NAVAL WAR COLLEGE
Newport, R. I.

Joint Vision 2010 and Anti-Submarine Warfare: The Missing Doctrinal Link

by

McWilliam V. Bollman, Jr.
Commander, USN

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

19 May 1997

Paper directed by
Captain G. W. Jackson, USN
Chairman, Department of Joint Military Operations

_____ 5/19/97
Faculty Advisor Date
Prof. T. E. Somes

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED	
2. Security Classification Authority:	
3. Declassification/Downgrading Schedule:	
4. Distribution/Availability of Report: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.	
5. Name of Performing Organization: JOINT MILITARY OPERATIONS DEPARTMENT	
6. Office Symbol: C	**7. Address:** NAVAL WAR COLLEGE 686 CUSHING ROAD NEWPORT, RI 02841-1207
8. Title (Include Security Classification): (U) Joint Vision 2010 and Anti-Submarine Warfare: The Missing Doctrinal Link (U)	
9. Personal Authors: CDR McWilliam V. Bollman, Jr., USN	
10.Type of Report: FINAL	**11. Date of Report:** 19 May 1997
12.Page Count: 24	
13.Supplementary Notation: A paper submitted to the Faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.	
14. Ten key words that relate to your paper: Anti-Submarine Warfare(ASW), ASW Doctrine, Joint Vision 2010, Naval Doctrine, Joint Doctrine, Global Submarine Threat, Operational Protection, Force Protection, ASW Vision Statement, Naval Expeditionary Task Force.	

15.Abstract: Joint and naval doctrine published in the wake of the Goldwater-Nichols Act of 1986 does not sufficently address Anti-Submarine Warfare (ASW). ASW must assume an integral role in the Joint Vision 2010 precepts of operational force protection and battlespace dominance. The global proliferation of diesel submarines capable of conducting sea denial operations in the littoral, and the continued production and employment of Russian nuclear submarines, have generated renewed interest in anti-submarine warfare. To sustain and swiftly project joint forces into and across the littoral will require that U. S. joint force commanders be prepared to quickly neutralize the submarine threat. ASW must, therefore, be fully integrateable into the joint force that will simultaneously conduct the operational protection missions of missile defense, air defense and mine warfare. The Navy, as the ASW core competency leader, needs to develop an ASW vision statement and corresponding naval and joint doctrine. Such doctrine will serve to guide joint ASW force procurement, training and employment in accordance with the tenants outlined in Joint Vision 2010.

16.Distribution / Availability of Abstract:	**Unclassified**	**Same As Rpt**	**DTIC Users**
	X		

17.Abstract Security Classification: UNCLASSIFIED	
18.Name of Responsible Individual: CHAIRMAN, JOINT MILITARY OPERATIONS DEPARTMENT	
19.Telephone: 841-6461	**20.Office Symbol:** C

Abstract

Joint and naval doctrine published in the wake of the Goldwater-Nichols Act of 1986 does not sufficiently address anti-submarine warfare (ASW). ASW will play a critical role in the Joint Vision 2010 precepts of full-dimensional protection and battlespace dominance. The global proliferation of diesel submarines capable of conducting sea denial operations in the littoral has generated renewed interest in anti-submarine warfare. Russia, despite economic and political uncertainty, continues to produce and deploy technologically advanced nuclear submarines. In order to swiftly project joint forces into and across the littoral, U. S. joint force commanders must be prepared to effectively neutralize the submarine threat. This will require the ability to seamlessly integrate the ASW mission into the joint force that must simultaneously conduct missile defense, air defense and mine warfare force protection missions. The Navy, as the ASW core competency leader, needs to develop an ASW vision statement and corresponding naval and joint doctrine. Such doctrine will serve to guide naval and joint leaders in the procurement, training and employment of ASW forces in accordance with the tenants outlined in Joint Vision 2010.

Table of Contents

I. Introduction

> *Joint Vision 2010 is the conceptual template for how America's Armed Forces will channel the vitality and innovation of our people and leverage technological opportunities to achieve new levels of effectiveness in joint warfighting. Focused on achieving dominance across the range of military operations through the application of new operational concepts, this template provides a common direction for our Services in developing their unique capabilities within a joint framework of doctrine and programs as they prepare to meet an uncertain and challenging future.*[1]
>
> Joint Vision 2010

The United States currently has neither joint nor naval operational doctrine on anti-submarine warfare (ASW).[2] The Goldwater-Nichols Act of 1986 and unifying guidance in Joint Vision 2010 have driven the extensive publication of both joint and Service-specific doctrine. The resulting operational doctrine, however, has not sufficiently incorporated ASW's critical contributions to joint force protection, freedom of movement and maneuver, and battlespace dominance. While the global proliferation of increasingly lethal diesel-electric submarines has generated renewed interest in the threat the submarine poses to U. S. operational and tactical forces, both Navy and Department of Defense leaders remain unfocussed and divided on how best to integrate ASW into the national military strategy.[3]

The lapse in emphasis placed on anti-submarine warfare in the post-Cold War era coincided with a steady advance in Russian and global submarine technology. The concern is not so much that U. S. procurement slowed, but that forward thinking did, the kind of forward thinking that drove the Navy's ASW dominance of the 1980's. It is therefore critical that, in its undisputed role as the leader in the ASW "core competency,"[4] the Navy engineer an aggressive, broad-minded, and coordinated effort to maximize

ASW capabilities at the next generational level. This will require the development of an ASW vision, and corresponding operational doctrine, aligned with the precepts of joint force interoperability and battlespace dominance outlined in Joint Vision 2010. Such doctrine will serve to guide joint force procurement, training and employment efforts toward achieving increased littoral and open-ocean ASW effectiveness.

This thesis will be supported by assessing the viability of the emerging submarine threat to U. S. forces, highlighting ASW's contribution to operational protection and discussing the expanding role of ASW in defense of focused logistics and force projection into and across the littoral. An analysis of existing joint and naval doctrine will follow. In conclusion, recommendations for doctrinal improvements will be presented to support the Naval Doctrine Command (NDC), established in 1993, in their efforts to generate concept papers and operational doctrine on anti-submarine warfare.[5]

II. The Global Submarine Threat

> *Diesel-electric submarines constitute a growing threat, one that can be difficult to detect and defend against in shallow water. Uncountered, these submarines can disrupt shipping and shut down vital sea lanes in littoral areas. Many navies now operate diesel submarines, and additional countries could well follow suit.*[6]
>
> William J. Perry, Secretary of Defense
> Annual Report to Congress
> March 1996

Worldwide submarine procurement, by nations both friendly and potentially hostile to the U. S., is on the rise. East Asian nations alone are expected to procure or build over 70 diesel-electric submarines in the next ten years.[7] German, Russian and French submarines are in production and available for purchase. Air Internal Propulsion

(AIP)[8] should be ready for export by the turn of the century[9] and will give diesel submarines the capability to submerge for up to thirty days. While the post-Cold War trend in many cases is toward downsizing, today's producers are taking advantage of the expanding flow of modern technology to incorporate advanced weapons, systems and sensors into increasingly elusive and lethal submarines.

China is amassing a submarine capability that the United States can ill afford to ignore. In addition to its existing force of over 70 diesel and six nuclear-powered submarines, China will soon take delivery of the last two of four Russian Kilo Class diesel submarines.[10] Their indigenously produced Song Class diesel submarine, the first of which was launched in 1994, is expected to be cruise missile capable. The national objectives to which they have assigned the highest priorities are safeguarding national unity, an aim that includes their territorial claims over the Spratley Islands and Taiwan, and conducting the possible blockade of Taiwan in support of reunification by force.

The North Korean Navy continues, despite its nation's strained economic state, to regularly conduct training operations with their force of 20 Whiskey" and "Romeo" SS, 12 Sango SSC and 50 Yugo SSM Midget submarines. These assets are capable of special operations force insertion, maritime interdiction and mine-laying operations. While their older technology renders them susceptible to ASW forces, they are able to deploy in large numbers in the congested Korean littoral[11] and could pose a significant threat to logistics and amphibious vessels assisting in the defense of South Korea.

The Iranian Navy has taken delivery of its third Russian built Kilo Class submarine. Procured to support Iran's interests in influencing passage through the Straits

of Hormuz, they are expected to be equipped for both anti-surface and mine warfare. These submarines give Iran the capability to impact freedom of navigation into and throughout the Persian Gulf.[12]

Russia continues to produce and actively deploy Oscar II SSGN's and Akula II SSN's. The year-round deployment of their Delta nuclear ballistic missile submarines constitutes an on-going strategic threat. Construction is underway on "fourth generation" diesel (Lada/Amur) and nuclear (Sverdnosk and Borey) submarines. Despite a continuing military drawdown, and economic and political uncertainty, Russia's submarine force development and employment persist and should remain a focal point of the United States' ASW strategy.[13]

III. ASW and Joint Force Protection

> *The primary prerequisite for full-dimensional protection will be the control of the battlespace to ensure our forces can maintain freedom of action during deployment, maneuver and engagement, while providing multi-layered defenses for our forces and facilities at all levels.*[14]
>
> Joint Vision 2010

Anti-submarine warfare is integral to the Joint Vision 2010 concept of full-dimensional protection. Potential adversaries of the United Sates and its allies are turning to the submarine as a cost-effective weapon in support of a sea denial strategy. These submarines will not only be able to police and defend in territorial and economic waters, but also to sever sea lines of communication, blockade offensively and defensively, and interdict traffic through choke points.

In the Falklands/Malvinas Conflict, the elusive Argentinean submarine San Luis (a German built Type 209) proved a significant obstacle to the British force's freedom to maneuver. The British had to divert over 20 ASW assets from their primary force projection missions. These units fired more than 200 rounds of anti-submarine ordnance in their unsuccessful attempts to neutralize the threat.[15] San Luis, in turn, reported that they launched three torpedoes, at close range, that failed to cause damage only due to training deficiencies on arming the weapons.[16] Admiral Sandy Woodward, the British Commander, clearly considered San Luis' presence in his decision to hold his carriers to the rear.[17]

A popular argument, which downplays the potential impact of opposing submarines, is that they are susceptible at the pier and can be preemptively neutralized.[18] Current rules of engagement, however, restrict reliance on such a strategy. A gradually escalating scenario, in which submarines have sailed prior to the outbreak of hostilities, would limit preemptive pier-side strikes as an option. During the Taiwan Straits Crisis of 1996, for instance, the Chinese deployed three submarines in support of their imposing show of force off Taiwan.[19] Just as the submarine threat held back Admiral Woodward's carriers, it could well have been the Chinese submarine threat that deterred U.S. carriers Nimitz and Independence from entering the Taiwan Straits during their reciprocating show of force.[20]

In Operations Desert Shield and Desert Storm, over 95% of supporting logistics came by sea.[21] With the shift from massing combat force forward to the Joint Vision 2010 concept of focused logistics, sustained force protection along open-ocean and

littoral sea lines of communication will become even more critical to force sustainment. Maritime forces and strategic sealift units are susceptible to even a small number of unlocated submarines and could be constrained from entering or operating freely within a theater of operations. In today's lean defense forces, the loss of a single high-value unit or logistics ship could render the cost of an operation unacceptable. To ensure successful force protection and projection, joint operational commanders must be fully prepared to direct their forces to quickly locate, classify, target, and neutralize or destroy hostile submarines.

IV. U. S. ASW Capabilities

> *Without the ability to protect our deploying and deployed forces from submerged threats, we will not be able to execute campaign plans successfully. Recent Russian submarine deployments and the continued proliferation of capable, quiet diesel submarines are serious concerns to joint planners.*[22]
>
> General John M. Shalikashvili
> Chairman, Joint Chiefs of Staff

The Navy's forces, long designed and procured for open-ocean anti-submarine warfare, are proving less effective against the modern diesel-electric submarine in the acoustically unfriendly near-coastal environment.[23] As General Shalikashvili points out, however, littoral ASW does not provide the only challenge. Current production Russian nuclear submarines have achieved acoustic parody with U.S. submarines[24] and are proving challenging targets for even the newest processors and sensor systems. The overall erosion of ASW dominance versus the modern day submarine threat requires a revitalization of operational, tactical and technical innovation.

The shift of doctrinal emphasis to the complex geographical, acoustic and electronic environment of the littoral has ASW tacticians and contractors racing for solutions to the near-land problem. Resultant technological solutions will actually prove beneficial both for both littoral and open-ocean capabilities. Improved detection systems such as Low Frequency Active Sonar (LFAS),[25] Extended Echo Ranging (EER), Improved Extended Echo Ranging (IEER)[26] and next-generation Integrated Undersea Arrays will extend detection ranges. Non-acoustic laser and optical systems advances promise more "transparent" seas. Airborne and shipboard processor improvements are aimed at increased detection probabilities. Surface Ship Torpedo Defense and effective shallow-water weapons development have been identified as critical procurement priorities.[27]

These technological advancements, and their implied benefits to ASW at the tactical level, play only a part in the holistic approach required to restore ASW dominance. Throughout the 1990's, in order to optimize existing technology against the elusive modern Russian target, U.S. Naval ASW forces moved toward more effectively coordinated, multi-platform operations in open-ocean ASW. Surface ships, embarked SH-60 LAMPS helo's, SSN's, P-3C's and T-AGOS ships developed improved operational command and control (C2) processes. As was the case with open-ocean ASW, shortfalls at the operational level may be far more significant in the littoral challenge.

Joint Vision 2010 acknowledges technology's role, but focuses on a comprehensive approach to information management, command and control, and asset interoperability in the "seamless joint architecture for force protection."[28] ASW leaders

must doctrinally promote these concepts to ensure the swift projection of power across the theater of operations. In the next joint campaign, will carriers, amphibious ready groups, strategic sealift ships and supporting Air Force assets have to operate independently or from the rear while Navy assets patrol for unlocated diesel submarines? Should the emissions from a hostile submarine, seeking command and control guidance or lighting off its search radar, be sought out solely by platforms assigned to conduct ASW? And, should these signals, as opposed to those from surface or airborne contacts, be transmitted on separate information exchange systems? To segregate search and attack assets, or isolate information, is to impinge on our ability to achieve seamless battlespace force integration.

Anti-submarine warfare in the context of Joint Vision 2010 will access a common C4ISR[i] architecture and utilize a cross section of applicable joint forces against the submarine threat. An AWACS, E-2, C-141 or logistics ship each might provide the critical locating data. If our strategy includes attacking submarines at the pier, a combination of national sensors and F-117 stealth fighters may prove the preferred assets for delivering these operational fires.[29] B-52's could be assigned to lay mines to prevent submarine deployment.[30] Air force tankers could release S-3 tankers to conduct ASW and ASUW missions. Special Operations Forces may be assigned to attach tagging or remotely controlled explosive devices to submarine hulls.[31]

[i] C4ISR: Command, Control, Communications, Computers, Information, Surveillance and Reconnaissance.

In the battlespace of the future, missile defense, air defense, mine warfare and anti-submarine warfare will be simultaneously and perpetually conducted to enable force introduction and projection ashore. The Navy's ASW experts must, therefore, consider the types of C4ISR systems to which they require access, and what types of joint command structures will best achieve the ASW mission in conjunction with concurrent joint missions. What is needed is a comprehensive ASW strategy, one that will guide doctrinal development and in turn, ASW's effective integration with the joint force infrastructure.

V. On the Missing Doctrinal Link

> *The basic roles of our Naval Forces are to promote and defend our national interests by maintaining maritime superiority, contributing to regional stability, conducting operations on and from the sea, seizing or defending advanced naval bases and conducting such land operations as may be essential to the prosecution of* ***naval campaigns*** *(emphasis added).*[32]
>
> Naval Warfare, Naval Doctrine Publication (NDP) 1

The Navy is fully engaged in drafting and publishing its doctrine around the joint principles delineated in Joint Vision 2010, the expanding network of Joint Pubs and the Naval White Paper, Forward ... From the Sea. The NDP 1 quote above, however, which actually takes its wording directly from the DOD directive that delineates military functions,[33] associates the Navy's assigned roles with "naval campaigns." Should naval doctrine promote the idea that these roles are intended solely to support naval operations? That was likely not the intention, but such wording belies how easy it is to send an inaccurate message.[34]

In the case of anti-submarine warfare, doctrinal inaccuracies and omissions have been particularly detrimental. Existing joint and naval doctrine has largely relegated ASW to the Navy as a single-Service mission. Joint doctrine tends to presume the Navy's success in ASW. Undeniably, the Navy has the lead in anti-submarine warfare. It is the only Service capable of performing all aspects of the mission, but the responsibility for a "core competency" should not be misconstrued as a requirement for mission isolation.[35]

The challenge facing ASW and joint leaders alike is how to achieve effective single-Service command and control infrastructures and C4I[ii] systems that can be effectively merged with joint forces when required. Joint Pub 3-04, Doctrine for Maritime Operations suggests to the Joint Force Commander (JFC) that the Navy's Composite Warfare Commander (CWC) concept offers a proven method for employing forces in the maritime.[36] Naval Warfare Publication (NWP) 10-1 on CWC, however, does little to reciprocate.[37] Focused at the tactical level, it fails to outline the vertical or horizontal relationships with joint operational commanders. The NWP for the supporting Anti-Submarine Warfare Commander has yet to be written. NDP 6 on Naval Command and Control does an effective job of promoting the operational art tenants of unity of effort and decentralized execution with a strong emphasis on joint C4I integration, but it does not outline an operational command and control framework in which to achieve this joint connectivity.[38]

ASW doctrine must be aligned with the Joint Vision 2010 concept of full-dimensional protection. Joint Doctrine is taking U. S. forces in the direction of one

[ii] C4I: Command, Control, Communications, Computers and Information

battlespace with seamlessly integrated joint forces. Protection of forces can not be optimized through independent anti-submarine warfare, mine warfare, joint strategic air defense (JSEAD), theater missile defense, or special operations forces (SOF) employment. Of these, only ASW is not covered in dedicated joint force protection doctrine. Operational effectiveness will be compromised if ASW requirements and concepts are not clear to both naval and joint force commanders. What is required is that all warfighters, especially internally focused ASW experts, think open-mindedly about how best to integrate joint force protection missions into an effective common effort.

The Naval Doctrine Command has completed the final draft of Naval Doctrine Publication 3 on Naval Operations (currently at the printers).[39] This doctrine represents a positive shift in the Navy's doctrinal approach to "jointness." It portrays a genuine commitment to achieving optimum performance through complete joint interoperability. Even here, though, warfighting guidance on ASW reflects the employment of just naval assets and only infers a joint participation. It will be necessary to scrutinize both draft and existing joint and naval doctrine to ensure ASW is clearly and properly defined within the framework of joint training and warfighting.

The Naval Doctrine Command's draft on the Naval Expeditionary Task Force (NETF) concept, if published as currently written, would represent the most forward thinking naval doctrine to date. It fully applies the principles in Joint Vision 2010 to ASW operations and naval command and control. It provides sound guidance on both how and why to integrate, to the extent required, naval forces with joint forces. It does so by formalizing the NETF concept, already in practice to varying degrees in 2^{nd,} 3rd and 5th

Fleets,[40] as a force with assigned commanders that can act in either naval or joint capacities or a combination of both.

The NETF draft applies these principles specifically to anti-submarine warfare command and control. The Sea Combat Commander (SCC), in addition to his responsibility for ASW assets, is directed to conduct target prioritization, and information and asset coordination with the Air Combat Commander (ACC), the Joint Forces Air Combat Commander (JFAAC) and other naval and joint commanders as required. The document addresses the need for a common C4ISR architecture to support asset interoperability and optimization through force-wide mission coordination. While not specifically ASW doctrine, the NETF draft embraces the concepts that the Navy should promote in an ASW vision statement and, correspondingly, in naval and joint ASW doctrine.

VI. Conclusion

To date, the Navy has no published operational doctrine for ASW. Despite the reemphasis on the submarine threat to U. S. forces, ASW professionals, including those from the non-naval services, lack a common sense of direction. Current efforts at Naval Doctrine Command suggest this situation is on the way to being remedied. The following are specific recommendations for the Navy's on-going doctrinal effort:

- Publish a Department of the Navy Vision Statement for anti-submarine warfare that provides naval and joint leaders with a strategy for ASW doctrinal development, as well as ASW force procurement, training and employment.
- Develop operational ASW doctrine focused on joint force protection, joint C2 and C4ISR integration, and joint asset interoperability.
- Draft and submit a Joint Publication on anti-submarine warfare. Joint force protection publications exist for Theater Missile Defense, Counter Air and Missile Threats, Barriers and Mines, JSEAD, and Air Defense Ops. Like these, an ASW Joint Pub would focus both potential joint ASW forces and joint force commanders on operational and tactical requirements for opposing the submarine threat.
- Review existing joint and naval doctrine to ensure ASW is accurately incorporated in accordance with the joint tenants of Forward ... From the Sea and Joint Vision 2010.
- Publish the Naval Doctrine Command draft on the Naval Expeditionary Task Force, or doctrine similarly designed, to facilitate naval and joint command and control integration.

Joint and naval vision statements and doctrine provide direction for the defense Services. They do not define exactly what to do or how to do it. They educate as to the desired objectives and focus efforts toward developing and improving capabilities accordingly. They guide the actualization of vision into joint-minded procurement, training and employment. The absence of an over-arching vision for ASW along these lines is resulting in less than optimum force-wide capabilities. Without unifying

operational ASW doctrine, the United States risks susceptibility to a real and potentially disruptive global submarine threat.

Endnotes

[1] Joint Chiefs of Staff, Joint Vision 2010 (Washington: n.p., n.d.), 1.

[2] ASW is a subset of Undersea Warfare (USW). USW also encompasses Mine Warfare for which there is both existing and draft joint doctrine. The focus of this paper is specifically on doctrine for countering the submarine threat, therefore, the term USW is not used.

[3] These observations are based on the author's experiences while assigned to Commander Task Force 84, the Atlantic Theater Commander for ASW. During his tour, he coordinated and participated in plenary and executive level meetings of the Fleet ASW Improvement Program (FLTASWIP) from 1994-1996 and supported information collection for the CNO's Executive Board (CEB) on ASW. While the FLTASWIP actively pursues fleet input and prioritizes ASW technological and training requirements, the forum has yet to agree on a comprehensive ASW strategy. Despite Navy and Dept. of Defense reemphasis on ASW, deficiencies in ASW do not appear to be of major concern to the Unified CINCs. Per a telephone conversation with CDR Gordon McKenzie from Commander in Chief Atlantic Fleet (N8), Norfolk, VA, 29 April 1997, only USACOM of all the Unified CINCs, included ASW amongst their top twenty Integrated Priority List requirements.

[4] "Directions for Defense." Report of the Commission on Roles and Missions of the Armed Forces, (Washington: 24 May 1997), II-20. The Committee on Roles and Missions (CORM) recognizes Anti-Submarine Warfare exclusively as a Navy core competency. The CORM defines core competencies as "specific capabilities or activities fundamental to Service or agency role. They define the Service's or agency's essential contributions to the overall effectiveness of DOD and its unified commands."

[5] There is concurrently a Naval Doctrine Command program with the goal of integrating guidance on multinational operations into existing doctrine. The scope of this paper is limited to the doctrine required to first guide acceptable ASW proficiency and interoperability for U. S. forces.

[6] U. S. Dept. of Defense, Annual Report to the President and the Congress (Washington: March 1996), 159.

[7] Robert Holzer, "Chinese Naval Buildup Spurs Demand for Subs In Region, Experts Say," Defense News, 18-24 November, 10, 18.

[8] AIP is a closed-loop diesel combustion system that permits the charging of batteries without the requirement for oxygen from the atmosphere. It negates the requirement for a submarine to snorkel or surface for the purpose.

[9] James Fitzgerald, "About Anti-Submarine Warfare," The Submarine Review, Naval Submarine League (Washington, D.C.: April 1997),7.

[10] Office of Naval Intelligence (ONI). Worldwide Submarine Challenges, (Washington: February 1997), 4. In this section on the Global Submarine Threat, except where noted, submarine threat data and correlating information on political objectives was extracted from this Office of Naval Intelligence document. Comprehensive and current, it provided an outstanding synopsis of modern submarine proliferation.

[11] Joseph Lodmell, "The Impact of the North Korean Submarine Force at the Operational Level of War," Unpublished Research Paper, Naval War College, Newport, RI : June 14, 1996, 7.

[12] Office of Naval Intelligence, 29.

[13] Ibid. 9-17.

[14] U. S. Dept. of Defense, Joint Vision 2010, 22.

[15] Joseph Lodmell, "It Takes Only One." U. S. Naval Institute Proceedings, December 1996, 30.

[16] Ibid.

[17] Woodward, Sandy One Hundred Days, Naval Institute Press, Annapolis, Maryland: 1992 231. Admiral Woodward wrote in his diary, "Yet I can't help feeling I ought to do it -[referring to moving the carriers forward] and I just might, if it weren't that the[Arg's likely] submarine area is exactly where we would need to be to do the job."

[18] Lodmell, "It Takes Only One," 30-33.

[19] Office of Naval Intelligence, 19.

[20] United Press Institute, "U. S. Ships Near Taiwan to Return to Base," Washington News, 25 March 1996.

[21] Bruce Linder, "The Future of Joint ASW," U. S. Naval Institute Proceedings, September 1995.

[22] Office of Naval Intelligence, 1.

[23] Naval Doctrine Command, Littoral Anti-Submarine Warfare Draft Concept Unpublished Concept Development Draft 3 (Norfolk, VA: 24 March 1997), I.

[24] Office of Naval Intelligence (ONI), Worldwide Submarine Challenges (Washington, D.C.: February 1995), 18-23.

[25] LFAS utilizes the low-frequency sound spectrum to attain extended detection ranges in deep and shallow water.

[26] EER is a deep water system deployed from P-3's that uses a combination of explosive and passive sonobuoys for wide-area search. IEER is in development and will utilize the same principle, but will be capable of shallow water search.

[27] Shallow water weapons development ranks number 3 on the current FLTASWIP Top Ten Priority List. Undersea weapons defense support system development is the number 6 priority.

[28] U. S. Dept. of Defense, Joint Vision 2010, 24.

[29] Bruce Linder, "The Future of Joint ASW," U.S. Naval Institute Proceedings, Annapolis, MD: September 1995, 69. This and the following joint ASW mission examples are either listed in or implied by Linder's article.

[30] U. S. Dept. of Defense, Functions of the Department of Defense and Its Major Components. DOD Directive 5100.1 (Washington: 25 September 1987). This instruction assigns the Air Force a supporting role in ASW and ASUW strike and for airborne mine laying.

[31] Naval Doctrine Command, Littoral Anti-Submarine Warfare Draft Concept, 19,20. Tagging, one the NDC ASW concept development initiatives, involves attaching detection enhancing devices directly to submarine hulls.

[32] Naval Warfare Publication 1, Naval Warfare (Washington: March 1994), 15.

[33] U. S. Dept. of Defense. Functions of the Department of Defense and Its Major Components, 16.

[34] A "naval campaign" in this day and age seems improbable. The Gulf War is as close as there has been to a campaign in the latter part of this century. It is unlikely a conflict of similar magnitude would be anything less than a "joint" or "combined" campaign involving one or more "maritime operations" in support of one or more "ground operations." These are the terms that naval doctrine should use to eliminate misconceptions concerning isolated Service responsibilities.

[35] "Directions for Defense," Report of the Commission on Roles and Missions of the Armed Forces, (Washington: 24 May 1997), II-20.

[36] Joint Pub 3-04, Doctrine for Maritime Operations (Washington: 31 July 1991),III-1.

[37] Naval Warfare Publication 10-1, Composite Warfare Commander's Manual (Washington: March 1995).

[38] Naval Doctrine Publication 6, Naval Command and Control, (Washington: 28 March 1994).

[39] Naval Doctrine Publication 3, Naval Operations, Unpublished Draft Doctrine (Washington: 15 August 1996).

[40] Telephone conversation with CDR John Snively at Naval Doctrine Command, 28 April, 1997.

Bibliography

"About Anti-Submarine Warfare." The Submarine Review, April 1997, 4-11.

Anderson, Gary and Terry Pierce. "Leaving the Technocratic Tunnel." Joint Force Quarterly, Winter 95-96.

Barnett, Roger. "Strategy, Operational Art, Tactics, Concepts, and Doctrine." An unpublished paper prepared for the United States Naval War College's Current Strategy Forum. Newport, RI: June 1996.

"Budget Squeeze Blurs The Long Range Vision." Jane's Navy International, June 1996, 28-32.

Chief of Naval Operations (Code N84). "1997 ASW Assessment." Report of Findings to R3B," 10 April 1997.

Collins, John M. "Military Roles and Missions. A Framework For Review." Congressional Research Service Report For Congress. Washington: 1 May 1995.

Department of Defense, Conduct of the Persian Gulf War; Final report to Congress. Washington: 1992.

_____. Report of the Commission on Roles and Missions of the Armed Forces. Washington: U.S. Government Printing Office, 24 May 1995.

_____. "Functions of the Department of Defense and Its Major Components." DOD Directive 5100.1, Washington: 25 September 1987.

Department of the Navy. "Draft 1997 ASW Focus Statement." CNO N84, Washington: ND

_____. "Forward...From the Sea." Washington: 1995.

_____. "...From the Sea. Preparing the Naval Service for the 21st Century." Washington: September 1992.

_____. Naval Doctrine Publication 1, Naval Warfare. Washington: March 1994.

_____. Naval Doctrine Publication 6, Naval Command and Control. Washington: 28 March 1994.

_____. Naval Doctrine Publication 3, Naval Operations. Unpublished Draft Doctrine. Washington: 15 August 1996.

_____. Naval Warfare Publication 10-1, Composite Warfare Commander's Manual. Naval Doctrine Command, Norfolk, VA: March 1995.

_____. Naval Warfare Publication 3-05.4, Naval Special Warfare Submarine Operations Manual. Naval Doctrine Command, Norfolk, VA: March 1995.

_____. Naval Warfare Publication 3-56.1, Joint Force Air Component Commander Organization and Processes. Naval Doctrine Command, Norfolk, VA: January 1997.

Emery, George W. "Remarks at the Annual Naval Submarine League Symposium." The Submarine Review, July 1996, 8-18

Fitzgerald, James, "About Anti-Submarine Warfare," The Submarine Review, Naval Submarine League, Washington, DC: April 1997.

Friedman, Norman. "World Navies in Review." U. S. Naval Institute Proceedings: March 1994.

Hart, James M. "Organizing Effective Command and Control for Joint Littoral Operations." Unpublished Research Paper, Naval War College, Newport, RI: November 1996.

Hershfield, Thomas. "The Year of the Rat." U. S. Naval Institute Proceedings, May 1996, 56-59.

Holzer, Robert. "Chinese Naval Buildup Spurs Demand for Subs in Region, Experts Say." Defense News. Washington: 18-24 November 1996.

Joint Chiefs of Staff. Joint Pub 1, Joint Warfare of the Armed Forces of the United States. Washington: 24 February 1995.

_____. Joint Pub 0-2, United Action Armed Forces (UNAAF). Government Printing Office, Washington: 24 February 1995.

_____. Joint Pub 3-0, Doctrine for Joint Operations. Washington: 1 February 1995.

_____. Joint Pub 3-01.5, Doctrine for Joint Theater Missile Defense. Washington: 22 February 1996.

_____. Joint Pub 3-04, Doctrine for Joint Maritime Operations. Washington: 31 July 1991.

_____. Joint Pub 6-0, Doctrine for Command, Control, Communications, and Computer (C4)Systems Support to Joint Operations, Washington: 3 May 95.

_____. Joint Vision 2010, Washington: ND.

_____. Universal Joint Task List Version 3.0, Washington: September 13, 1996.

Linder, Bruce R. "The Future of Joint ASW." U. S. Naval Institute Proceedings: September 1995, 66-70.

_____. "ASW as Practiced in Birnam Wood." U. S. Naval Institute Proceedings: May 1996, 62-66.

Lodmell, Joseph C. "It Takes Only One." U. S. Naval Institute Proceedings: December 1996, 30-33.

Naval Doctrine Command. "Operations in the Littoral." Unpublished Concept Paper. Norfolk, VA: December 1996.

_____. "Littoral Anti-Submarine Warfare Draft Concept." Unpublished Concept Paper. Norfolk, VA: December 1996.

_____. "Naval Expeditionary Task Force Command and Control," Unpublished Draft Doctrine. Norfolk, VA: 1 July 1996.

Office of Naval Intelligence. Worldwide Submarine Challenges. Washington: February 1997.

"ONI Report Details Worldwide Submarine Threat." Jane's Navy International, Alexandria, VA: June 1996.

Perry, William J. Secretary of Defense Annual Report to the President and the Congress. Washington: March 1996.

Pfaltzgraff, Robert L. Jr. and Richard H. Shultz, Jr., Naval Forward Presence and the National Military Strategy. Naval Institute Press, Annapolis, MD: 1993

Tritten, James J. "Maneuver Warfare at Sea," U. S. Naval Institute Proceedings: September, 1995, 52-54.

United Press Institute. "U. S. Ships Near Taiwan to Return to Base," Washington News, 25 March 1996.

Woodward, Sandy, One Hundred Days, Naval Institute Press, Annapolis, MD: 1992.