NAVAL WAR COLLEGE

Newport, R.I.

COMMAND UNDER THE SEA: THEATER SUBSURFACE WARFARE FOR THE JOINT FORCE COMMANDER

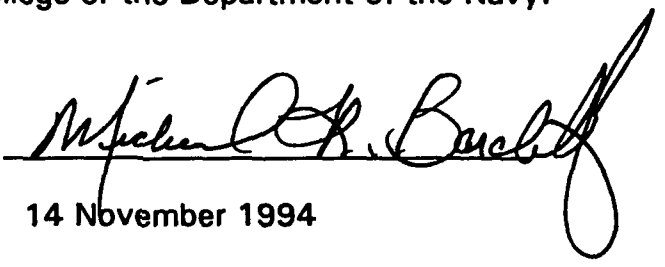
by

Michael R. Barclift

LCDR USN

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



14 November 1994

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLAS	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)

6a. NAME OF PERFORMING ORGANIZATION OPERATIONS DEPARTMENT	6b. OFFICE SYMBOL (If applicable) C	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (City, State, and ZIP Code) NAVAL WAR COLLEGE 686 CUSHING ROAD NEWPORT, RI 02841-1207		7b. ADDRESS (City, State, and ZIP Code)
8a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code)		10. SOURCE OF FUNDING NUMBERS

PROGRAM ELEMENT NO.	PROJECT NO.	TASK NUMBER	WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification)

COMMAND UNDER THE SEA: THEATER SUBSURFACE WARFARE FOR THE JOINT FORCE COMMANDER

12. PERSONAL AUTHOR(S)

MICHAEL R. BARCLIFT, LCDR, USN

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
FINAL	FROM 11/93 TO 11/94	8 FEB 94	34

16. SUPPLEMENTARY NOTATION: A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of 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.

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	ASW; OPERATIONAL ART

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

Securing and maintaining control of the undersea littoral is a prerequisite for all subsequent enabling maritime operations and land operations of a sustained nature. This paper addresses the need for a new approach to solving the problem of seizing control of the subsurface littoral battlefield, emphasizing the role of the joint force commander (JFC). Included is a brief primer on subsurface warfare (SSW), a discussion of the threat and complexities of modern SSW, and an analysis of how a JFC, by utilizing operational art, can influence the SSW mission. The analysis shows the decisive impact that operational level planning and decision making has on the outcome of the subsurface battle. Current doctrine, organizational structures, and operational planning is reviewed. Changes are proposed with an aim toward improving the joint commander's ability to understand, plan, and fight the subsurface phase of an operation.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT X UNCLASSIFIED/UNLIMTED __ SAME AS RPT. __ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED
22a. NAME OF RESPONSIBLE INDIVIDUAL CHAIRMAN, OPERATIONS DEPARTMENT	22b. TELEPHONE (Include Area Code) 841-3414
	22c. OFFICE SYMBOL C

Abstract of

COMMAND UNDER THE SEA: THEATER SUBSURFACE WARFARE FOR THE JOINT FORCE COMMANDER

Securing and maintaining control of the undersea littoral is a prerequisite for all subsequent enabling maritime operations and land operations of a sustained nature. This paper addresses the need for a new approach to solving the problem of seizing control of the subsurface littoral battlefield emphasizing the role of the joint force commander. Included is a brief primer on subsurface warfare, a discussion of the threat and complexities of the modern subsurface warfare (SSW), and an analysis of how a joint commander by exercising operational art can influence the SSW mission. The analysis shows the decisive impact that operational level planning and decision making has on the outcome of the subsurface battle. Current doctrine, organizational structures, and operational planning is reviewed and changes proposed with an aim toward improving the joint commander's ability to understand, plan, and fight the subsurface phase of an operation.

TABLE OF CONTENTS

LIST OF TABLES

COMMAND UNDER THE SEA: THEATER SUBSURFACE WARFARE FOR THE JOINT FORCE COMMANDER

CHAPTER I

INTRODUCTION

The nature of warfare beneath the seas is undergoing a rapid and profound change. It affects not only naval strategy as put forth in ... From The Sea but also the overall joint military strategy and the armed forces role in protecting national security. Unfortunately, perceptions within military and civilian government about the decreasing importance of undersea warfare and the reduced subsurface threat is weakening the our ability to plan and conduct effective operations around the globe. As is often the case the symptoms precede the illness and the situation with the littoral anti-submarine warfare (ASW) aspect of SSW is no different. Those most directly involved with the issue are questioning the commitment to this critical area of warfare as this comment from a recent conference of the U.S. Navy's experts in ASW indicates: "We have lost the initiative in shallow water ASW, fleet performance in this area has been poor and we need to recognize ASW in shallow water as a distinct warfare area and realign our requirements." [1]. Comments like this are symptomatic of a greater problem

beyond the scope of Navy readiness to conduct ASW. The issue is that the people who have been charged with fighting the regional conflicts, the regional Commanders in Chiefs (CINC), must identify the threats, and set the requirements for the supporting forces. Furthermore, they must be capable of conducting theater SSW at the operational level which requires more supportive doctrine, organizational structures, and operational plans than exists today.

The term subsurface warfare (SSW) was chosen for the title because the thesis that CINC's need to set requirements and dictate the terms of how SSW battles are fought applies to all aspects of undersea warfare. The scope of SSW includes anti-submarine warfare, offensive submarine operations, mining and mine countermeasures, and many aspects of special forces operations. It is beyond the scope of the paper to address all areas hence the focus is narrowed to theater ASW in the littoral region. This aspect is the key to success in most other areas of SSW. It deals with the platform which can challenge supremacy of the battlespace and thereby preclude the other missions from taking place. It is also the area where our ability to prevail is most seriously challenged. Although the discussion for the remainder of the paper deals with ASW the reader should keep in mind the broader perspective of SSW.

The paper opens with a short primer on ASW. The purpose is to outline the principles of theater ASW strategy to give an appreciation or how to conduct ASW in a pure sense, theoretical ASW if you will. Examples from past ASW operations are given to illustrate what happens when theoretical ASW methodology is put into

practice. The next chapter deals with the nature of the threat and the complexities of the ASW mission today. The analysis then shifts to the difficulties of merging joint warfighting doctrine into theater ASW in the littoral. How the joint force commander (JFC) uses operational art to influence the ASW phase of a major operation is discussed. Finally, conclusions are drawn as to the current state of affairs in theater ASW support to joint warfare. Recommendations are put forth for both the regional Commanders in Chief (CINC) and the supporting commands to help the JFC accomplish the mission.

CHAPTER II

ANTI-SUBMARINE WARFARE:A PRIMER

ASW has over the years been defined a number of ways. Depending on your point of view the task of ASW can be defined differently. A tactician may define it as operations to prevent an encounter between hostile submarines and mission essential units. For the operational level and strategic commander a broader definition is required. ASW defined as: "a form of warfare, fought mainly at sea, that is aimed at defeating the warfighting purposes of the submarine"[2] fits the bill and has important connotations which become important when discussing joint warfare. These will be brought out later in the paper. Figure 1 illustrates the primary considerations facing commanders at the operational level of warfare when conducting ASW.

FIGURE 1

THEORETICAL ASW MODEL

	DESTRUCTION	CONTAINMENT	DEGRADE
SOURCE			
TRANSIT			
PATROL			

Source: Matthew B. Ashley, "Intelligence and the Third World Submarine Threat." Unpublished Research Paper, U.S. Naval Postgraduate School, Monterey, CA: 1991, p. 26.

Across the top are various degrees of dealing with the threat. The vertical column specifies the enemy locations where ASW operations are focused.

In a general war given the time, assets, and political and legal option a destruction/source approach is preferred. Key advantages are that it is a permanent solution. Once completed key multi-mission assets are free to perform other tasks.[3] This is critical because wargaming results indicate that ASW forces, especially SSNs, are essentially dedicated assets when conducting littoral ASW and are not effective in accomplishing concurrent secondary missions.[4] Another advantage is that is solves the most difficult problem in all of ASW: finding the submarine at sea.[5] If a destruction/source option is not available the following adverse effects manifest themselves to the ASW commander:

1. The ASW mission takes much longer to complete. The operation can take weeks to complete especially if the enemy submarines operate covertly.

2. The ASW mission requires more assets. Significant C4I resources are required due to the large areas searched and coordination required. Valuable multi-mission assets are no longer available for other joint operations.

3. ASW becomes more lethal. The total number of U.S. Navy deaths by hostile action from October 1979 to December 1992 is 77.[6] In a single engagement Argentina suffered 321 dead, 25% of the crew, when the cruiser General Belgrano was torpedoed by the British Royal Navy SSN, HMS Conqueror.[7]

In choosing alternative options the ASW commander must analyze the effect on his forces as well as those of the enemy. Moving to the right on Table 1 has the

effect of reducing the intensity of ASW effort required. Moving down the table has the effect of increasing the degree of freedom allowed for enemy submarine operations. Where an ASW commander operates in this model depends on the situation and on factors controlled not by him but by the JFC. The following example show the enormous impact these factors have on the success or failure of the ASW mission.

During WW II the ASW war was fought without restriction using all methods in the model. Strategic bombing of sub bases, hunter killer surface action groups, national level signals intelligence resources, and massive logistics operations combined to destroy some 991 Axis submarines at a cost of 2753 Allied ships sunk.[8] The important lesson to be learned is that the ASW commanders needed all options, had all them available, and employed all of them to defeat the warfighting purpose of the enemy submarine force. Such was not the case in the Falklands War. During the conflict Argentine forces operated two submarines. Sante Fe (S-43), a T1700 class SSK, operated in British controlled waters for several days evading detection by a modern British SSN, Conqueror, in the South Georgia area. She was eventually detected when she surfaced at the main port of Grytvihen which had been retaken by the British. She met her demise at the hands of armed helicopters firing air to surface missiles.[9] The British employed a destruction/source mode successfully with maximum economy of force. The ASW efforts against the second Argentine unit, San Luis (S-32), a T209 SSK, went much differently. U.K. strategy in the Falklands War did not permit a destruction/source option which required strikes at sub bases on the Argentine homeland. Neither assets nor time were available to conduct an effective

ASW operation during the San Luis' transit phase. The multi-mission ASW forces were required to enforce the maritime exclusion zone (MEZ) around the islands and defend the mission essential units, the aircraft carriers and troop transports, from air attack. This left the British ASW commander with no choice but to employ methods to deal with the submarine on patrol. Containment operations require knowing generally where the submarine is over an extended period of time. Area search assets such as long range maritime patrol aircraft (MPA) and fixed integrated undersea surveillance systems (IUSS) were not available. The British had no way to monitor the submarines movements ergo a containment option was not available. The most effective tool to degrade the effectiveness of SSKs is maneuver and avoidance. This option was denied since the decision was made to keep the task force in a static position relatively close to shore. This was deemed necessary to provide adequate support to land forces and to provide for better air defense. The net result is that the U.K. ASW forces were forced to adopt a destruction/patrol approach to the problem, in essence point defense ASW, in a very poor geographic area for conducting subsurface warfare. Recall that from the model this approach would result in maximum ASW effort required while simultaneously allowing maximum freedom of action to the enemy. This is a near worst case scenario given the limited assets the British were able to muster and sustain 8000 miles from home. The results for all intents and purposes was failure to accomplish the ASW mission. It can be argued that the U.K. ASW effort succeeded because there were no friendly ships sunk by enemy submarine action. The reality is that San Luis conducted a 36 day war patrol

and operated in the vicinity of the British task force for several days. She conducted several attacks on U.K. warships. She failed to achieve hits due to factors onboard the submarine dealing with the weapons firing equipment.[10] British ASW forces, arguably the best trained ASW force in the world at the time, employed state of the art technology against what many perceived to be a low threat and failed.

Patrol/destruction failed to "defeat the wartime purpose of the enemy submarine". The key point is that decisions and actions that drove the ASW commanders game plan in the Falklands had very little to do with ASW and were made by the JFC. In a very real sense these decisions and actions decided the subsurface battle before forces were ever engaged. Whether or not the JFC and his staff appreciated the threat, or realized the degraded posture ASW forces were put in is questionable. What would have happened to the invasion plans if San Luis sunk one of the British carriers? A closer examination of the threat and the mission facing ASW forces is in order to answer these questions and is the subject of the next chapter.

CHAPTER III

MODERN THEATER ASW WARFARE

The Threat. No one can predict what will happen in the next undersea conflict. It is useful however to examine where the U.S. could be challenged and what threats would be present. As Table I shows there are 25 countries other than our traditional NATO allies, Japan, Israel, South Korea, and Russia that operate modern SSKs. Collectively they operate in all the worlds oceans save the Arctic and Antarctic. These 25 countries account for 248 operational submarines with another 23 building or on order. Of note is the large number of South and Central American countries on the list (8). This is of interest because our ASW forces have very little experience operating in that area. To put it in perspective from January 1976 to June 1991, a 15 year period, the presence of naval forces in the waters off Central and South America amounted to 53 carrier / days.[11] This constitutes a sizable part of the world that we know very little about in terms of conducting ASW that is home to a large number of potential enemy submarines.

The proliferation of SSKs and supporting technology is a growing problem. Table II shows the countries which export SSKs. Modular software driven integrated submarine combat systems are easily backfit into older subs. This is an especially attractive option for countries short on cash that want to upgrade the combat capability of their submarine force. Air independent propulsion (AIP) technology is also being

TABLE I NON ALLIED SSK ORDER OF BATTLE

COUNTRY	# OF UNITS	SUPPLIER (1)	MODERN
ALBANIA	3	EAST	NO
ALGERIA	4	EAST	YES
ARGENTINA	4+4	WEST	YES
BRAZIL	7+3	WEST	YES
BULGARIA	4	EAST	NO
CHILE	4	WEST	YES
CHINA	113	EAST	YES
COLUMBIA	4	WEST	YES
CUBA	3	EAST	NO
ECUADOR	2	WEST	YES
EGYPT	13	EAST	NO
INDIA	17+11	WEST	YES
INDONESIA	2+2	WEST	YES
IRAN	2+1	EAST	YES
N. KOREA	21	EAST	NO
LIBYA	6	EAST	NO
PAKISTAN	6	WEST	YES
PERU	12	WEST	YES
POLAND	5+1	EAST	YES
ROMANIA	1+1	EAST	YES
S. AFRICA	3	WEST	YES
SYRIA	3	WEST	YES
TAIWAN	4	WEST	YES
VENEZUELA	2	WEST	YES
YUGOSLAVIA	3	EAST	YES
TOTALS	248+23	12E/13W	19 YES / 6 NO

TABLE I (CONTINUED)

Source: U.S. Naval Institute. "Ships/Submarines/Country of Origin." USNI Military Database, December 1993.

Notes:
(1) EAST refers to eastern block sources primarily former Soviet. WEST refers to NATO/ European exporters.
(2) Modern equals T209 / KILO class or equivalent.

TABLE II

COUNTRIES EXPORTING SSK'S

COUNTRY	SUBMARINE TYPE
WEST GERMANY	T207/T209/T500/T1700/T2000
NETHERLANDS	ZWAARDVIS
SWEEDEN	VASTERGOTLAND/NACKEN
RUSSIA	KILO/FOXTROT/ROMEO/WHISKEY
U.K.	T2400/OBERON
SPAIN	AGOSTA-80
CHINA	ROMEO
FRANCE	AGOSTA/DAPHNE
U.S.	GUPPY/TANG/TIBURON

Source: Center for Naval Analyses. Operations Research Group. Some Aspects of Low Intensity Conflict (LIC), CRM 90-58 (Alexandria, VA: 1990), p. 9.

incorporated into existing hull designs. Hybrid AIP SSKs are capable of extended submerged operations nominally four to five times that of a typical diesel

electric/battery powered submarine. Some systems such as Stirling engines and fuel cells are already at sea. The Swedish operate a Nacken class SSK with a Stirling/battery hybrid propulsion system which boasts a 19 day submerged endurance. West Germany is operates T1700 class SSK powered by a fuel cell/battery hybrid propulsion system capable of a 16-20 day submerged endurance at 5 knots. The cost of these types of backfits in dollars is 10-30 % of the cost of a new construction submarine.[12] Table III gives characteristics for two representative classes of modern SSKs.

TABLE III

OPERATIONAL CHARACTERISTICS OF MODERN SSK'S

	T209/1400	*KILO*
BUILDER	WEST GERMANY	RUSSIA
SURF DISPLACEMENT	1400 TONS	2500 TONS
PROPULSION	DIESEL ELECTRIC/BATT	DIESEL ELECTRIC/BATT
SPEED (SURF/SUB)	11/21.5 KTS	12/18 KTS
ENDURANCE (PATROL)	50 DAYS	45 DAYS
WEAPONS	TORPS/MINES	TORPS/SAM/MINES
CREW	30	52
MISSION (PRIMARY)	ASW/ASUW	ASUW/MINING

Source: U.S. Naval Institute. "Ships/Submarines/Country of Origin." USNI Military Database, December 1993.

Other "cheap" improvements are available which greatly improve the combat effectiveness of SSKs. On the Italian Sauro class SSKs fluctuating snorkels maintain a constant height above water to avoid detection.[13] This is an example of the type of technology being used to reduce the expertise needed to employ the SSK as a weapon. Automation has reduced the crew size of some versions of the West German T209 to 30. Advantages include reduced training requirements and improved habitability. The result is a significant positive effect on crew efficiency particularly on longer patrols. The cumulative effect of all these factors is to make it much more desirable for countries to procure and operate SSKs. Front line submarine technology is an available, affordable, and effective means for Third World countries to seize control of the littoral regions around their shores.

Does the acquisition of hardware alone constitute a threat? It is generally recognized that to have an effective submarine force a country must have good submarines, proficient operators, and a solid support infrastructure (i.e. docking, repair facilities, schools, etc.). Although possessing good submarines many argue that most Third World countries do not have proficient crews or the infrastructure to keep the units at sea and combat ready. True, no Third World country has a submarine force trained to the standards of the U.S., U.K., or France. This is because for most Third World submarine forces neither the systems they operate nor the missions they perform require that level of expertise. SSKs are becoming much more "user friendly" for moderately trained and resourced submarine forces. Only a small number of highly trained people are required to make the ship combat effective. As the following

passage reveals often it is the captain alone who makes the submarine a viable weapon:

> The big difference between submarine and surface ship captains stems from the nature of the submarine: at periscope depth, where all sensors are available for attack, he is the only man on the attack team who sees the target, records its angle on the bow, range and speed, and distinguishes it from the rest of the surface contacts....[14]

Fledgling submarine forces can focus limiting training resources on a small number of key people and achieve *an acceptable degree of proficiency*. Additionally the dozens of missions a U.S. SSN must be equipped for and trained to do not apply to the Third World sub threat. Multi-mission capability gives way to basic submarine operations, navigation, avoiding detection, communicating, and anti-surface warfare.

Shallow water is synonymous with difficult ASW conditions. Because Third World submarines operate routinely in home waters they generally know how to exploit the difficult ASW conditions an enemy faces.[15] In the Falklands San Luis snorkeled in extremely shallow water off East Falkland Island to avoid detection.[16] Another factor which increases the relative proficiency of many submarine forces is the absence of intense ASW activity. This is frequently a by-product of naval expeditionary forces operating in forward areas such as the waters off South America or Africa. Standing theater ASW forces are not present in those regions. This combined with reduced numbers of ASW escort ships and aircraft in today's battle groups often results in an

inability to sustain an intense level of ASW activity. The result is that "quiet low stress environments may permit mediocre submariners to perform like aces".[17]

The issue of poor infrastructure is less significant due to the accessibility of technical expertise and logistics support often negotiated as part of a procurement package. Recent agreements to purchase western submarines include training and logistic support. Readiness levels are likely to increase in the future.[18] All indicators point towards the presence in the Third World of a credible SSK threat today and an increasing threat both qualitatively and quantitatively in the near future.

The Mission. What is it that makes the littoral ASW mission so special? Why must the JFC become involved other than to allocate forces, put somebody in charge and wait for the report that all the submarines are gone? These are valid questions frequently discussed during joint operational planning. One answer discussed earlier is that the JFC in prioritizing missions and allocating assets can dictate a very narrow range of options to the ASW commander. The mission becomes too hard even with superior technology as the Falklands example suggests. Another more fundamental reason why the JFC must directly address the ASW mission is because in ASW the tempo of operations is frequently dictated by the enemy. Submarines must "cooperate" to be located, accounted for, and if needed engaged and destroyed. If the enemy does not cooperate and decides to operate covertly then the only prudent action is to assume the threat exists and take actions to prevent an encounter which usually serves the warfighting purpose of the enemy by yielding battlespace dominance of the littoral.

If the enemy does decide to "cooperate" that is hardly good news given the lethality of a submarine torpedo as evidenced by the Belgrano sinking during the Falklands. Our dependence on small numbers of large high capacity ships to project power from the sea is a major liability in joint operations. The U.S. Marine Corps amphibious capability requires large deck air-capable amphibious ships to successfully project combat power ashore and Maritime Prepositioning Force ships to sustain the effort. Loss of a single one of these assets would jeopardize an entire operation. In Operation Desert Shield the eight SL-7 fast sealift ships while constituting only four percent of the ships used for sealift accounted for 20% of the total cargo lift.[19] Assets of this magnitude of importance can not be held at risk. The issue is not if the submarine will encounter friendly forces but when. Quantitative studies have determined the likelihood of interaction in littoral ASW scenarios involving an SSK threat. The following is a summary of one such study:

> For operations near a country operating submarines that require remaining in the area for any but the briefest period of time the probability of encounter is nearly certain and the mean time to encounter is a few days. As a result in most cases U.S. forces will need some means of dealing with hostile submarines.[20]

The inability to set a timeline and control the operational tempo, high probability of an encounter with the enemy, lethality of the engagement, and the impact on a major operation of a single engagement make ASW different. It is not just another mission, it is the mission upon which all others depend in many regional scenarios.

Littoral theater ASW is about basic Mahanian control of the sea. In 1950 Admiral Forest P. Sherman, then Chief of Naval Operations, said: " When you can't go where you want to, when you want to, you haven't got control of the sea. And control of the sea is a rock bottom foundation of all our war plans."[21] The threat posed by modern SSKs and the complexities and criticality of littoral ASW are much greater than the wide open Cold War ASW problem of the past. The question now becomes: what is the JFC supposed to do about it? What can be done at the operational level within the framework of joint military doctrine to ensure a successful ASW phase of a joint operation? The next chapter addresses these issues.

CHAPTER IV

OPERATIONAL ART AND ASW

As suggested in the introduction JFC must dictate the terms of the subsurface battle. Operational art can be employed to create an environment where success is assured or at least highly probable. Before discussing what that entails an examination of the status quo is needed. What is wrong with the way ASW support is provided today? The conventional wisdom on how to deal with the present day Third World subsurface threat falls into three general categories. The first is the "Single Service Approach". ASW is a Navy problem. The mission is perceived as being a small subset of the overall Navy contribution to the joint effort and can be managed "in house". The problem is that as mentioned earlier littoral ASW is a prerequisite for all follow on maritime operations. Along with sea mines, coastal SSK's have proven to be "show stoppers" in most wargame scenarios involving power projection forces from the sea.[22] Additionally, the Navy cannot do the mission alone. ASW forces, especially air ASW assets, require a benign threat environment in which to operate. In contested littoral regions joint air and ground forces frequently provide secure battlespace for ASW forces. Frequently the primary search assets are non-naval. National intelligence assets including overhead systems, sensitive reconnaissance operations

by aircraft, and special operations forces are the primary means for locating and maintaining contact on enemy submarines.

The second approach to the problem is the "Tactical Approach". The solution is to let the submarine close the force then deploy assets capable of countering any initial attack. Area search systems such as MPA and IUSS are de-emphasized. The SSN shifts from being a forward operating area ASW search platforms to a dedicated battle group support asset operating in proximity to the main body. The Tactical Approach is defensive in nature. It forces ASW forces to adopt sub-optimal patrol/destruction stratagems like those used unsuccessfully in the Falklands. It also drives to problem back to a single service solution since there is little opportunity for interoperability and the synergy of joint force operations if the ASW problem starts with the enemy in firing position. The enemy sets the operational tempo by deciding when and where to embroil the joint task force in an ASW conflict.

The third approach is the "No Threat" approach. The threat is simply assumed away. This happens to be one of the more popular approaches. The problem is that there is no empirical evidence to back the claims. Unlike most other forms of warfare there is virtually no real world combat experience base to use to draw realistic conclusions as to how dangerous an SSK is or how difficult it is to find and kill one. Sun Tzu warns: "The rule of military operations is not to count on opponents not coming, but to rely on having ways of dealing with them; not to count on opponents not attacking, but to rely on having what cannot be attacked."[23]

This brings the discussion back to the JFC and the use of operational art to influence the ASW mission. Joint Pub 3-0 points out that "operational art helps commanders understand the conditions for victory before seeking battle."[24] One of these conditions is sound doctrine. A review of the indexes of doctrinal publications, Joint Pub 1-01 and the Navy equivalent Naval Warfare Publication 0 reveal that joint doctrine for the conduct of ASW does not currently exist. Adoption of a Naval doctrine by joint forces in hampered because there are so many differing ASW doctrines within the Navy. There is however a wealth of Allied doctrine, albeit mostly at the tactical level. The joint staff can use this to formulate plans and a Commander's Intent which is based on a realistic degree of ASW effectiveness. The JFC can then employ operational art to arrange the efforts of the various land, sea, air, and space forces in time, space, and purpose to accomplish the mission.[25]

Another condition for victory is a flexible organizational structure capable of "seeing, hearing, and understanding the needs of subordinates and superiors."[26] In a flexible organizational structure the JFC exercises whatever level of authority is required to complete the mission. Two critical elements of the organizational structure are level of control and connectivity. Are the forces controllable? Can they be made to respond in a manner that keeps pace with the commander's decision cycle? In the Falklands the British submarines were not under the control of the at sea JFC. This had serious consequences when the time came to counter a rapidly developing threat approaching from two directions, the carrier group led by Veintecino de Mayo to the north and the cruiser group led by Belgrano from the south . The JFC had to

coordinate with military headquarters 8000 miles away in London to change the rules of engagement (ROE) and task the submarine to conduct an attack.[27] The other critical element of an organizational structure, connectivity, to ASW forces is a significant operational problem for the JFC. This is a long standing weakness in theater ASW operations. In the Atlantic AOR this deficiency was identified as follows: "Assured, long haul, redundant, secure comms between afloat and ashore commanders including ASW units and ASW Command Centers is required due to the high number of units requiring connectivity and the increased amount of data requiring transmission caused by expanded area coverage."[28]

A third condition for victory is effective operational plans. Factoring the complexities of littoral ASW into joint operations requires significant experience and expertise, often more than can be brought to bear on most joint staffs. For instance the infrastructure responsible for planning and coordinating submarine operations, the submarine operating authority (SUBOPAUTH) is a highly specialized world-wide network of people, computers, and communications systems. The same is true for theater ASW systems such as IUSS and MPA. The JFC must tap into these resources during development of operational plans as well as their execution in order to obtain the maximum effectiveness from ASW forces.

By using operational art to skillfully manipulate existing doctrine, build organizational structures, and formulate operational plans the JFC creates a favorable environment for ASW forces to win. The pitfalls of underestimating the threat and the requirements of the mission are avoided, precluding a Falklands-like ASW scenario.

Recommendations as to how to improve the JFC's ability to establish the conditions for ASW victory follow in the conclusion.

CHAPTER V

CONCLUSION

What can be done to improve the joint commanders ability to dictate the terms of the ASW battle? First and foremost those responsible for fighting the wars, the regional CINCs, must accurately assess the subsurface threat in their AOR's. This goes well beyond a mere technical assessment of the capabilities and limitations of a particular type of submarine. Regional CINCs are in the best position to determine the threat posed by a hostile submarine presence in their AOR. For example U.S. Central Command's mission to maintain regional stability is directly threatened by any subsurface threat due to the geographic significance of the Straits of Hormuz and the importance of oil flow through that waterway. Second, regional CINCs must clearly and forcefully articulate requirements for dealing with the assessed threat to supporting force commanders. CINCs fight the wars and their requirements should dictate the numbers, types, and training of forces deployed to the region. Depending on supporting force commanders to "guess right" and provide the forces needed is not good policy. Supporting force commands are required to deploy forces capable of performing a wide range of missions anywhere in the world. In a smaller force structure with fewer operating dollars this results in compromises in what is deployed to a region unless well articulated requirements are made available early on. Third,

CINCs must ensure opplan timelines fit inside the ASW forces ability to deliver the required level of subsurface superiority. Plans which do not allow sufficient time to completely eliminate the threat are extremely high risk operations. Addressing this "long pole in the tent" early on in the plan development phase is a key to successful ASW operations. Fourth, as the primary supporting force command, the Navy should retain its remaining theater ASW organizational structures in place where they have proven to be effective. They can be used as a nucleus for deployable ASW command and control staff task forces either as a self contained unit or as augmentation cells to joint staffs. Organizations such as CTF 12 in the Pacific Command, CTF 84 in the Atlantic Command, and Commander Sixth Fleet in the European Command are well suited to the task. This makes more efficient use of a highly specialized and perishable area of staff expertise. Fifth, centralize theater ASW planning, doctrine development, and other support functions. A narrower ASW mission with a littoral focus concentrated on the SSK threat lends itself to a centralized approach. The Commander Mine Warfare Command (COMMINEWARCOM) model is an excellent example of how planning, doctrine development, and other mission support functions are centralized. Expertise and experience are concentrated and brought to bear on the mission and exported globally whenever needed to support joint operations. In fact COMMINEWARCOM has two mobile augmentation teams which routinely deploy in support of exercise and real world operations.[29] Finally, serious consideration should be given to standing up and maintaining rapid reaction, quickly deployable ASW specialized force packages. Training all Naval forces to the level required to

take on the threat makes no more sense than training all the infantry units in an army to the level of special forces.

The joint commander from his vantage point must use all means available to dictate the terms of the subsurface warfare phase of joint operations to ensure success. ASW policies which limit options of friendly forces while simultaneously permitting maximum freedom of action to the enemy are costly and often unsuccessful. The SSK threat is credible right now. Trends toward proliferation of platforms to the Third World and rapid technological improvements backfitted on existing hulls makes the near term SSK threat more dangerous. The probability of becoming involved in a subsurface littoral conflict is increasing. The current system in place to provide theater ASW support is an ad hoc arrangement that will not adequately support the joint commander in future operations. Preparation for ASW in a low intensity Third World conflict is not likely to be a by product of programs aimed at the Soviet threat.[30] The National Military Strategy tasks the services to jointly maintain a forward presence in regional areas of interest and effectively respond to crises. ... From the Sea supports this strategy by calling for forces capable of dominating the littoral battlespace wherever needed. Most importantly, armed forces exist to deter war and win the ones they have to fight. The role of littoral ASW in all of these missions is clear: "Credible regional deterrence depends on sea control, which in turn depends on ASW." [31]

NOTES

Chapter I

1. U.S. Navy Dept, CINCLANTFLT ASW Improvement Program Conference Report (Naval Station Norfolk, VA: 1993), p. 16.

Chapter II

2. Jan S. Breemer, "Anti-submarine Warfare: A Strategy Primer," Unpublished Research Paper, U.S. Naval Postgraduate School, Monterey, CA: 1988, p. 1.

3. Ibid., p. 3.

4. Interview with CDR. Robert W. Filanowicz and CDR David G, Howards, Staff, Operations Division, Wargaming Department, Naval War College, Newport, RI: 19 January 1994.

5. Breemer, p. 3.

6. U.S. Department of Defense, Worldwide U.S. Active Duty Military Personnel Casualties (Washington: 1992), p. 6.

7. Sandy Woodward, One Hundred Days: The Memoirs of the Falklands Battle Group Commander (Annapolis: U.S. Naval Institute Press, 1992), p. 161.

8. Office of the CNO, Report #51 of the Operations Evaluation Group (Washington: 1946), p. 80.

9. Craig J. Lokkins, "The Falklands War: A Review of Sea Based Airpower, Submarine, and Anti-Submarine Warfare Operations," Unpublished Research Paper, Air University, Maxwell AFB AL: 1989, pp. 15-16.

10. Ibid., p. 16.

Chapter III

11. Center for Naval Analyses, Operations and Support Division, Deployments and Geographic Distribution of Carriers and the Surface Fleet, CIM 195. Alexandria, VA: 1991 p. 5.

12. Billy J. Archer, Trends in Diesel Submarine Technology, CIM-75, (Alexandria, VA: CNA, 1990), pp. 7-8.

13. Ibid., p. 11.

14. Paulo Roberto Biassio Miro, "Life on a Diesel Boat," U.S. Naval Institute Proceedings, March 1993, p. 88.

15. Costa S. Vatakiotis, Conventional Submarines in the Third World, CRM 90-40, (Alexandria, VA: CNA, 1990), p. 15.

16. Ibid.

17. John V. Hall, An ASW Appraisal of the Pacific Theater, CRM 90-24, (Alexandria, VA: CNA, 1990), p. 4.

18. Ibid., p. 14.

19. Center for Naval Analyses, Operations and Support Division, The Effect of Sealift Activity in Operation Desert Shield: 7 August 1990 to 9 January 1991, CRM 91-14, (Alexandria, VA: 1991), p. 5.

20. Center for Naval Analyses, Operations and Support Division, Capabilities of Tactical U.S. ASW Systems in Regional Conflict, CNR 192, (Alexandria, VA: 1992), p. 18.

21. Forest P. Sherman, Quoted in "Navy Moves 'All Ahead Flank' in Mine Warfare" Seapower Magazine, May 1992, p. 27.

Chapter IV

22. Interview, Filanowicz

23. Sun Tzu, The Art of War (Boston: Shambala Publishing Inc., 1991), p. 64.

24. U.S. Joint Chiefs of Staff, Joint Pub 3-0 Doctrine for Joint Operations (Pentagon, Washington D.C.: 1993), p. II-3.

25. Ibid.

26. Ibid., p. II-20.

27. Woodward, pp. 153-155.

28. U.S. Navy Dept., USLANTCOM C3 Systems Master Plan (Norfolk: 1989), p. 66.

Chapter V

29. L. Edgar Prina, "Navy Moves to 'All Ahead Flank' in Mine Warfare," Seapower Magazine, May 1993, p. 28.

30. Center for Naval Analyses, Operations and Support Division, Some Aspects of ASW in Low Intensity Conflict, CRM 90-58 (Alexandria, VA: 1990), p. 16.

31. John F. Morton, "Shallow Water Diesels: A New Priority," U.S. Naval Institute Proceedings, March 1993, p. 126.

BIBLIOGRAPHY

Archer, Billy J. Trends in Diesel Submarine Technology, CIM-75. Alexandria, VA: CNA, 1990.

Breemer, Jan S. "Anti-submarine Warfare: A Strategy Primer," Unpublished Research Paper, U.S. Naval Postgraduate School, Monterey, CA: 1988, p. 1.

Center for Naval Analyses. Operations and Support Division. Capabilities of Tactical U.S. ASW Systems in Regional Conflict. CNR 192. Alexandria, VA: 1992.

Center for Naval Analyses. Operations and Support Division. Deployments and Geographic Distribution of Carriers and the Surface Fleet. CIM 195. Alexandria, VA: 1991.

Center for Naval Analyses. Operations and Support Division. Some Aspects of ASW in Low Intensity Conflict. CRM 90-58. Alexandria, VA: 1990.

Hall, John V. An ASW Appraisal of the Pacific Theater . CRM 90-24. Alexandria, VA: CNA, 1990.

Interview with CDR. Robert W. Filanowicz and CDR David G, Howards, Staff, Operations Division, Wargaming Department, Naval War College, Newport, RI: 19 January 1994.

Lokkins, Craig J. "The Falklands War: A Review of Sea Based Airpower, Submarine, and Anti-Submarine Warfare Operations." Unpublished Research Paper, Air University, Maxwell AFB AL: 1989.

Miro, Paulo Biassio Robert. "Life on a Diesel Boat." U.S. Naval Institute Proceedings, March 1993, p. 88.

Morton, John F. "Shallow Water Diesels: A New Priority." U.S. Naval Institute Proceedings, March 1993, p. 126.

Office of the CNO. Report #51 of the Operations Evaluation Group. Washington: 1946.

Prina, L. Edgar. "Navy Moves to 'All Ahead Flank' in Mine Warfare." Seapower Magazine. May 1993, p. 28.

Sherman, Forest P. "Navy Moves 'All Ahead Flank' in Mine Warfare" Seapower Magazine. May 1992, p. 27.

Tzu, Sun. The Art of War. Boston: Shambala Publishing Inc., 1991.

U.S. Department of Defense. Worldwide U.S. Active Duty Military Personnel Casualties. Washington: 1992.

U.S. Joint Chiefs of Staff. Joint Pub 3-0 Doctrine for Joint Operations. Pentagon, Washington D.C.: 1993.

U.S. Navy Dept. CINCLANTFLT ASW Improvement Program Conference Report. Norfolk, VA: 1993.

U.S. Navy Dept. USLANTCOM C3 Systems Master Plan. Norfolk: 1989.

Vatakiotis, Costa S. Conventional Submarines in the Third World. CRM 90-40. Alexandria, VA: CNA, 1990.

Woodward, Sandy. One Hundred Days: The Memoirs of the Falklands Battle Group Commander. Annapolis: U.S. Naval Institute Press, 1992.