires a well-trained operator in order to function properly. Simply mastering the techniques of diving the boat will require

To complement its mines and submarines, Iran has invested heavily in anti-ship missiles (SSMs). Iran has acquired several different types of SSM, all of which are believed to be capable of shore or ship launch. Iran has also fired at least one type, the C-802, from an F-4 aircraft.¹⁰ While all are capable of doing serious damage to a warship, the most capable of Iran's SSMs is the SS-N-22 Sunburn, reportedly purchased from Ukraine in 1993.¹¹ The Sunburn travels at nineteen hundred mph, can home on the electronic emissions of the target ship, and has its own radar seeker. It performs evasive S-turns during the final seconds before impact, and carries a three hundred kg warhead. In comparison, the Exocet missile that nearly sank USS Stark carries a 165kg warhead. The Sunburn's range is estimated at ninety kilometers.¹²

lengthy training of Iranian crews. Additionally, maintenance takes on special importance when the equipment involved is expected to dive safely beneath the ocean, and Iran's history of maintaining its systems is poor. In the words of Seth Carus, "Few military instruments are as difficult to use well as submarines." Seth Carus, "Iran as a Military Threat," Strategic Forum 113 (May 1997): 3.

¹⁰Ed Blanche, "Air-to-surface missiles 'give Iran 360 capability'," Jane's Defense Weekly, 25 June 1997, 3.

¹¹Whether or not the Ukrainian missiles were in fact SS-N-22s is disputed. See Steven Zaloga, "Russia's Moskit anti-ship missile," Jane's Intelligence Review (April 1996): 155.

¹²Ibid.

Iran's oldest SSM is the Chinese HY-1 Silkworm. The Silkworm is a first-generation SSM, thought to be relatively inaccurate.¹³ However, Iran is believed to possess more than three hundred Silkworms, allowing high-volume attacks. Furthermore, all of Iran's Silkworms are deployed in shore batteries, rather than at sea.¹⁴ Whether in mobile launchers or permanent, hardened launchers, shore-based Silkworms likely would be more survivable than ship-mounted missiles. Iran has the luxury of deploying missiles ashore due to the need only to fire on ships in the Strait.

Another Iranian SSM is the HY-2 Seersucker, also known as the CSSC-3 or C-801 Sardine. It is thought to be an improved version of the Silkworm. Iran possesses one hundred Seersuckers, which are deployed in shore batteries along the Strait and on Sirri Island.¹⁵

The C-802 Saccade is Iran's most flexible missile. It can be launched from shore batteries, from fast attack craft (FAC), or from aircraft. The Saccade is carried on Iran's Kaman-class and Hudong-class FAC, and has been launched from F-4 aircraft on at least two occasions. It has a range of 120 km and carries a seven hundred kg warhead, over four

¹³Philip Finnegan, "U.S. Confronts Middle East Challenges," Defense News, 16-22 September 1997, 3.

¹⁴Blanche, "Iran's naval forces," 21.

¹⁵Ibid.

times larger than the Exocet warhead that sank HMS Sheffield.¹⁶

SSMs are a particular hazard in a confined seaway like the Strait, due to the short reaction time afforded to target ships. Fired from shore at a target twenty miles out in the channel, a six hundred mph Silkworm would reach its target in two minutes. A nineteen hundred mph Sunburn would cover the same distance in forty seconds. The target ship thus could come under attack without warning, as Iranian shore batteries likely would not need to employ radar to search for targets. Unlike the Stark, which tracked an inbound Iraqi fighter for over an hour before being fired on, ships in the Strait could have their response time measured in seconds.¹⁷

The large warheads on Iranian SSMs make them a significant danger to any ship. Modern warships have shown a remarkable susceptibility to critical damage from a single hit, especially in regard to their electrical systems. HMS Sheffield (Exocet missile) and USS Princeton (influence mine) were rendered dead in the water almost immediately

¹⁶Bruce, "Choking the Strait," 414.

¹⁷The Stark first received radar data from USS Coontz (DDG-40) via the Navy Tactical Data System at 2000 local time. The Stark acquired the Iraqi plane at 2058 and tracked it until 2107, when the second of two Exocet missiles was fired. See Vlahos, "The Stark Report," 64.

after being struck. The Princeton was without electrical power to her radar and fire control for over two hours before being towed to Bahrain, while the Sheffield was lost while under tow six days after being hit.¹⁸

In order to take advantage of the confined nature of the Strait, Iran has built up a force of twenty FAC, each armed with four SSMs. These craft are small enough to conceal themselves along Iran's coastline, waiting for passing targets before dashing out at high speed to attack. In addition to their small size, their speed would make them difficult targets for U.S. weapons.¹⁹ Iran's ten Kaman-class boats can carry four C-801 Seersucker or C-802 Saccade missiles, while the ten Hudong-class carry only the latter.²⁰

These craft would need to fire from short range due to their lack of long-range search radars, so they would not be survivable in the open for long periods. It is possible that target data could be supplied to the FAC by other units, or they could launch with bearing-only information. Given the narrow nature of the Strait, the need to launch

¹⁸Max Hastings and Simon Jenkins, The Battle for the Falklands (New York: W.W. Norton & Company, 1983), 153; Gordon and Trainor, The Generals' War, 345.

¹⁹Kraska, "Gatekeepers of the Gulf," 45.

²⁰Taylor, The Military Balance 1997 / 98, 126.

from close range is not as significant a disadvantage as it would be on the open sea.

Ballistic missiles have shared top priority with naval systems in Iran's re-arming program. Both as a political weapon and as a military weapon, ballistic missiles serve Iran's purposes by providing the means to launch long-range attacks from Iranian soil. The Iranian Air Force is incapable of penetrating a modern air defense network, or even the fighter CAP of a carrier air wing, so Iran needs other means of conducting such attacks. Ballistic missiles provide the means.

Ballistic missiles allow Iran to strike targets that would normally be assigned to deep-strike aircraft. These include logistical targets, such as Gulf airfields and ports, tactical targets, such as force concentrations or ship formations, and strategic targets, such as civilian population centers. The ability to deliver NBC warheads with ballistic missiles offers the additional option of blackmail, by threatening to attack the population centers of any state providing assistance or access to its facilities to U.S. forces.

The primary missile in Iran's inventory is the SCUD, produced in China and North Korea. Iran possesses one hundred SCUD-B and one hundred SCUD-C missiles, and is

believed to be capable of producing SCUD-Bs indigenously.²¹ Iran is known to have ten launchers for SCUD missiles, but may have produced more.²²

The SCUD-B has a range of three hundred km and a payload of one thousand kg. While it is not an accurate missile (CEP is estimated between one thousand and fifteen hundred meters), it can deliver NBC warheads sufficiently close to intended targets to be effective. It obviously has the accuracy to strike cities, as demonstrated in 1991 by Iraqi SCUDs.²³ The SCUD-C is an improved SCUD-B, possessing greater accuracy and range at the expense of a slightly smaller payload. The five hundred km range of the SCUD-C threatens most Saudi airfields and all Gulf ports. CEP is estimated between 750-1,000 meters, while payload is seven hundred kg.²⁴

Iran has an additional capability in its SA-2 and SA-6 SAMs. Both of these missiles are capable of being fired in a ballistic mode, and include in their operating manuals the steps for doing so. The SA-2 has a range of 150 km and a payload of 190 kg, while the SA-6 has a range of 160 km and

²¹Proliferation: Threat and Response, 16.

²²Taylor, The Military Balance 1997 / 98, 126.

²³Carus, "Iran as a Military Threat," 2.

²⁴Ibid.

a payload of eighty kg. With such small warheads, both missiles clearly are more suited to delivering NBC warheads than conventional warheads.²⁵ The fact that Iran has stockpiled chemical artillery shells on Abu Musa suggests that the SA-6 SAMs stationed there may be intended as NBC platforms.²⁶

Iran was believed to be pursuing the North Korean Nodong missile, which has a one thousand km range. However, the 1994 Agreed Framework between the United States and North Korea specified that the Nodong not be sold to Iran. North Korea thus far has observed at least this portion of the agreement and has not sold the Nodong to Iran.²⁷

Of greater significance are four new missiles Iran is believed to be developing indigenously. With Russian assistance, Iran reportedly has been developing missiles with ranges of thirteen hundred km, two thousand km, forty-five hundred km, and ten thousand km. Israeli intelligence officials have stated that Russian SS-4 and SS-23 technology has reached Iran, a claim supported by The Proliferation

²⁵Hough, "Iranian Intentions: The Strait of Hormuz or Beyond?" 454; Carus, "Iran as a Military Threat," 2.

²⁶Barbara Starr, "CW stockpile 'a threat to Straits of Hormuz'," Jane's Defense Weekly, 1 April 1995, 3.

²⁷Alan George, "US outlines Iranian threat," The Middle East (January 1997): 16.

Primer.²⁸ Recent articles in the *Jerusalem Post* and *Defense News* describe the Shihab-3 missile as having a thirteen hundred km range and a seven hundred kg payload. The Shihab-3 is believed to be an attempted copy of the Nodong. The Shihab-4, based on the Russian SS-4, is believed to have a range of two thousand km and a payload of over one thousand kg.²⁹

The other two developmental missiles are believed to have ranges of forty-five hundred km and ten thousand km. The first is believed to be in early prototype development, while the second is believed to be at least ten years from completion.³⁰ If Iran continues to receive Russian assistance, it could field one or both of these missiles in the next decade.

With a forty-five hundred km missile Iran would threaten most of Western Europe, including Paris, Berlin, Rome, Athens, and other NATO cities. With a ten thousand km missile Iran would threaten virtually the entire world, as only northeastern Russia, Canada, and Alaska would be out of

²⁸Barbara Opall, "Israelis Say Russia Aids Iran's Quest For Missiles," Defense News, 10-16 February 1997, 1.

²⁹Rodan, "Iran's missiles able to hit Israel in 18 months," 1.

³⁰Yossef Bodansky, "Iran's New Ballistic Missiles," Defense & Foreign Affairs' Strategic Policy (May / June 1997): 6.

range. The ability to produce such missiles indigenously would be of great importance to Iran, even if the actual date of deployment is many years in the future. Dependence on outside sources places Iran's ability to acquire missiles at the mercy of the provider. As with North Korea, Iran could find a prospective source unwilling to sell missiles due to political pressure from the United States. Whether missile production is within Iran's technological capability remains to be seen, but Steve Rodan's articles and the statements by Israeli intelligence sources suggest that Iran has made significant progress in this endeavor.

The leverage provided by ballistic missiles is maximized if those missiles can be used to deliver NBC warheads to various targets. Both in terms of political blackmail, in which the extreme vulnerability of large populations to chemical and biological agents is a lasting vulnerability, and in terms of military attacks on large logistical and support facilities, which are indispensable to U.S. warfighting capability, NBC weapons are a great equalizer for smaller states such as Iran. Not surprisingly, Iran has a robust chemical weapons capability, a strongly suspected biological weapons capability, and an all but publicly acknowledged nuclear weapons program:

Iran has placed a high priority on possessing NBC weapons and missiles since Tehran's defeat in the Iran-Iraq war in 1988. Iran has an adequate technological base to support chemical agent and missile production activities and a biotechnical

structure capable of supporting the production of biological agents. Nevertheless, Iran is attempting to expand its current technological base to achieve self-sufficient production in all phases of NBC weapons and delivery systems. In the nuclear weapons arena, Iran is attempting to acquire an indigenous capability to produce weapons-grade fissile material.³¹

As mentioned earlier, the use of ballistic missiles to deliver NBC weapons would allow Iran to conduct both military and political blackmail operations. While Iran's NBC programs pre-date the 1991 Gulf War, one of the lessons of that war is the overwhelming nature of American conventional capability. Iran therefore may have reached the conclusion that NBC weapons are required to offset U.S. conventional capability.³² NBC weapons also provide Iran the means to blackmail neighboring states, by holding the populations of those states hostage in order to gain leverage over U.S. access to regional facilities.

Of Iran's NBC programs, its chemical weapons are considered the most threatening at present, and much has been written about the size and composition of Iran's chemical inventory. It is believed that Iran has produced at least several hundred tons of blister, blood, and choking agents, and has weaponized at least some of those agents.³³

³¹Proliferation: Threat and Response, 13.

³²Weaver and Glaes, Inviting Disaster, 9.

³³Proliferation: Threat and Response, 15.

A Washington Times article, citing a classified U.S. intelligence report, gives a much larger estimate of Iran's chemical stockpile:

U.S. intelligence officials say Iran has a stockpile estimated to include up to 2,000 tons of blister, choking, and nerve agents. The agents include sarin nerve gas and mustard gas, deployed in aerial bombs, artillery shells, mines, mortars, and *short-range missile warheads (italics mine)*.³⁴

Iran also is believed to have received assistance from China in establishing the infrastructure needed for the production of chemical weapons, such as glass containers for storage and transportation.³⁵ Many chemicals with pharmaceutical or agricultural application can be converted to useful chemical weapons. Iran's chemical program thus could be larger than the official estimates mentioned earlier. Iran's efforts to acquire additional chemical capability have extended to such unlikely sources as Israel and the United States, where individual citizens have been arrested and charged with selling chemical ingredients to Iran.³⁶

³⁴Bill Gertz, "China aided Iran chemical arms," Washington Times, 30 October 1997, 1.

³⁵Bill Gertz, "U.S. conceded China still aiding Iran," Washington Times, 31 October 1997, 13.

³⁶"Israeli Held In Iran Traffic In Nerve Gas," New York Times, 7 May 1997, A10; "2 Accused of Plotting Iran Chemical Deal," New York Times, 25 January 1997, 8.

In contrast to Iran's chemical programs, little concrete evidence exists concerning Iran's biological programs. Given the ease with which biological weapons can be produced and stored, lack of knowledge concerning Iran's biological weapons is not surprising. Any nation with biological expertise can easily produce biological weapons in secret, as their production does not require large facilities or staffs.³⁷ While there is little evidence concerning Iran's biological weapons, there is a consensus among U.S. officials that such a program exists.

The U.S. Arms Control and Disarmament Agency's 1996 report, "Adherence To and Compliance With Arms Control Agreements," made the following statements concerning biological weapons:

China, Syria, Iraq, Iran, Egypt, Libya and Russia either retain, or are trying to obtain, the capability to produce biological weapons . . . All have signed the 1972 Biological and Toxin Weapons Convention. . . . Biological weapons represent a threat that could rival nuclear warfare in number of casualties. An anthrax-loaded SCUD missile, for example, could kill 100,000 people in an urban area. . . . Iran probably has produced BW agents and apparently has weaponized a small quantity of those agents.³⁸

³⁷Dr. Kathleen Bailey, seminar comments, 23 October 1997, Southwest Missouri State University.

³⁸Jeff Erlich, "U.S. Experts Cite Weakness of Biological War Treaty," Defense News, 25-31 August 1997, 6.

In addition to its CW and BW programs, Iran is believed to have an extensive program underway to develop nuclear weapons. In the event of Iran attaining nuclear capability, the leverage gained by Tehran over Gulf neighbors would be tremendous.³⁹ Iranian nuclear capability also would make any U.S. decision to intervene in a Gulf conflict more difficult.

Iran's nuclear program is generally estimated to be several years away from fruition, as little as one year or as many as ten years depending on the source.⁴⁰ Iran is believed to be pursuing nuclear weapons both through its nuclear power industry, and through attempts to purchase components, fissile material, and finished weapons from outside sources. Since Iran is a signatory to the Nuclear Non-Proliferation Treaty, it is able to utilize atomic energy in nuclear power plants under the guidance of the International Atomic Energy Agency (IAEA). Such plants produce plutonium in the form of spent fuel rods, which can then be processed into weapons-grade material. With the fragmentation of the Soviet Union, several newly-independent

³⁹Peters, The U.S. Military: Ready for the New World Order?, 106-107.

⁴⁰Leonard Spector, Tracking Nuclear Proliferation (Washington, D.C.: Carnegie Endowment for International Peace, 1995), 119; David Silverberg, "Shadow Over the Gulf," Armed Forces Journal International (August 1995): 24; George, "U.S. outlines Iranian threat," 16.

states to the North of Iran have found themselves in possession of fissile material. The possibility clearly exists for Iran to acquire such fissile material through purchase or theft.

Whether or not Iran is able to acquire fissile material from former Soviet states, continued assistance from Russia and the IAEA likely will result in Iran's nuclear power plants becoming operational in the near future, perhaps two or three years. Even if Iran is forced to depend on its reactors for providing plutonium, the length of time before Iran has weapons-grade fuel is likely to be no more than five or six years. Thus it is prudent to assume that, in addition to its chemical and biological capability, Iran may have nuclear weapons early in the next decade.

How might Iran attempt to utilize its capabilities in support of its policies? By utilizing the Strait of Hormuz and a keep-out strategy, along with the threat posed by ballistic missiles and NBC weapons, Iran could attempt to achieve a *fait accompli* in the Gulf region, then prevent the United States from responding. There are a number of different goals Iran could pursue in this way.

One example of such an Iranian action in the Gulf could be an attack on the United Arab Emirates (UAE). Iran and the UAE have serious and long-standing disagreements over various islands in the Strait, as well as oil rights in the

Gulf and in the Strait.⁴¹ Either for reasons of domestic political difficulties, or simply out of aggressiveness, Iran could determine to resolve these disagreements through force. Iran's goal would be to quickly attack and overcome the UAE, and seize most or all UAE territory, especially the coastal areas of Dubai, Abu Dhabi, and the offshore oil and gas fields.

There are other scenarios in which Iran might attempt to seize the territory of neighboring states and then hold onto its gains. Alternatively, Iran could demand the removal of all U.S. forces from the Gulf, which Iran considers to be its rightful sphere of influence.⁴² All such scenarios have one thing in common, however. For Iran to have any chance of succeeding, the forces of the United States would have to be kept from intervening.

In order to keep U.S. forces from intervening, Iran's keep-out strategy would entail deploying mines to block the Strait and declaring a naval exclusion zone. Mines could be deployed in such a way that tanker traffic was still able to pass through safe corridors, or Iran could attempt to close the Strait completely. Next, Iran's Kilos would patrol behind the minefields, where a defensive posture and their

⁴¹Binnendjik and Clawson, Strategic Assessment 1997, 91-92.

⁴²See Hashim, Crisis of the Iranian State, 43.

low noise levels would make them very hard to detect.

Iran's SSM batteries ashore would strive to enforce the exclusion zone, firing on any naval forces that attempted to enter the Strait. Since ships passing through the Strait could be observed visually, monitoring the passage of non-merchant ships would not be overly difficult.

In conjunction with its operations in the Strait, Iran would attempt to blackmail neighboring countries by announcing that, in the event of U.S. attacks on Iranian forces or facilities, Iranian ballistic missiles would be used to retaliate against the country of origin. Iran might combine this threat with the threat of closing the Strait completely, rather than continuing to allow tanker traffic to pass through. Politically, Iran would strive to portray events as concerning only Iran and its victim, stating that only in the event of U.S. interference would Iran take actions that would impact on all Gulf nations.

Even moderately skillful manipulation of the media could convey to U.S. viewers a lack of a vital U.S. interest worth fighting over.⁴³ The very close vote in the U.S. Congress for supporting the Gulf War, and the advice of many senior military, ex-military, and civilian policy-makers to wait for sanctions to work on Iraq rather than using

⁴³The lengthy debates in Congress and "no blood for oil" slogans of 1990 are indicators of the viability of this strategy concerning U.S. public opinion.

military force, all suggest that Iran could plausibly construct a political atmosphere in which the United States would decide against opposing Iran.⁴⁴ As noted by Colin Gray, "Public mood, and not closely reasoned strategic argument, always sets the level of the U.S. defense effort," an observation that applies to the prosecution of specific crises as much as to support for defense spending and global military capabilities.⁴⁵

By holding out to the other Gulf nations, as well as to oil importers in Europe and Asia, the prospect of averting a very costly interruption of oil by accepting Iran's actions, it is possible that sufficient political pressure could be brought to bear on the United States to accept the situation. Germany and France, for example, have established semi-formal diplomatic ties with Iran in recent years, which could lead to their advocating acceptance of Iran's actions.⁴⁶ Even without political pressure from

⁴⁴Admiral William Crowe, a former Chairman of the JCS, advocated waiting for up to a year for sanctions to work on Saddam. In the U.S. Senate vote for supporting the use of force, the resolution was passed by a mere 52 to 47 vote. See Gordon and Trainor, The Generals' War, 156, 205.

⁴⁵Gray, "Tomorrow's Forecast: Warmer / Still Cloudy," 43.

⁴⁶Roxanne Farmanfarmaian, "United, the West Can Handle Iran," New York Times, 19 April 1997, 12A; Jacob Heilbrunn, "Bon Mots: Iran and Germany Make Nice," The New Republic, 19 May 1997, 17; "The French and Russians Certainly Don't Get It," Perspective, 2 October 1997, 1-4.

Europe or East Asia, if the Gulf states, and especially Saudi Arabia, refused to allow U.S. strikes to be launched from their facilities, or to allow U.S. reinforcements to stage through their airfields, the United States might determine that the "least bad option" would be to accept Iran's actions.

If the United States faced the prospect of a military campaign in Southwest Asia, without the massive logistical support provided in 1990 by the Gulf states, and with the political pressure resulting from the threat of complete closure of the Strait, would the United States choose to resist Iran? The question would become even more difficult to assess if Iran was known to possess nuclear weapons.

If the United States were to attempt to intervene, Iran's blockade of the Strait would delay greatly the reinforcement of U.S. forces in the region. Even more damaging would be Iran's ability to target regional port and airfield facilities with chemical weapons, delivered by ballistic missiles. Inviting Disaster describes the likely effect of persistent chemical contamination on ports and airfields, and judges that such attacks could close down air and maritime operations in and from those facilities.⁴⁷

⁴⁷See Weaver and Glaes, Inviting Disaster, Section 2, pp. 18-33, and Section 3, pp. 34-51, for a depiction of hypothetical attacks on Saudi ports and airfields using VX nerve agent, delivered by SCUD missiles.

General Anthony Zinni, Commander in Chief of U.S. Central Command (CinCCENTCOM), recently testified before the Senate Armed Services Committee that, "theater missile defense and defense against chemical weapons and biological weapons is our top priority."⁴⁸

Iran's strategy would hinge first on deterring the United States from attempting to intervene, by making the cost of intervention appear larger than the benefits of intervention. Iran's ability to influence the U.S. cost vs. benefit equation would differ according to the specific scenario, of course, but deterrence of U.S. intervention nonetheless would be Iran's first step. Possession of nuclear weapons would greatly enhance Iran's deterrent

⁴⁸Responding to Senator Tim Hutchinson's question about the possibility of chemical attacks on Gulf ports, General Zinni responded:

"Senator, you've hit on our biggest concern in our region. There's obviously a proliferation of missile systems, the technology is advancing, the accuracy and range are increasing, the potential not only for Iraq, but for Iran and others in the region . . . that have that. For CENTCOM, theater missile defense and defense against chemical and biological weapons is our top priority. In addition to that, we're not only concerned about our own ability, which we need to improve greatly, but the ability of our allies. The ports you mentioned, we rely on host nation support to get a lot of things done in those ports. . . . They of course have less capability than we have, but are critical to our power projection." Testimony before the Senate Armed Services Committee, 28 January 1999, C-SPAN broadcast.

effect on U.S. intervention, certainly as long as U.S. forces lack theater missiles defenses.⁴⁹

If Iran's efforts to deter the United States failed, Iran would attempt to execute its keep-out military strategy, using blackmail and, if necessary, its available NBC weapons to attack regional airfields. Since many important regional airfields, especially in Saudi Arabia, are located in remote areas away from civilian population centers, Iran could conduct these attacks in relative safety from causing civilian casualties. The apprehension in regional populations to NBC attack likely would serve Iran better than actual NBC attacks on population centers, which could generate strong demands to retaliate regardless of further Iranian attacks.⁵⁰ Again, as long as U.S. missile defenses are limited to PAC-3 or Lower Tier, the blackmail threat of ballistic missiles and NBC weapons would serve Iran's strategy.

⁴⁹Gray, "The Second Nuclear Age: Insecurity, Proliferation, and the Control of Arms," 153.

⁵⁰Especially in the larger Middle East, many nations are "one-target" populations, with a majority of their citizens located in one or two major cities. A successful chemical or biological attack thus could destroy such nations as viable states. The apprehension to NBC weapons in these nations, which include Saudi Arabia, Kuwait, Qatar, Bahrain, the UAE, and Israel, might lead them to deny U.S. access in a conflict that they did not believe threatened their vital interests. See Rathmell, "Chemical Weapons in the Middle East: Syria, Iraq, Iran, and Libya," 60.

Iran's keep-out strategy thus would depend on two component parts. First, the use of mines to block the Strait would prevent the rapid transit of U.S. naval forces, slowing or preventing the reinforcement of the 5th Fleet. Iran's submarines and SSMs would serve to keep U.S. MCM forces from operating freely, maximizing the time needed to attempt to clear mine-free channels. With MCM efforts initially limited to submarine-deployed systems, it should be expected that Iran's minefields would be effective for a considerable length of time.

The ability to construct, fortify, and hide SSM launching positions along the full length of the strait would make the hazard to surface ships severe. It is likely that SSMs in such shore batteries could be fired without radar information, since the Strait could be observed with ordinary optical systems. Thus Iranian SSM batteries would not be identifiable through electronic emissions, making their destruction more difficult for U.S. forces. The use of dummy positions also would complicate U.S. efforts, by multiplying the number of strikes that would need to be conducted.

The risk of losing one or more U.S. warships in the Strait would be high if the United States attempted to reinforce the Fifth Fleet immediately. Certainly the risk would be too high to permit a CVN to attempt to transit the Strait. The need to proceed slowly, and wait until MCM

efforts had produced high-confidence safe channels through the Strait, would result in political pressure from U.S. allies that are dependent on Persian Gulf oil.

The second component of Iran's military strategy would be to counter U.S. air power. By employing ballistic missiles and chemical weapons, Iran could strike regional airfields, very likely contaminating them at lethal levels. U.S. airbase commanders would have three unattractive options in this case. First, Air Force units could don protective suits and attempt to decontaminate their facilities and aircraft. Second, they could relocate to other facilities out of range of Iran's missiles. Finally, they could don protective suits and attempt to continue operating from a contaminated facility.⁵¹

None of these options is likely to be satisfactory in maintaining U.S. air power at operable condition. Especially in temperatures above eighty-five degrees, working in existing protective gear is sufficiently exhausting to bring operations to a halt, while even at lower temperatures it is expected that up to 40 percent reduction in efficiency would be experienced.⁵² The most likely option thus would be relocation to facilities out of

⁵¹Weaver and Glaes, Inviting Disaster, 40-42.

⁵²Ibid., 42.

range of ballistic missiles, effectively neutralizing U.S. air power within the region.

By combining these two keep-out operations, one against U.S. sea power and one against U.S. air power, with the political impact of the loss of oil to world economies, Iran could force the United States into choosing the lesser of two evils and accepting Iran's demands. While the United States clearly should be willing to go to war over such an assault on a vital national interest, it is not inconceivable that the chosen path to resolving the conflict would be accepting Iran's actions.

Iran's recent "charm offensive" towards the United States and other nations, intended to lessen the degree of international disfavor directed at Iran, can be better understood in the context of this scenario.⁵³ By attempting to portray military aggression as a matter to be settled between Gulf nations, and by emphasizing that Iran

⁵³For a depiction of Iran's diplomatic efforts and the changing view of many nations towards Iran, see: Heilbrunn, "Bon Mots: Iran and Germany make nice,"; Ed Blanche, Christopher Foss, and Barbara Starr, "Khatami emerges as Iran's acceptable face," Jane's Defense Weekly, 15 October 1997, 19; Ed Blanche, "Signs of subtle US policy shift in Iran," Jane's Intelligence Review & Jane's Sentinel Pointer (October 1997): 7; Ed Blanche, "Iran under Khatami: pariah or potential peace partner?" Jane's Intelligence Review (November 1997): 505; Andrew Rathmell, "Iran's new charm offensive begins," Jane's Intelligence Review & Jane's Sentinel Pointer (November 1997): 6; Dunn, "Mideast Turnaround,"; Caroline Faraj and Philip Finnegan, "Kuwait, Iran to Hold Joint Naval Exercise," Defense News, 9-15 February 1998, 40.

did not intend to curtail oil shipment to world economies, Iran would hope for political support or pressure from France, Russia, China, and even other GCC states.

Iran's overall strategy thus would combine a geographic chokepoint, the resulting ability to use that chokepoint to throttle a vital energy resource, and a regional keep-out military strategy. By attempting to raise the perceived cost to the United States of resorting to military force, Iran's leaders would hope to reach a political settlement that would leave Iran in possession of its gains. Iran's keep-out strategy thus would represent a sound alignment of military means to political ends, taking into account not just Iran's military capabilities, but the military capabilities and weaknesses, as well as the historical political behavior, of the United States.