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Antisubmarine Warfare in the Fifth Naval District During World War II: The Defenses of the Chesapeake Bay

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ANTISUBMARINE WARFARE IN THE FIFTH NAVAL DISTRICT DURING WORLD WAR II: THE DEFENSES OF THE CHESAPEAKE BAY

by

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ABSTRACT

ANTISUBMARINE WARFARE IN THE FIFTH NAVAL DISTRICT
DURING WORLD WAR II
EMPHASIZING THE DEFENSES OF THE CHESAPEAKE BAY

James Russell Powell
Old Dominion University, 1990
Director: Dr. Peter Stewart

This thesis investigates how the United States Navy, with assistance from the Army and Coast Guard, utilized the various aspects of antisubmarine warfare to protect the Chesapeake Bay and the maritime trade within the Fifth Naval District from the menace of Germany's U-boats during World War II. The details of how these efforts began and were carried out are described.

This thesis complements the other histories of antisubmarine warfare during World War II, which have not emphasized the defenses established for the Chesapeake Bay and the Fifth Naval District. The strenuous, and successful efforts by America's armed forces and the actual fighting and dying that took place here deserve a fair recounting.

The resources available in the library and archives of the Naval Historical Center in Washington, D.C. have been used extensively. Other sources include museums and archives in Virginia, local historians, veterans of the war, and records in private collections.

DEDICATION

This Thesis Is Dedicated

To My Mother

Mavis Russell Powell

And To My Father

Dr. Stanley Hobson Powell

ACKNOWLEDGEMENTS

I would like to thank the following people and institutions who helped in this project: from Old Dominion University, Drs. Peter Stewart, Patrick Rollins, and Carl Boyd; from the Life Saving Museum, Angus Murdock, retired Army Lt. Col. Fielding Tyler, and Frank R. Shields; from the Hampton Roads Naval Museum, Ensign Edward Hayes; from the Operational Archives of the Naval Historical Center in Washington, D.C., archivist Kathy Lloyd; from the Casemate Museum, archivist David Johnson; also, retired Navy Captain Henry Clark, a local expert on anti-submarine warfare training, Alan Flanders, local naval historian and author, Mavis R. Powell for aid in proof reading, and Thomas H. Powell for assistance in producing the computer generated charts herein.

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LIST OF ABBREVIATIONS

Military Terms

AAF	Army Air Force or Forces
ASW	antisubmarine warfare
BUORD	Bureau of Ordnance
CAP	Combat Air Patrol
CCS	Combined Chiefs of Staff
CinC	Commander in Chief
Cinclant	Commander in Chief, Atlantic Fleet
CNO	Chief of Naval Operations
CO	Commanding Officer
Cominch	Commander in Chief, U.S. Fleet
Exec.	Executive Officer
HECP	Harbor Entrance Command Post
HF/DF or "Huff Duff"	High Frequency Direction Finder
HMS	His Majesty's Ship (Royal Navy)
JCS	Joint Chiefs of Staff
MIA	missing in action
MTB or PT	Motor Torpedo Boat
NOB	Naval Operations Base
OEG	Operations Evaluation Group
ONI	Office of Naval Intelligence

PC	Patrol Craft
PM	Prime Minister (Winston Churchill)
RAF	Royal Air Force

Abbreviations in Bibliography

BUORD	Bureau of Ordnance
M.F.	microfilm
N.H.C.	Naval Historical Center
ODU	Old Dominion University
OEG	Operations Evaluation Group
P.C.	personal copy
P.I.	personal interview
P.P.L.	Portsmouth Public Library

There's a Whining at the Threshold

There's a Scratching at the floor

To work! To Work! In Heaven's Name

The Wolf is at the door!

"The Wolf at the Door," Stanza 6
Charlotte Perkins Stetson Gilman

CHAPTER I

INTRODUCTION

During the early days of World War II, the United States was the major source of war material for England in its battle against Germany. Adolf Hitler understood that it was this support which enabled England to withstand his nation's staggering offensive. If this lifeline from America could be cut, or reduced to an insignificant level, England could be strangled and starved into submission, giving the Axis control over western Europe. Realizing this, the Germans unleashed their powerful fleet of Unterseebooten, or U-boats, against both the transatlantic convoys and the source of these vital supplies, the eastern coast of America. It was this effort, beginning after Pearl Harbor, to stop the flow of supplies at the source, that brought U-boats to the coast of Virginia, where they created havoc with shipping and awoke the local armed forces to the reality that the war had indeed come to America.

The coast of Virginia was second only to New York as a target for the Germans. The region is a vital part of the nation's economy with such natural features as the mammoth Chesapeake Bay, numerous rivers, tributaries, and harbors. The region also housed critical elements in the nation's

military complex with such large installations as the Norfolk Naval Shipyard, the Naval Operations Base, and the many Army forts such as Fort Story at Cape Henry and Fort John Custis at Cape Charles.

Virginia was the heart of what was called the Fifth Naval District. It occupied an area including Maryland, excluding Anne Arundel, Prince Georges, Montgomery, St. Marys, and Charles counties; West Virginia; Virginia, excluding the counties of Arlington, Fairfax, Stafford, King George, Prince William, and Westmoreland; and in North Carolina, the counties of Currituck, Camden, Pasquotank, Gates, Perquimans, Chowan, Dare, Tyrrell, Washington, Hyde, Beaufort, Pamlico, Craven, Jones, Carteret, and Onslow; plus the Diamond Shoal Lightship. The district maintained jurisdiction 15 miles out to sea during wartime. The headquarters of the district was in the Norfolk Naval Station. After the war, all naval districts except the Naval District of Washington were abolished. The function of these districts has been turned over to the naval station commanders. Naval districts will be reestablished should another, major war occur.[1] (See Figure 1.)

During World War II, in the Fifth Naval District, a total of 86 vessels were attacked with 68 sunk, 14 damaged, and only 4 escaping from an attack unscathed. The total in combined

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[1]Arthur A. Ageton, The Naval Officer's Guide (New York: McGraw-Hill, 1943), 65.

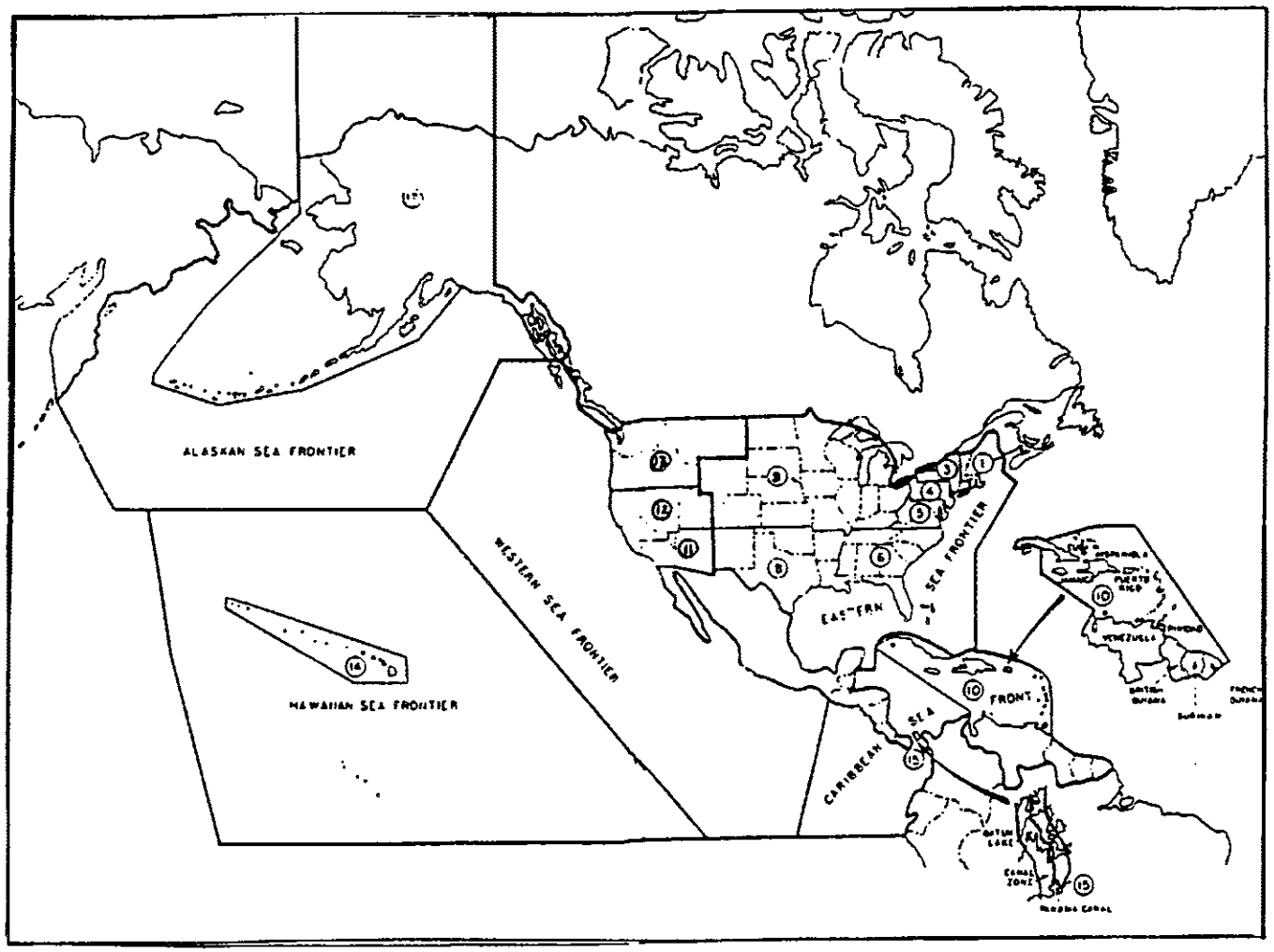

Figure 1. Sea Frontiers and Naval Districts.
Source: Arthur A. Ageton, The Naval Officer's Guide (New York: McGraw Hill, 1943), 144-45.

tonnage sunk was 428,720.[2] Obviously, the U-boats were much more than just a nuisance; they were a destructive, lethal threat to the nation's shipping and the overall war effort.

The U-boats deployed were very efficient and destructive war machines. Typically one of a series of Type VII submarines, of which 704 were built, they weighed over 700 tons when devoid of fuel and surfaced. They were 218 feet in length, 31.5 feet from the keel to the bridge, and had a 20-foot beam. With a one-inch thick pressure hull, they were designed to submerge to 100 meters. Depending upon the skill of the crew, they could submerge in 30 to 60 seconds. Typically, the U-boats were manned by 44 men, including 4 officers.

The Type VII U-boats had two huge diesel engines which produced between 2,800 and 3,200 barrel horsepower and enabled them to reach 17.5 knots. For propulsion underwater, they had two electric motors which provided a total of 750 shaft horsepower and enabled them to run at a maximum of 7.6 knots. They had an extensive range of approximately 8,500 nautical miles, with a typical cruise lasting six to eight weeks.

The armament on the U-boats was impressive. Usually, the Type VII U-boats carried fourteen 21-inch torpedoes, fired from four tubes forward, and one aft. They carried both electric torpedoes, capable of 30 knots, and compressed air

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[2]Fifth Naval District, "War Diary of Operational Intelligence," n.d., Box no. 390, pp. 1-6, Operational Archives, Naval Historical Center, Washington, D.C.

driven torpedoes, capable of 44 knots. They also had a powerful 88mm deck gun, a 20mm anti-aircraft gun, plus additional machine guns, which could be brought from below and mounted on deck. Later, as the war progressed and air attacks became more successful, the Germans de-emphasized the heavy deck gun, and enlarged the bridge to accommodate additional and more powerful anti-aircraft machine guns.[3]

Developing and implementing defenses against the U-boats proved a complicated and multi-faceted task, that incorporated the resources of both the Navy and the Army. Indeed, the armed forces learned to respect the enemy and its weapons. On 27 February 1990, Admiral Bud Edney, Vice Chief of Naval Operations, commented at the United States Naval Institute's anti-submarine warfare (ASW) seminar that the submarine was the original "stealth" vehicle, which has always been the toughest opponent on the high seas. He added that the German U-boat campaign came very close to turning the tide in World War II. Today the United States Navy has officially made ASW its highest priority area of warfare.[4]

This thesis explains how the U-boat threat during World War II was met in the Fifth Naval District, emphasizing the defenses of the Chesapeake Bay which was a crucial asset to

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[3]David Westwood, Anatomy of the Ship – The Type VII U-boat (Annapolis: Naval Institute Press, 1984), 9-12.

[4]Dr. Scott C. Truver, ed., United States Naval Institute Professional Seminar, "ASW: The Navy's Top Warfighting Priority?" USNI, 27 February 1990, pp. 3-4, photocopied.

the country and the war effort. It describes the magnitude of the threat and how the Army and the Navy cooperated to bring security to the region. It is intended to compliment the array of histories that have been prepared on the battle of the Atlantic and the U-boat offensive along America's east coast.

The many books on the subject have given only brief descriptions of the defenses around the Chesapeake Bay and Virginia. Most works have sought to describe a larger perspective of this conflict of which the Chesapeake Bay and Virginia were only a part. Writers and historians have typically given either an examination of the entire battle of the Atlantic or of the defenses along the east coast with varying emphasis on the conflict. The subject of how the Chesapeake Bay and the coast of Virginia was defended, however, has appeared only briefly in these works, which usually only emphasize how the efforts here contributed to the nation's overall war effort.

This pattern can be seen in many of the books available on anti-submarine warfare (ASW) in the Atlantic during World War II. For example, in Donald Macintyre's Battle of the Atlantic the contributions of the Fifth Naval District's defenses are described but only as part of a broad outline of the east coast's defenses. To address a topic so broad as this it is understandable that only so much attention can be granted to any one locality or region. Pertinent details,

however, of how ASW was conducted universally and how the different naval districts worked together can be gleaned from such works. This book provided details on the efforts to provide transatlantic convoys and later convoys along the east coast. Another of Macintyre's books, U-boat Killer, gave details on how destroyers were utilized to patrol for U-boats and protect vital shipping. In Terry Hughes and John Costello's book, also entitled The Battle of the Atlantic, additional details can be found on the organization of convoys and how they helped dramatically reduce the number of sinkings along the east coast. Geoffrey P. James, Defeat of the Wolf Packs, offered fascinating information on the methods employed by American planes and ships to locate, track, and attack U-boats. Theodore Taylor's Fire on the Beaches presented interesting details on how unprepared the east coast was for the onslaught of the German U-boats.

One danger present in the gamut of books on ASW is that occasionally errors occur. For example, the successful deployment of mines near Virginia Beach by a German U-boat has been ignored or misinterpreted. Edwin P. Hoyt's U-boats Offshore, published in 1978, gave a detailed overview of the U-boat war off the east coast. In it, he described how a convoy preparing to enter the Chesapeake Bay received tremendous damage when it struck these mines. He did not, however, identify the U-boat, which was the U-701. He subsequently described how this U-boat was sunk but presented no evidence

to link it to the mining incident.

It seems odd this would be left out when Samuel Eliot Morison's superb book, The Battle of the Atlantic, September 1939 – May 1943, published in 1947, has a chart listing the U-701 as the U-boat responsible for laying the mines. This book was part of Morison's multi-volume History of U.S. Naval Operations in World War II in which he gave a staggering array of details on every aspect of naval operations during World War II. Although he does not examine every aspect of the defenses around Virginia, he does give significant details concerning the overall defense of the east coast.

Adding to the wealth of books on this subject are several by former German submariners. These give tremendous insights into the war experiences of our former enemy who had to endure incredible hardships especially if they were deployed to America's east coast late in the war. In particular, they let us know what life was really like aboard a U-boat, and how it felt to be both the hunter and the hunted. Former U-boat captain Peter Cremer wrote U-boat Commander, which illustrated many of the missions he participated in during his long career with the German Navy.

One must keep an open eye for inconsistencies and errors by such authors, who are recounting the war as they choose to remember it. In Iron Coffins, former U-boat Captain Herbert Werner described a mine-laying operation in 1943 in which his U-boat somehow slipped past the defenses of the Chesapeake Bay

to deploy mines in sight of the City of Norfolk. There is no evidence to back him up, however. The mines his U-boat supposedly deployed did no damage. Furthermore, none was ever found, although regular sweeps were made of the channel. It seems unlikely he could have entered the bay in 1943 as a majority of the defenses and detection apparatus were installed and manned at that time.

Newspaper accounts of events surrounding the U-boat activities in the region must also be viewed with an critical mind. For example, when the convoy struck the mines left by the U-701, the local newspapers reported that the ships were torpedoed. The papers failed to correct their mistake until long after the war was over, and for many the event was forgotten.

Many Tidewater residents have forgotten about the U-boat presence so close to home. Many people raised in this area after the war have never heard of the fighting just offshore, or, at best, have only heard rumors about the events. It is perhaps for this reason that interest has grown recently, as local residents have discovered that their knowledge of local events is lacking.

Michael Gannon, a historian in Florida, was researching the history of his state for a book when he became interested in the large amount of information he uncovered surrounding the U-boat offensive off his state's coast. His interest led him to visit Germany where he interviewed Reinhard Hardegan

who commanded the U-123, which sank 19 ships during two cruises to the east coast. The result was his new book, Operation Drumbeat, which was published during the summer of 1990 to enthusiastic reviews. He centered upon the war experiences of Hardegan and his U-123 while giving an overview of the German offensive. Although he did not focus on the activities within the Fifth Naval District, he does give a frank evaluation of the American Navy's defenses.

In particular, Gannon criticized the Navy for waiting until after the U-boats were off the east coast and sinking ships seemingly at will before an effective defense was implemented. Frequently, such critical books follow a major military campaign, using the clear vision of hindsight. For example, books and articles have been published attempting to place blame on the U.S military and government for allowing the bombing of Pearl Harbor. In regard to the U-boat successes off the east coast, arguments similar to Gannon's make the Navy appear negligent and even uncaring. Such criticisms make it seem that the Navy could have easily and immediately established an effective defense of the entire east coast the moment the threat was detected. However nothing could be farther from the truth. By describing how the defenses off Virginia were established, this thesis shows the huge scale of this task. Enormous paperwork had to be completed to create the military departments needed, personnel had to be selected and trained, and the scarce resources had to be obtained and

deployed where they could hopefully do the most good. The fact that this task was not ignored and was instead successfully undertaken should be acknowledged.

This thesis seems timely as residents of Tidewater are indeed becoming better acquainted with the region's role in World War II, thanks in part to the work of such local historians as Alpheus J. Chewning and Homer J. Hickam. Readers got a taste of the level of activity off shore in Chewning's 1989 article, "Buried on Foreign Soil," in The Virginia Cavalcade. He described the burial in Hampton during World War II of dead sailors from the German submarine U-85, sunk off the coast of North Carolina. Although centering on this one event, it did suggest that the defense of this area was a massive undertaking, the details of which this thesis will provide. Hickam's recent book, Torpedo Junction, vividly brought to life the fighting at sea in the Fifth Naval District, particularly along the coast of North Carolina. He chronicled the exploits of several Coast Guard vessels describing how they hunted, pursued, and attacked U-boats in the Fifth Naval District.

Hopefully, through the efforts of such local historians, many area residents have become aware that there was extensive activity in the region during World War II. Most of the works on ASW, as illustrated above, have not given a detailed account of all of the efforts undertaken locally for defense. This thesis fills that gap by providing a detailed description

of the array of features incorporated to provide an adequate defense. Local residents should be proud of how this region contributed to the war effort. This was a massive undertaking for the area involving tremendous local support, the work of thousands of men and women, the cooperation of the Army, Navy, and Coast Guard, plus years of planning and implementation. Such efforts locally, in combination with those by others along the coast, repulsed the best men and machines the Germans could deliver. Out of respect for all those involved in this effort, their story must be told.

CHAPTER II

THE DANGER OFFSHORE

Before the Japanese propelled the United States into World War II, it had become unmistakably clear to the government that it must prepare for participation in the war. America's colossal economic power as well as its growing military potential made it too great a threat to the Axis powers to remain unmolested. Approximately $200,000,000 were spent on "War Measure" projects, which were kicked off in August 1940 with dredging operations in Hampton Roads. Other projects included enlarging the Naval Air Station, increasing the facilities for handling ships, building barracks, storehouses, and other buildings.

When war finally did come, it was feared that Virginia might be attacked. On 7 December 1941, after word of the Japanese attack reached the east coast, all of the Army forts went on alert, and at the naval facilities, battle stations were manned, and ships hurriedly prepared to head out to sea. Of concern was that one of the Axis powers, most likely Germany, would simultaneously attack the Naval Operations Base at Norfolk as part of a concerted offensive against America.[1]

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[1]Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide no. 129, p. 1, Operational

Such a Pearl Harbor style attack did not occur, however. The Germans did launch an offensive, but not against the naval bases and Army forts but rather against shipping coming to and leaving America. In the Fifth Naval District, the Chesapeake Bay was a prime area of such activity.

The Germans had four strategic reasons for launching their U-boats against the American coast in 1942. 1) Each shipload of supplies kept from America would hurt the economy, war production, and ultimately, the flow of materials to England. 2) The U-boat threat would force America to divert ships from the North Atlantic convoys for coastal defense, thereby making the convoys more vulnerable to attack. 3) Each ship sunk would not be available to ferry materials to England. 4) The Germans knew from their own intelligence sources that America's east coast was unprepared and inexperienced in combatting U-boats.[2]

Indeed, the east coast proved unprepared for the battle-groomed U-boats that appeared so soon after Pearl Harbor. To best defend the east coast, the Navy organized it into one administrative unit called the Eastern Sea Frontier. This frontier was protected by the Navy Fleet and the Naval Local Defense Forces. As it was the Fleet's duty to keep the enemy away from the Frontier, it became the responsibility of the

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Archives, Naval Historical Center, Washington, D.C.

[2]Ibid., 2.

Local Defense Forces to protect the coast itself and the shipping.[3] At the time of Pearl Harbor the Fifth Naval District had only four vessels suitable for offensive action against the U-boats. More ships were eventually added, but the process was painstakingly slow. That allowed the U-boats free reign early in the war. The Germans called this the "Happy Time."[4] Air patrols were also extremely limited. Army patrols from Langley Field, which began 18 December 1941 by the 65th Observation Group of the First Air Support Command, consisted only of two flights daily of one plane each. During early 1942, these patrols were of little threat to the U-boats, but their numbers were increased by the later part of the year along with their offensive capabilities.[5]

The lack of effective control of merchant vessels along the east coast also proved a hindrance. The merchant marine often defied the Navy's war-time directives. Many of the captains of the merchant ships were oblivious to any danger, and sailed with all their lights on. In addition, the coast-line was not yet blacked out, which not only silhouetted the merchant ships, making them easy targets, but it allowed the arriving U-boats to precisely pinpoint their location.

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[3]Commandant, Fifth Naval District, "History of the Fifth Naval District, 1939-1945," vol. 2, 1946, Guide No. 112, pp. 491-92, Navy Library, Naval Historical Center, Washington, D.C.

[4]Ibid., 677.

[5]Ibid., 678.

Furthermore, convoys were not in operation, nor were there enough escort vessels available even to consider them at this time.[6]

America's resources were stretched to their limits during these first days of the war. The transatlantic convoys demanded many ships. Furthermore, there was a virtual crisis in the Pacific theater as Admiral Chester Nimitz needed every available ship to stop Japanese advances. There were not enough ships to go around. Therefore, during January 1941, the Germans, with little fear of retaliation, were able to attack 14 ships, 10 in the Fifth Naval District alone. A large number of these attacks occurred in such prime shipping areas as around Cape Hatteras, North Carolina, and Hampton Roads, Virginia, both within the Fifth Naval District.[7]

When Germany declared war on America on 11 December 1941, Grand Admiral Karl Doenitz, the man in charge of Hitler's impressive submarine fleet, was fully aware of America's lack of preparation and inexperience combatting U-boats. He knew that this weakness must be exploited to its fullest while it lasted. He knew that this would not last once an offensive began. America would quickly develop its air and sea defenses and implement coastal convoys that would greatly hinder U-boat

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[6]Ibid., 679.

[7]Chief of Naval Operations, "Antisubmarine Warfare in World War II: OEG Report No. 51," (Charles M. Sternhill and Alan M. Thorndike), 1946, Guide No. 435, pp. 25, Operational Archives, Naval Historical Center, Washington, D.C.

operations. Doenitz did not receive as many U-boats as he wanted for his American offensive. Hitler denied permission for the deployment of U-boats in the Western Atlantic before the declaration of war. When war was declared against the United States, he restricted the number of U-boats to Doenitz, as he feared an Allied invasion of Norway, which was then occupied by Germany.

By January 1941, Doenitz launched operation Paukenschlag ("roll of the drums") against America. It began on 18 January 1942, with the sinking of two cargo ships and a tanker. With only five submarines on station, a cargo ship was attacked every eight hours along the east coast.[8] These results enabled Doenitz to obtain more U-boats to deploy in a second wave in March.[9] During the first seven months of the operation 585 ships, totalling more than three million gross tons of shipping, were sunk off the east coast.[10] (Complete list in Appendix A of all ships attacked in the Fifth Naval District during the war.)

During these early months of the German offensive U-boats typically attacked either with their torpedoes or with their deck gun. As the war progressed they began to use mines also.

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[8]Frank Blackford, "When War Was At Our Doorstep," The Virginian-Pilot and The Ledger-Star, 17 October 1971.

[9]T.J. Belke, "Roll of Drums," USNI Proceedings, United States Naval Institute, April 1983, p. 60.

[10]Ed Offley, "Chesapeake Bay Mined — War Came Close to Home," The Virginian-Pilot and The Ledger-Star, 8 July 1982.

By the late spring of 1942, the defenses along the east coast had improved as the Navy and Coast Guard vessels had gained experience, plus familiarity with their equipment in combatting U-boats. Consequently, the Germans began to use mines as a means of sinking ships with greater stealth.

To illustrate the skill and daring of the enemy, the following description is provided of a successful mining operation. The U-701, a German Type VII U-boat, delivered the most damage with mines during operation Paukenschlag. The captain of the U-701, Horst Degen, brought his ship and crew out of their port in Brest, France, on 19 May 1942; arriving over the Atlantic shelf on 11 June 1942.[11]

Carrying three mines in each of its five torpedo tubes, with an additional nine torpedoes in storage, the U-701 approached the entrance of the Chesapeake Bay.[12] In a correspondence after the war, Degen described the extreme care and precision he used in deploying the mines. In order to lay the mines for the greatest possible effect, he wanted to observe the exact routes of the outgoing and incoming ships. To do this, he settled the U-701 on the bottom in a mere 36 feet of water. He said, "The upper edge of our boat was only a little under the surface." Bottoming the ship in this way on the

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[11]Navy Department, Office of Naval Operations, "Report on the Interrogation of Survivors of U-701 Sunk by U.S. Army Attack Bomber No. 9-29-322, Unit 296 B.S. on July 7, 1942," n.d., Operational Archives, Naval Historical Center, Washington, D.C.

[12]Offley, "Chesapeake Bay Mined."

late evening of 11 June, Degen was able to observe the shipping the following day by occasionally popping their periscope out of the water. Degen and his crew were justifiably worried that they might be spotted and captured intact, which would have been a bonanza of information for the United States. Degen commented, "One could as well have put her in an aquarium for easily catching her!"

With their observations complete, the crew was able to plot the shipping channel accurately on their charts. They now waited for the moment to move out. It was after midnight, 13 June, when the U-boat was surfaced and positioned in the sea lanes. There was a new moon, which gave no light to betray them. Degen marveled at the illuminated lighthouses at Cape Henry and Cape Charles, which enabled them to pinpoint exactly their location. As their course carried them toward Cape Henry along Virginia Beach, they could not believe the preponderance of lights. Degen said, "It was a breath-taking adventure to see even cars and persons and lighted houses."

As they headed north in the shipping channel, Cape Charles came along their port side. They were now in position to lay mines. Suddenly, in stark contrast to the bright coastline, a darkened, armed trawler appeared in the channel on patrol. Anxious moments passed as the ship approached until it slowly changed course, missing the U-701. The crew of the patrol craft did not see the U-boat.

Mine laying began at 0130. As the U-701 zigzagged in the

channel under the power of her diesels, a mine was dropped every minute. They were about half done when the trawler on patrol turned back into the channel, and was once again approaching. They shut down their diesel engines, choking off their "blub, blub, blub" sound, and switched to the quiet electric motors. Not seeing them again, the trawler chugged by. The U-701 sneaked in behind the trawler's stern and followed it while they finished dropping their mines. By approximately 0200 the job was finished. Degen said, "We had a feeling that the mines were laid just on the right position since the trawler had shown us where she was guarding and which way we should not trespass."

Their mission completed, the U-701 pulled away. The crew spent the next two hours reloading their now empty torpedo tubes preparing to stalk other game in the Fifth Naval District. That first day they did not get very far, proceeding underwater with their slow electric motors. In the early evening, they surfaced and fired-up their diesel engines and proceeded at full speed from the coast.[13]

As the U-boat sped away, the 60-hour timers on the mines were clicking away. If deployment was completed at 0200 on the morning of 13 June, as related by Horst Degen, the mines would have armed themselves at approximately 1400 on 15 June. If so, they were armed a little over three hours when they

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[13]Horst Degen, Letter from Luxembourg, Germany, to Mr. I. M. Punnett and Mr. Anthony Hancox in Birmingham, England, 14 November 1965, Copy of letter in possession of the author.

claimed their first victim.

It was a bright, pleasant day at Virginia Beach on June 15, with the usual crowd of beach-goers sunning and occasionally swimming in the water. Late in the afternoon, Convoy KN-109 was visible off shore approaching Cape Henry and moving at five and a half knots. The double column convoy of 12 ships began to form into a single file by Buoy 2CB as they prepared to enter the Chesapeake Bay. This impressive display of large ships must have been an entertaining sight from the beach, capturing everyone's attention. If anyone had the macabre hope they would see some action today, they would not be disappointed.

At 1704, the fifth ship in the column, the 11,615 gross ton American tanker, SS Robert C. Tuttle, laden with 142,700 barrels of crude oil, struck a mine along the starboard side of the bow. One crewman, Rubin Redwine, second assistant engineer was killed. The ship's bow went down in the 54-foot-deep water, raising its stern out of the water. The other 46 crewman got away successfully. The ship, although partially sunk, would later be salvaged along with 72,000 barrels of its oil.[14]

The next ship, the MV Esso Augusta, and the other ships in the convoy, began to zigzag, as they feared that there was

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[14]Fifth Naval District, "War Record," 263; Navy Department, Office of the Chief of Naval Operations, "Summary of Statement of Survivors of the SS Robert C. Tuttle," n.d., Operational Archives, Naval Historical Center, Washington, D.C.

a U-boat attacking. The Augusta was also an American tanker, of 11,237 gross tons with 119,000 barrels of diesel oil. One-half hour after the Tuttle struck a mine, the Augusta struck one close astern on its starboard quarter. She however, did not sink, but was heavily damaged. She was later towed by three tugs into Hampton Roads. The crew stayed aboard the Augusta, servicing the damage. Only one crewman was hurt in a fall caused by the explosion.[15]

With the confusion arising from the suddenness and the severity of the explosions, it was wrongly conjectured the ships were hit by torpedoes fired from a U-boat lurking nearby. The ships, which were supposed to be protecting the convoy, began to seek out this conjectured intruder. The crew of the Destroyer Bainbridge thought it made a sound contact with the U-boat, when most likely their sonar had only picked up one of the wrecks on the bottom. Regardless, in the excitement of the moment, crewmen dropped two patterns of depth charges set for 50 feet. Following a second, equally dubious contact, eight more depth charges were dropped. Their erroneous attack, however, helped resolve the immediate enigma, as there were not eight explosions, but nine. They had unwittingly exploded an enemy mine, which was much more powerful than one of their depth charges. The blast was so

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[15]Fifth Naval District, "War Record," 264; Navy Department, "Summary of Statements by Survivors of the MV Esso Augusta," n.d., Operational Archives, Naval Historical Center, Washington, D.C.

great that it forced the Bainbridge to stop and extensively damaged it. The day's carnage, however, was not over.

The British armed trawler, HMS Kingston Ceylonite, of 500 gross tons, entered the area, escorting the SS Delisle, which was being towed by the Warbler. At approximately 1915, the Ceylonite struck a mine. The first blast was followed by a second, most likely the ship's magazine. The fierce explosions were on the starboard side, amidships, which blasted the ship into two tattered sections just forward of the bridge. Immediately, the surviving crew members abandoned ship as the forward section leaned to starboard and sank while the aft section sank on an even keel. Only 15 of the 32-man crew survived, 7 requiring medical treatment at the Norfolk Naval Hospital in Portsmouth and the Marine Hospital in Norfolk.[16]

Following these explosions, the port was immediately closed. Minesweeping began the next morning, 16 June, with a total of 13 sweepers. A complete sweep of the channel was conducted in the affected area, detonating three more mines around the entrance to the Bay near Buoy 2CB. An investigation later conducted by the Naval Inspector General concluded that the minesweeping operation was "unsatisfactory." It was also concluded that the six participating sweepers from the Mine Warfare School were "unready for sweeping operations,"

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[16]Fifth Naval District, "War Record," 265-66; Navy Department, "Summary of Statements by Survivors of HMS Kingston Ceylonite." n.d., Operational Archives, Naval Historical Center, Washington, D.C.

and that coordination was poor, which made the operation confused and ineffective. Consequently, due apparently to human error, the sweepers failed to destroy all of the remaining mines.

Convoy KS-511, which had remained outside of the Bay during the minesweeping, proceeded into the channel the next morning of 17 June 1942.[17] Tenth in the single column convoy was the 7,117 ton, American ore carrier, SS Santore, which carried a cargo of 11,095 tons of coal. At 0745, having passed Buoy 2CB, the Santore struck a mine which exploded amidships on the port side. The blast reportedly hurled coal 40 to 50 feet into the air. Immediately, the mortally wounded ship began to sink as the crew abandoned it. Most of the men simply dove into the water and swam for their lives. Swiftly the ship capsized and then slowly sunk in the 54-foot water. Three men of the ship's crew of 46 did not survive. The Navy determined that the ship was unsalvageable and placed buoys with a red light over its location to warn traffic of the potential hazard. The Santore had settled on her port beam with approximately three feet of her starboard beam visible above the water.[18]

Of the mines struck by ships, set off by depth charges, or swept up, a total of 11 were accounted for.[19] If the

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[17]Commandant, "History," 602-3.

[18]Ibid., 273-76.

[19]Ibid., 603.

United States Navy's analysis, that a total of 15 mines were laid, 4 must have drifted, or "walked", as it is referred to by the U.S. Navy, out of the channel.

Inspired either by the success of the first mining, or by their continued desperation, the Germans again tried to mine the Virginia Capes. They would not have the same luck, however, as they did before. On 10 September 1942, the German U-49 tried to repeat the success of the U-701 by laying 12 mines off the Virginia Capes. This time the mines were not "discovered" by a passing convoy. They were uncovered during a routine mine sweeping of the channel near Buoy 2CB on 12 September 1942. The port was again immediately closed while the minesweepers searched for other mines. When the sweeping was completed, seven mines had been found and exploded. No damage to any ship occurred. As for the remaining five mines, they had apparently "walked" and did no damage.[20]

Following VE day, German records were obtained which reported two other mining attempts off the Capes of Virginia. On 30 July 1943, the U-566 reportedly laid 12 mines which were undiscovered and produced no results whatsoever. The next day, the U-230 supposedly laid eight mines. These too were undiscovered and produced no results.[21] Herbert A. Werner,

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[20]Ibid., 607.

[21]Samuel Eliot Morison, History of U.S. Naval Operations in World War II, vol. 10, The Battle of the Atlantic Won, May 1943 - May 1945 (Boston: Little, Brown, and Company, 1956), 417.

the executive officer on the U-230, under the command of Captain Paul Siegmann, recounted their mine laying operation, within the Chesapeake Bay, in his book Iron Coffins.[22] His eloquent descriptions are better than Horst Degen's descriptive letter of the U-701 mining operation, which contained numerous grammatical and typing errors. There was concrete proof, however, that at least some of what Degen wrote was true. Werner's account is equally exciting and even more stylish, but, as there is no evidence to back up his claims, a healthy dose of skepticism must be maintained. As regular mine sweeps were conducted of the swept channels, at least one of the mines should have been snagged. Furthermore, Werner described how he arrived between Cape Henry and Cape Charles, and entered the Chesapeake Bay itself, where he said they could see the lights of Norfolk as they laid the mines. As the defenses were fully primed at this time, the U-boat would have passed over a mine field of our own, hydrophones, and a magnetic loop. It also would have had to avoid the 24-hour coastal lookout observers as well as the patrol craft. The success of the U-701 is understandable due to the novice condition of our defenses at that time. A lot had changed, however, by July 1943 when the U-230 was supposed to have arrived. Although a mining operation could have been done, at least some indication of its presence would have been noted by

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[22]Herbert A. Werner, Iron Coffins (New York: Holt, Rinehart and Winston, 1969), 148-51.

the Army or Navy to corroborate the incident. Assigned a mission that was impossible at that time, Werner could have simply told his superiors what they wanted to hear.

CHAPTER III

THE NAVY'S REACTION TO THE CRISIS

As related in the preceding chapter, the threat presented by the U-boats was real and deadly. The Navy knew before the war began that its defenses would have to be upgraded to be able to provide sufficient protection from a U-boat offensive. The Chesapeake Bay and the coast of Virginia was a focal point within the Fifth Naval District, which required the protection of the Navy. The Bay was of particular interest as it was considered indispensable to the economic well being of the country and the war effort. Furthermore, the maritime traffic needed protection to insure the safe arrival of supplies, and likewise, the safe departure of manufactured goods such as military supplies desperately needed by England in its own war effort. Whereas the Army had the primary task of repelling any invasion by the enemy with its heavily armed fortifications and ground forces, the Navy had the task of protecting and controlling shipping while destroying any enemy vessels found in Fifth Naval District waters. Working together with the Army as dictated in "Joint Action of the Army and Navy (FTP 155)," they both sought to prevent any enemy intrusion.[1]

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[1]Commandant, Fifth Naval District, "History of the Fifth Naval District, 1939-1945," vol. 2, 1946, Guide No. 112, p.

For the Navy, the preliminary weapon against the U-boats along the coast was the Local Defense Force, established in each district by Navy Basic War Plan Rainbow #1 (WPL-42), issued in September 1939. Rainbow #1 also established the Naval Coastal Force for protection of the entire North Atlantic Frontier. As the Navy had assumed command of the Coast Guard in accordance with a directive from President Franklin Delano Roosevelt, the Local Defense Forces included not just naval vessels but those of the Coast Guard and its lightship service. The brunt of the responsibility for defending the coast fell to these forces.[2]

Following America's entry into the war, the Navy began to use another Basic War Plan, Rainbow #5 (WPL-46), which was issued in May 1941. This plan put the defenses into a war time mode as it set forth goals and tasks for the Navy and assigned duties. As a result of Rainbow #5, the Local Defense Force in the Fifth Naval District found that they were now officially expected to keep the harbors secure, keep mines out of the channels, patrol the coast, and protect shipping.[3]

Two of the overall chief naval officers were Admiral Ernest J. King, who was Commander in Chief of the United States Fleet (who was later appointed Chief of Naval Operations), and Rear Admiral Adolphus Andrews, who was Commander

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523, Navy Library, Naval Historical Center, Washington, D.C.

[2]Ibid., 492-93.

[3]Ibid., 494.

of the Eastern Sea Frontier. This Frontier extended out to sea along the entire eastern coast of America. It was organized as one territory under one command to streamline operations and strengthen anti-submarine warfare (ASW).[4] In the Fifth Naval District, the primary naval officer was the Commandant. This post was held by four men during the war: Rear Admiral Joseph K. Taussig, from 30 September 1938 to 16 June 1941; Rear Admiral Manley H. Simons, from 16 June 1941 to 31 May 1943; Rear Admiral Robert F. Leary, from 31 May 1943 to 30 October 1943; and Rear Admiral David M. Le Breten, from 30 October 1943 to after the close of the war. The Commandant needed assistance in managing the plethora of tasks involved in administering the Fifth Naval District. Consequently, the post of Assistant Commandant was created in June 1942. Captain Russell S. Crenshaw assumed this post on 18 June 1942 and served in this capacity until the close of the war.[5] (See Figure 2.)

The first commandants of the Fifth Naval District, Rear Admiral Taussig and Rear Admiral Simons, had the unenviable task of trying to obtain enough ships for their local defense forces as dictated by Rainbow #5. Ships were obtained from those already assigned by the Chief of Naval Operations to the Fifth Naval District. These included 23 vessels, with such

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[4]Harry Sanders, "King of the Oceans," USNI Proceedings, U.S. Naval Institute, August 1974, pp. 52-59.

[5]Commandant, "History," 489.

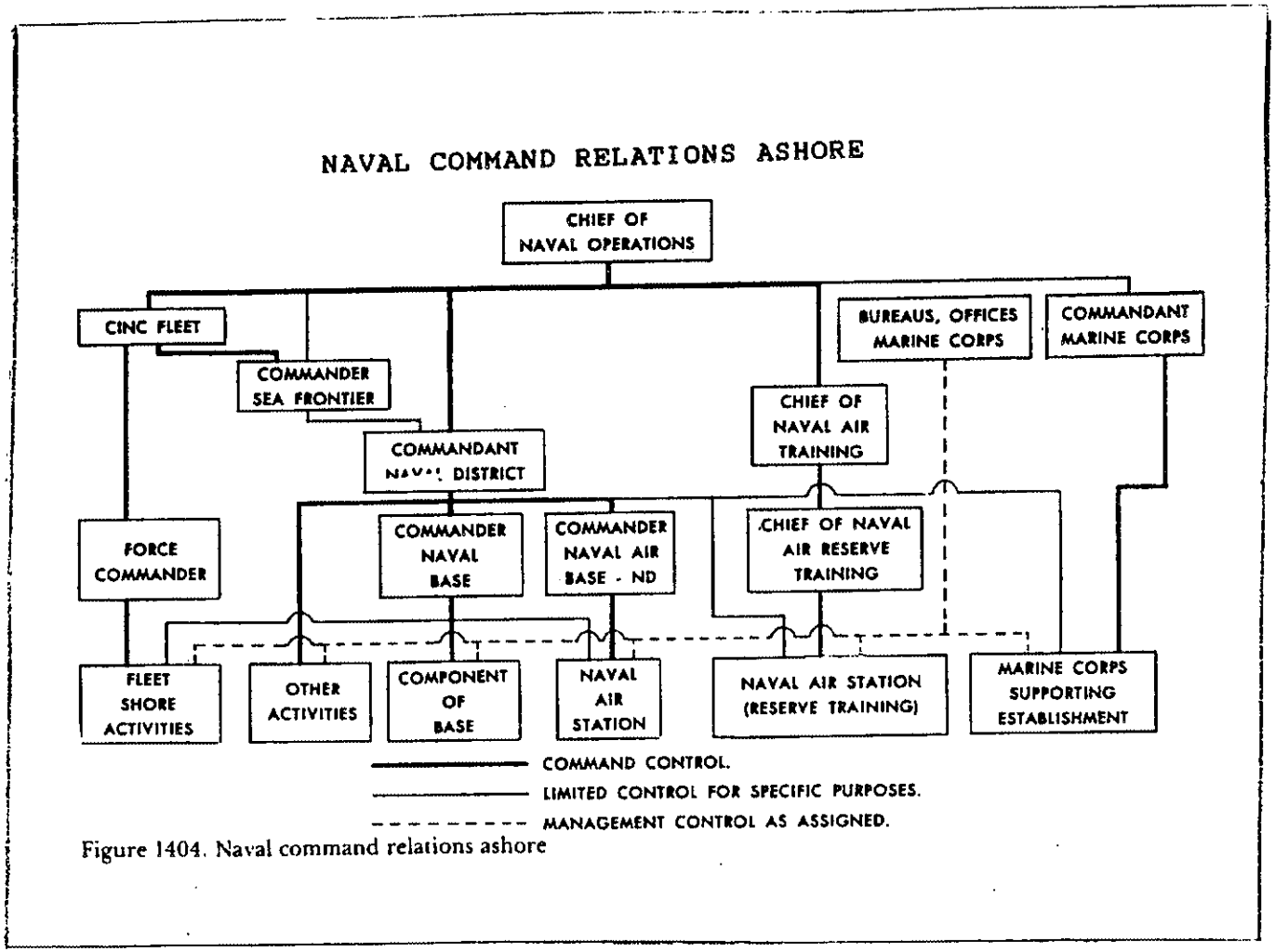

Figure 1404. Naval command relations ashore

Figure 2. Naval Command Relations Ashore
Source: Arthur A. Ageton, The Naval Officer's Guide (New York: McGraw-Hill, 1943), 147.

craft as World War I sub-chasers, former Coast Guard cutters, and others such as various size patrol craft, and converted yachts. Many of these craft were old and ill-equipped for the tough duties demanded. Some of the best ships were the Coast Guard vessels transferred to the Navy. The commandant took over three 125-foot Coast Guard cutters, two Coast Guard tugs, one 165-foot Coast Guard cutter, plus other small cutters, buoy tenders, and motor boats.[6]

Under Rainbow #5, the commandant was expected to obtain "vessels from other sources," but few such ships were available. The commandant was expected to purchase privately owned vessels. Only a few, however, could be found that were large and sturdy enough for deployment and were usually classified as "unavailable" due to the owners refusal to sell. The forces expected to be raised under Rainbow #5 were simply unobtainable. Out of the 19 vessels expected under "Vessels From Other Sources," only one was acquired. All of the other vessels obtained needed new equipment such as modern radar and sonar. Although the Coast Guard ships were the best, they too needed repairs. Consequently, the defenses mustered at the start of the war were inadequate.[7]

The Commandants never gave up seeking and often obtaining more ships. They had to badger Admiral King and Admiral Andrews frequently for more ships. These officers were aware

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[6]Ibid., 497.

[7]Ibid., 497.

of the situation, but they were in the difficult position of having to direct the few ships available and those being built to the areas in the most critical need, such as the hot spots in the Pacific. Although the commandants seldom got what they wanted, they sometimes at least received something for their efforts. For example, when Commandant Simons endorsed a recommendation for 52 additional vessels in October 1942, Vice Admiral Andrews relinquished 10 additional patrol craft to be assigned to the Fifth Naval District on a graduated basis.[8]

Additional vessels were provided by the British also. In late March 1942, four 83-foot armed trawlers arrived in the Fifth Naval District. These were quickly put into service with two operating on patrol by 31 March.[9] Through continued acquisitions, patrols were maintained at a formidable level.

At the beginning of the war it was recognized that one of the key target ares for the enemy would be the area off Virginia leading into the Chesapeake Bay. Consequently, on 16 December 1941, a presidential proclamation established the Chesapeake-Norfolk Defensive Sea Area. A designated military zone was one where both Army and Navy forces must coordinate their forces to repel an enemy intrusion. As described in Chapter Five, the Army heavy artillery provided the long range firepower extending to the limits of the designated area. On 15 July 1941, the Chief of Naval Operations set up the

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[8]Ibid., 646.

[9]Ibid., 696.

following boundaries:

> A line running from the southernmost point of Cape Charles, Virginia, to Cape Charles Lighthouse on Smith Island, thence on a bearing 130° True to the Seaward limit of U.S. territorial waters to the parallel of Latitude 36°51'15" North and thence west meeting the shore at the U.S. Coast Guard Station, Virginia Beach, Virginia.[10]

On 11 December 1941, the control of this Defensive Sea Area began with the installation of an Outer Guard Ship approximately four miles east of Cape Henry. The "Notice to Mariners" issued on 24 December 1941, formally instructed ships approaching the Bay to stop and make contact with the outer guard ship for identification. Only after permission had been given would they be allowed to proceed. Only vessels with registered local pilots were exempted from these orders after the war began. This helped relieve some of the burden from the guard ship, which had to process the growing number of ships which were ordered to seek safe anchorage at night to avoid the U-boats.[11]

In addition to the Outer Guard, an inner guard was established in mid-December 1941 along the channel inside the Capes. This operated as an inner patrol which used two 75-foot patrol craft. These two vessels plus the outer guard would be the only patrols available in the defensive sea area until April 1942 when additional vessels were obtained to

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[10]Ibid., 618.

[11]Ibid., 622-23.

augment them.[12]

Another feature of these defenses was the addition of an examination vessel in January 1942. This vessel would place Navy personnel aboard suspicious vessels particularly those from foreign and neutral ports. Such action was expected to deter anyone from aiding the German U-boats. The USCG Jackson was the first to take the position of examination vessel just inside the entrance to the Chesapeake Bay on 10 January 1942. The Jackson was soon replaced by the lightship Diamond Shoals (LV-105), which was anchored north of the entrance channel (36°56'56N", 76°01'15W"). The Diamond Shoals served well as the examination vessel until 20 July 1944, when a passing tugboat and its tow rammed and sank her. Having an examination vessel on station was so crucial that she was replaced the next day by another lightship, the LV-81.[13]

Even before the war, the Navy knew that the appearance of enemy mines in the Fifth Naval District, such as those later laid by the U-701, was a real possibility. During World War I, German mines were laid at Thimble Shoals, near the entrance of the Chesapeake Bay, in the area around Buoy 2CB at Cape Henry, and the area just south of Winter Quarter Shoal. Consequently, these areas were included in the planned mine sweeps during World War II, in addition to sweeps of Parramore Bank, Lookout Shoal, Diamond Shoal, Lookout Bight, and the

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[12]Ibid., 625.

[13]Ibid., 632-33.

Chesapeake Capes.

When considering the immense size of the area to be patrolled for mines, such as the 12-mile gap between the Capes, the task of keeping the sea lanes free of enemy mines, plus the occasional "friendly" mine which "walked" from its field, was almost impossible. Throughout the war, the Fifth Naval District never seemed to have enough minesweepers to patrol thoroughly all of these areas. Through good organization and thrift, however, these areas were inspected frequently enough to assure an acceptable measure of safety for the sea traffic.[14]

One means of maximizing the efficiency of the limited minesweepers available was the establishment of swept channels. Aware that Germany could mine the region as a prelude to war, specifications for the establishment of swept channels off the Virginia Capes were finished on 25 June 1941 by Commandant Taussig of the Fifth Naval District. On 25 August 1941, the first periodic sweep of these channels began. At this time the Commandant had at his disposal five minesweepers. By 18 December 1941, the first permanently buoyed swept channel was established off the entrance to the Chesapeake Bay. The swept channels, however, never remained constant. They were changed frequently in response to the level of traffic, the perceived threat, and the occurrence of several sinkings which created a hazard to maritime traffic. The

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[14]Ibid., 583-84.

changing channels often created confusion with the captains of the merchant ships. By 24 July 1943, Commandant Leary of the Fifth Naval District simplified the entire system by creating a single swept channel for use by both the incoming and outgoing ships. This channel was kept as straight as possible, which eliminated the possibility of confusion created when a series of turns was mandated. By maintaining only one swept channel, it enabled the few minesweepers available to be put to the best use.[15]

Another effort undertaken by the Navy to prevent U-boats from entering the harbors was the use of anti-submarine nets and booms. The necessity of placing these seemed clear even before war was declared. Commandant Simons advised Admiral Harold R. Stark, the Chief of Naval Operations, a month before the attack on Pearl Harbor that the Navy should begin placing anti-submarine nets in the Chesapeake Bay entrance. Nonetheless, it was not until after Pearl Harbor was attacked that the net defenses were implemented. Due to the immense gap and turbulent water between the Capes, the use of nets there was untenable. The calmer water, however, at the entrance to Hampton Roads made the use of nets both efficient, convenient, and effective. Installation of the Hampton Roads net began the day after Pearl Harbor. By the middle of the month, the fixed obstructions and the net were erected. The net gate was in operation also, which was opened and closed by a Navy

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[15]Ibid., 589-98.

tugboat. Furthermore, an anti-motorboat boom was in place with an operational gate by 23 January 1942. A four-foot mesh, anti-submarine net was later placed under the boom across the Hampton Roads entrance. Completed by 21 September 1942, this net was thought necessary as a defense against German midget submarines.

At the same time these other nets were being erected, anti-torpedo nets were placed at other locations deemed vulnerable: across the pier at the Naval Operations Base, the Norfolk Naval Shipyard, and the Newport News Shipbuilding and Drydock. These would offer protection from an aerial torpedo attack. The anti-torpedo nets were maintained until November 1943, when it was considered safe to remove them. They were kept in storage, however, "in a state of readiness in case of future emergency."[16]

Anti-submarine nets were also installed at the entrance of the York River. During World War I, the York River was used as a fleet anchorage. Although it was never used as such during World War II, the Navy prepared it just in case it was needed. Installation began 26 December 1941, with the anti-submarine nets, anti-motorboat booms, and other fixed obstructions completed by early March 1942. These defenses were eventually removed by 17 September 1943, when the presumed threat to the region had become less tangible.[17]

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[16]Ibid., 518-20.

[17]Ibid., 521-22.

For all these various divisions of defense to function properly, they needed to be coordinated and unified under one administrative head. In a response to instructions from the War Department on 19 December 1941, a Joint Operations Center (JOC) was created and located in the Naval Operations Base, Norfolk. In this single center, one supervisory command could orchestrate all the activity in the region.[18] By 20 June 1942, the JOC was up and running in the Fifth Naval District. Inside, the "inshore patrol, convoy and routing, and the Army had watch officers in the same room with the controllers; adjacent to this room was Operational Intelligence on one side and Communications on the other." With the direct participation of the Army with their watch officers, a close working relationship was maintained between the Navy and Army.[19]

These local defenses were operated by officers and enlisted men trained in ASW. Prior to the outbreak of war, naval officials had recognized the need for ASW training to provide an adequate defense. In 1939, the Navy already had a sound school on the west coast in San Diego for training Navy personnel in how to detect submarines with listening devices. It was inconvenient to transport men across country, therefore a sound school was established on the east coast.

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[18]Rollin L. Tilton, "History of Chesapeake Bay Sector," Fort Monroe, Virginia, 1 March 1945, p. 24, Copy in possession of Lieutenant Colonel Fielding L. Tyler, U.S. Army retired, Virginia Beach, Virginia.

[19]Commandant, "History," 721, 724-25.

In September 1940, the Navy forces on the east coast, then known as the Atlantic Squadron, were reorganized as the Atlantic fleet, with control of the sound training program placed under Commander Destroyers, Atlantic Fleet. At this time, the east coast sound school was organized, with operations centered in Key West Florida. Not only did the school provide training for the officers and enlisted men, it provided an opportunity to test thoroughly the World War I vintage ships that had been recommissioned for use in the Atlantic Fleet. The school had four of the old flush deck, four stack destroyers, each of which had been equipped with sonar. These ships included the Roper, Herbert, Jacob Jones, and Dickerson. One of these ships, the Roper, had the honor of sinking the first U-boat off the east coast during the war.

The school also had three World War I vintage submarines. These aging ships could dive only as deep as the length of their hull with safety. Although they were of limited use to the Navy in combat, they made excellent practice targets for the trainees aboard the destroyers as they learned how to detect a U-boat with sonar, how to pursue them, and how to attack. From 1 November 1939 to 30 September 1945, 10,594 enlisted men were trained as sonar operators of which 8,970 were rated. From 1 November 1939 to 30 June 1945, 2,608 enlisted men were trained in material. From 1 January 1941 to 30 September 1945, the training program prepared 2,723 Sound Officers, 219 Material Officers, and 1,623 prospective

commanding officers and executive officers.[20]

The training at the Fleet Sonar School in Key West Florida was intensive and not without its dangers. Retired Navy Captain, Harry Clark, a resident of Chesapeake, Virginia, served aboard one of the recommissioned submarines at the school. His submarine not only functioned as a practice target but as a classroom to teach sailors the tricks of the submariners. He said that the submarines were supposed to carry a total of 35 men including the students, but often they were forced to carry 50 or 60.

The vessels, although old, were similar to their World War II counterparts. They were incredibly cramped and stuffy with only the air in the hull to breath. Captain Clark said that shortly after submerging, the oxygen content dropped so much that if someone struck a match it would go out. No one smoked. In addition, the air usually reeked with diesel fumes and the acidic stench of the charging batteries. If the air became too foul, fresh air could be bled from a compressed tank while a compressor removed some of the tainted air.

These trainees, however, did not have to live aboard the submarines for months at a time like the Germans. With approximately 44 men aboard, the smells aboard the German U-boats became intense. The men conserved water, therefore they

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[20]Commander in Chief, U.S. Atlantic Fleet, "Commander Fleet Operational Training Command," 1946, Guide No. 143, pp. 285, 290, 296, Navy Library, Naval Historical Center, Washington, D.C.

did not bathe or shave. With only two "heads" or toilets aboard, one of which was filled with food when they set out, the men typically used buckets to relieve themselves, which were later emptied in a head. Eating, sleeping, and working in this environment must have been miserable. Even on the surface, with all the hatches open, it was an unpleasant experience.

The training in the sound school was not without its dangers. Captain Clark said that the old submarines had to be coaxed along. One of these submarines could not withstand the rigors of its duties and sank. The exact cause of the catastrophe was unknown. The submarine was cruising on the surface when, for unknown reasons, it plunged into a dive to the bottom of the Atlantic. Everyone aboard perished except for the men in the conning tower who somehow survived. They, too, were mystified as to what happened.[21]

As the war progressed, training in ASW was supplemented by training in the different naval districts. In the Fifth Naval District, all three of the Navy's section bases, Little Creek, Morehead City, and Ocracoke, had training programs. The major training courses were centered at Little Creek. These courses included such diverse areas as aircraft and ship recognition, night lookout training, mine sweeping procedure, signalling, radio communications, gunnery, radar, and ASW

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[21]Harry Clark, Interview with author, Chesapeake, Virginia, 14 October 1989.

training which included use of an "attack teacher," an instructional device which simulated problems one might encounter with a U-boat.[22]

In addition to the training, another factor in the development of not just the defensive but the offensive capabilities of the region was the creation of the Anti-submarine Warfare Unit of the Atlantic Fleet. On 16 February 1942, Captain Wilder D. Baker took over what was then a largely paper command. Headquartered in Boston, Massachusetts, he had the task of creating from scratch a virtually new organization, that could set standards, create guidelines, and help administer the ASW activities on the east coast. Somehow, within a month of assuming command, Captain Baker had his organization up and running.[23]

Literally everything had to be done. For the first time, manuals for sound operators and destroyer skippers were written, reviewed, printed, and finally distributed to all concerned. Researched and agreed upon standards were created for radar operators, finally giving some continuity to the way the equipment was operated. Such standardization also produced more predictable results. In addition, a system was created for the collection, analysis, and final evaluation of all action reports, by both ships and aircraft, so the men could learn what they were doing wrong as well as what they

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[22]Commandant, "History," 510-11.

[23]Commander in Chief, "Training Command," 256.

were doing right.[24]

Captain Baker learned from the British about the excellent training aid called the "attack teacher." He obtained several of the devices from England, and with their permission, negotiated contracts with General Electric, Sangamo, and Submarine Signal Company to get the number of "attack teachers" he needed. He had these instruments set up as part of the ASW training in the naval districts, such as the program in Little Creek. The program of instruction was thorough, which required the participation of every available instructor. Eventually, Captain Baker moved his operation headquarters from Boston to Washington, D.C. in April 1942. Later, on 3 February 1944, the unit was transferred to the Navy's offices in Norfolk Virginia, under orders from the Commander Fleet Operational Training Command.[25]

In conjunction with all these methods of combatting the U-boat, convoys were finally introduced in the middle of 1942, which proved to be one of the best defenses established to protect shipping. The Navy knew, especially from their experiences with the transatlantic convoys, that the U-boats would rather avoid convoys, preferring easier targets such as unescorted cargo ships, which not only were easier targets, but of low risk of retaliation. Even before the war, the Navy knew that a convoy system was needed for the east coast, but

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[24]Ibid., 257-58.

[25]Ibid., 256-66, 277.

due to the country's heavy commitments in the Pacific and the transatlantic convoys, few ships were available.[26]

Admiral King, on 12 February 1942, soon after America's entry into the war, ordered Rear Admiral Andrews to prepare a plan for coastal convoys to protect shipping along the Eastern Sea Frontier. After evaluating the situation, Andrews reported to King and recommended against using convoys at that time as there were not enough escort vessels. A convoy without sufficient protection actually made a bigger and better target for the U-boats. On 6 March 1942, King officially agreed with Andrew's analysis, but urged the implementation of convoys as soon as possible.[27]

In the interim, Andrews implemented a temporary solution which involved the use of district convoys. Nicknamed the "Bucket Brigade," it involved moving ships from anchorage to anchorage using whatever escort ships were available in each district. This began on 27 March, and under this system, cargo ships traveled primarily during the day, and pulled into a safe anchorage at night, the time when most U-boat attacks occurred. Safe anchorages were usually natural coastal features such as the Virginia Capes, but south of Virginia the only other safe harbors were in Charleston, South Carolina,

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[26]Chief of Naval Operations, "Antisubmarine Warfare in World War II: OEG Report No. 25," (Charles M. Sternhill and Alan M. Thorndike), 1946, Guide No. 435, p. 25, Operational Archives, Naval Historical Center, Washington, D.C.

[27]Commandant, "History," 692-93.

and Jacksonville, Florida. The Fifth Naval District augmented the anchorages by placing a netted anchorage west of Cape Lookout, North Carolina, and erecting a mined anchorage southwest of Cape Hatteras, North Carolina. Such anchorages were an excellent retreat for those crippled ships that had to fall out of a convoy.[28]

With May 1942 arriving, the situation towards implementing a real convoy system improved. The transatlantic convoys were restructured to provide greater economy in the use of escorts, and thereby released a number of American destroyers. The Navy also received help from the British who contributed four anti-submarine trawlers, plus ten corvettes (small, but heavily armed patrol ships). With the addition of new anti-submarine ships being built in America, Andrews began coastal convoys on 13 May 1942. On 14 May, Virginia, for the first time, was linked with a regular coastal convoy to Key West Florida. The convoys were extended further south and north and were continually reinforced with more and more ships and aircraft. The effect of the convoys was immediately noticeable in the declining number of ships which were sunk. The month before the convoys began, in April, 23 ships were sunk in the Eastern Sea Frontier, however, in May, only 5 were sunk. The number increased again to 13 in June, but fell dramatically to 3 in July. By the end of 1942, each U-boat's

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[28]Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide No. 129, p. 461, Operational Archives, Naval Historical Center, Washington, D.C.

success rate had been cut in half.[29] The convoys continued as such until 28 May 1945 when a joint announcement was made by the U.S. Navy and the British Admiralty. "Effective at 2001 this date, eastern standard time (0001 May 29 Greenwich Mean Time), no further trade convoys will be sailed. Merchant ships by night will burn navigation lights at full brilliancy and need not darken ship."[30]

In addition to the convoys, the Navy implemented other plans to both protect shipping and to prevent U-boats from penetrating into the district. One of these was the idea of using commercial fishing vessels to spot enemy submarines and aircraft. On 7 April 1942, Rear Admiral Andrews orchestrated a plan for the use of Commercial fishing vessels as an adjunct to the patrol of the Atlantic.

The plan required two primary tasks. The first was to find fishing boats with reliable crews who could be trusted with confidential information. The second was to provide them with radio telephones for rapid communication. Seventeen skippers and crews were found by the middle of June 1942. Their fishing trawlers were promptly enlisted, given radios, and put into service.[31]

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[29]Chief of Naval Operations, "OEG Report," 28-29.

[30]Samuel Eliot Morison, History of U.S. Naval Operations in World War II, vol. 10, The Battle of the Atlantic Won, May 1943 – May 1945 (Boston: Little, Brown, and Company, 1956), 361.

[31]Commandant, "History", 669.

Soon after implementation of the plan, virtually every offshore boat became involved in the program. In the Fifth Naval District, 143 vessels that equipped by the Navy with radio telephones. Many fishing vessels that were members of the plan in other districts, seasonally entered the Fifth Naval District and further extended the number of participants.

The entire program seemed validated on one occasion. On 13 April 1942, Captain Quinn of the Sea Romer sighted an enemy U-boat while fishing out of Hampton, Virginia. He plotted the U-boat's location as being about 20 miles east of Currituck. He radioed the coordinates to the Naval Operations Base in Norfolk which deployed attack aircraft, which arrived on the scene less than an hour later. The U-boat, however, had left the area by this time. It is possible the U-boat monitored the Sea Romer's transmission, and realized that trouble was on its way and left. Regardless of the outcome, the incident did show that these fishing vessels could be an extra set of eyes for the Navy.[32]

Another plan, which would have supplemented patrols in the Fifth Naval District, was the idea of using Coastal Pickets, an assemblage of yachts considered rugged enough for both defensive and offensive patrol duty. Rear Admiral Andrews was a proponent of this plan, although an earlier attempt at using small yachts as "Anti-Submarine Lookouts" in

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[32]Ibid., 671.

the Fifth Naval District found that none of the craft obtained could withstand the pounding of the Atlantic. Commandant Simons had ordered the district Coast Guard Office of the Fifth Naval District to assemble as many private yachts as possible for service in the Coast Guard Temporary Reserve. On 27 June 1942, 16 small yachts set out on a shakedown cruise, with 2 ships assigned to 8 stations just outside the Virginia Capes for a 24-hour patrol. The rough, large waves outside the Bay in the Atlantic enabled none of the ships to complete their patrols. Some never reached their station, and wisely headed back before they got into serious trouble. Others tried to stay at their stations, but were forced to return. These yachts simply were not suitable. Some of the boats were kept for duty in the calmer waters of the Chesapeake Bay. These were used by the Local Defense Force as part of the inner guard.[33]

Regardless of this incident in the Fifth Naval District, Rear Admiral Andrews, on 14 July 1942, ordered the district Commandants to initiate the organization and deployment of coastal pickets. As most of the power boats in the Fifth Naval District had already been put into service by the Navy or Coast Guard, only sailing yachts were available. Twenty-three out of a proposed 54 were acquired along with their crews as part of the Coast Guard Reserve and put into the plan. As these craft were intended to be more than just

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[33]Ibid., 662-63.

observers, they were equipped with demountable 30-calibre machine guns, and portable underwater listening gear. Even depth charges were considered, but only one schooner was swift enough to deploy a depth charge set for 100 feet, and get away safely. Consequently, it was the only one so armed.

The first patrols of the Coastal Pickets, which began 7 September 1942, operated out of Little Creek Section Base, and took up station 30 miles east of Winter Quarter Shoals. Depending upon the weather, the sailing yachts actually made it to their stations and performed their patrols. No contact with a U-boat was made, however. On 1 December 1942, Rear Admiral Andrews issued a General Patrol Doctrine for all the Coastal Pickets that was overly aggressive, as if it were meant for a professional naval submarine destroyer. Under this doctrine, if one of these armed sailboats came into contact with a U-boat, it was expected not to just radio in its location, but to attack in the following vigorous manner:

> When an enemy submarine is sighted on the surface, close to within your gun range and open machine gun fire to clear personnel from his bridge. Prevent his crew from manning their guns. Keep your guns ready for immediate surface attack at all times. Do not attract his attention by firing at too long a range. The element of surprise is a major factor in successful action.[34]

It is fortunate that U-boat activity had declined in the areas where the Coastal Pickets were on patrol. None of these sailing yachts ever had to engage a U-boat, which would have

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[34]Ibid., 666.

been suicidal if it followed this doctrine. If one of these small ship had stumbled upon a U-boat, looming large, dark, and menacing, hopefully they would have had the common sense to leave it alone. Fortunately, all they had to fight was the weather, which was often a losing battle for them. Often, many of the ships were damaged by the rough weather and the Atlantic waves. Several times, one of the sailboats would be missing for days. Some carried carrier pigeons, which enabled one missing boat to report its location after it became lost in a storm.

The plan envisioned by Rear Admiral Andrews never really worked. With only sailing yachts available, there was no way it could successfully be accomplished. It is quite possible that they did harass some U-boats. On several occasions the Coastal Pickets equipped with sonar, picked up a target, but before they could reach the area, it apparently fled. The U-boats, upon hearing the sonar's "ping," probably fled. Nonetheless, the Coastal Picket program was finally dropped on 9 November 1943.[35]

Another effort by the Navy that met with equally poor success was the plan to use "Q-ships." These were heavily armed and armored freighters, camouflaged to look harmless so as to lure an unsuspecting U-boat in close on the surface so it could be destroyed. The idea of using Q-ships was not new as they had already been used in World War I. With the entry

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[35]Ibid., 667-68.

of America into World War II, and the realization that not enough war ships were available on the east coast, the use of Q-ships seemed practical at the time.

In early 1942, President Franklin Delano Roosevelt proposed the use of Q-ships, which was endorsed by Admiral King. On 20 January 1942, Rear Admiral Andrews received orders to implement the use of Q-ships. The plan was called Project LQ and the search for suitable ships began. Three ships were purchased by the Navy. They consisted of two 3,200-ton freighters, the SS Carolyn, and Evelyn. The third was a trawler named the Wave. As attention to secrecy was maintained throughout the project, the three ships were renamed. The Wave became the Eagle, the Evelyn the Asterion, and the Carolyn the Atik. The Portsmouth Navy Yard, New Hampshire, secretly prepared the ships for their roles as Q-ships. The Asterion and Atik received four 4-inch guns, four 50 calibre machines guns, six depth charge throwers, and sonar. The Eagle was similarly equipped, except it only received one 4-inch gun.[36] The end product was an innocent looking trawler, and two seemingly unarmed and harmless freighters. Supposedly, an approaching U-boat would not bother to submerge when approaching such craft.

On 23 March 1942, all the Q-ships left New Hampshire for

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[36]Samuel Eliot Morison, History of U.S. Naval Operations in World War II, vol. 1, The Battle of the Atlantic, September 1939 – May 1943 (Boston: Little, Brown, and Company, 1947), 282-83.

a shakedown cruise. The cargo holds of the freighters had been filled with buoyant material such as cork to make it seemingly impossible to sink them, even if they were hit with a torpedo. The crews on the ship were all Navy volunteers, and they knew that their mission was completely secret. This meant that if they did run into a U-boat, they would not necessarily receive help in dispatching it. As far as the Districts knew, they were just typical merchant vessels. If they got into real trouble, help was not guaranteed. They were on their own.

Four days after their departure, the Atik was 300 miles east of the Chesapeake Bay when it encountered the U-123 under the command of Reinhard Hardegan. The Atik was the first Q-ship to engage an enemy U-boat, which was its last. The last two radio messages from the Atik were received 26 March 1942, beginning at 2055 Eastern War Time, or 1255 Greenwich Civil Time. The first message was, "Latitude 3600 N. Longitude 7000 W. Burning forward not bad. Bearings from Monasquan 150 at 0053 Fire Island 146 at 0053." The second and last message was, "SOS SSS SOS SSS BT ooN 7000W. Approximately, SS Carolyn (Atik's original name) torpedo attack burning forward require assistance."[37] Admiral F. J. Horne made the following analysis of the incident:

> The most likely conjecture is that the Atik and a German submarine had an accidental night surface

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[37]World War II Command File, Atik, n.d., Operational Archives, Naval Historical Center, Washington, D.C.

> encounter in which the Atik was set afire by shell fire and the submarine submerged. Possibly the fire gave the submerged submarine a point of aim or she may have used sound, etc. In any event, the weather was on her side and she evidently got a quick torpedo hit on the Atik, perhaps in the engine room or magazine. It is quite possible that the submarine then surfaced and liquidated all survivors to assuage the curious sense of German justice. The debris found in the SOS area by plane and ship, bore certain identification marks peculiar to the Atik.[38]

On 9 April 1942, a German radio broadcast reported their sinking of a Q-ship off the coast. None of the 142-man crew had apparently survived.

The secrecy surrounding the Q-ship project created great consternation for the loved ones of the men lost aboard the Atik. The Navy's file on the Atik contains several letters, telegrams, and memos concerning the search by Mr. and Mrs. Paul H. Leonard for information on their son, Ensign Edwin Madison Leonard of the United States Naval Reserve, who had served on the Atik. On 8 May 1942, the Leonard's received a notice from the Navy that their son was "missing following action in the performance of his duty and in the service of his country." On 29 June 1942, they learned that there was still no further information on their son. Finally, on 6 May 1944, they were notified that their son was no longer classified as missing but was now presumed to have died in the performance of his duties. On 15 June 1944, they were told that their son's Purple Heart and certificate was being forwarded.

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[38]Ibid.

The notices received by the Leonards did not tell how their son died. They were not to learn the details from the Navy until after the end of the war and after a steady barrage of letters. On 18 March 1946, the Navy Department in Washington, D.C. prepared a detailed response to their questions about the Atik. Only at this time was the secrecy of the Q-ships was finally lifted.

Despite all of the secrecy and the preparation, the Q-ship project was a failure. Although the project continued, no significant contacts were made, by any of the Q-ships, which resulted in the sinking of a single U-boat.[39] Despite the failure of this effort, there were substantial successes against the U-boats in the Fifth Naval District. Hundreds of attacks were made on U-boats, which damaged many of them, and in a few case resulted in their sinkings. The following chapter describes how four U-boats were sunk in Fifth Naval District waters.

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[39]Ibid.

CHAPTER IV

THE SINKING OF THE U-BOATS U-85, U-352, U-701, AND U-521

The real turning point in the efforts against the U-boats finally occurred in April 1942. Beginning in that month and continuing over the next three and one-half months, only 35 vessels were attacked by U-boats, whereas attacks on the enemy increased to 153. With more Navy ships on patrol and cargo ships traveling in convoys, the German U-boats "Happy Time" was over.[1] April brought forth the realization of Grand Admiral Doenitz's fear that if the U-boats did not attack with sufficient strength, America would be able to build up her anti-submarine defenses to intolerable levels.

The Fifth Naval District's defensive capability was proven in April 1942 when the U-85, was sunk in the district. This was the first German U-boat sunk off the east coast during World War II. Its significance, however, was greater than that. A mysterious enemy that had seldom been seen, yet was capable of wrecking such havoc, had finally been engaged and, in this case, defeated. This mysterious enemy was not indestructible. The spell cast by their series of successes

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[1]Commandant, Fifth Naval District, "History of the Fifth Naval District, 1939-1945," vol. 2, 1946, Guide No. 112, pp. 697-98, Navy Library, Naval Historical Center, Washington, D.C.

in early 1942, of three kills a day or one every eight hours, had been broken!

During its last cruise, the U-85 had been precariously close to Virginia, at one point laying in wait on the bottom of the ocean just off the Virginia Capes. The U-85 preferred easier game, however, and proceeded down to Cape Hatteras to an area known as "torpedo junction" because of the large number of enemy attacks there.[2] It was there, just off the North Carolina coast that it encountered the USS Roper, one of the World War I destroyers that had been recommissioned for ASW duties. The Roper had been overhauled and given both radar and sonar for its service in the Key West Sound School. She was more than a match for a U-boat and she proved it on 14 April 1942.

Just after midnight, on 14 April, the Roper was on patrol, with the Bodie Island light just off its starboard side, when its sonar picked up the sound of "rapidly turning propellers," which coincided with an initial contact made by radar. When they got to a range of 2100 yards a wake was seen like that made by a small Coast Guard ship moving at high speed. Captain H. W. Howe knew that it could also have been a U-boat. Therefore, he sounded general quarters and the crew manned the machine guns, the 3-inch guns, the torpedo launchers, and the depth charge batteries. The Roper increased

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[2]Alpheus J. Chewning, "Buried on Foreign Soil," Virginia Cavalcade, Autumn 1989, pp. 84-95.

speed from 18 to 20 knots and slowly closed the gap between the two vessels. The target began to change course repeatedly, attempting to shake off its pursuer. Captain Howe kept the ship slightly starboard of the target in case a torpedo was fired. That precaution paid off when the target fired a torpedo from its single, stern tube. Closing at 700 yards, the track of the torpedo was seen just passing the port side.

When the Roper had reduced the gap to 300 yards, the U-boat turned hard to starboard, attempting to use its sharper turning radius to throw the Roper off. As it began its turn, the Roper's 24-inch searchlight was turned on, illuminating the U-boat's light-colored hull for the first time. Immediately, the gun crews opened fire. Some of the German submariners, running to man their deck gun, were cut down by the machine gun fire, while others sought cover behind the conning tower. A few of the guns proved troublesome on the Roper as some of the ammunition had been allowed exposure to the salt air and the sun. One of the 50 calibre machine guns misfired five times, and two of the 3-inch guns misfired. Nonetheless, a shell from the number five, 3-inch gun, made a direct hit amidships, just below the waterline. The U-boat began to sink as approximately 40 men climbed out of the vessel and jumped into the water. The ship was apparently scuttled by the crew which caused it to sink stern first.

Captain Howe ignored the floundering men in the water, and made no immediate effort to rescue them. The safety of

his ship and crew had to be his first concern. Knowing that U-boats often operated in pairs, he realized that his ship could still be in danger, especially as it was clearly visible with its illuminated search light. The sonar picked up a contact. It could have been the sinking U-85 or it could have been a second U-boat. Consequently, a barrage of eleven 300-pound depth charges was deployed. The Germans stood no chance in the water from the concussion of the powerful explosions.

The following morning, the bodies of the crewmen were found floating in the water. Five bodies had been recovered when, at 0850, a "sharp echo" was picked up at a range of 2,700 yards. The Roper dropped four more charges, which brought up a huge air bubble followed by a slick of fresh oil. By 0932, the last of the bodies were on board the Roper. Two other bodies, which were horribly mangled, were allowed to sink after their clothing was checked for anything of value to Naval Intelligence.

The 29 bodies were transferred that afternoon to the Navy tugboat USS Sciota. As Navy photos show, this was a gruesome task. The bodies were stacked upon themselves in a mound upon a tarp placed upon the deck of the tug. Blood could be clearly seen draining from the mound and coalesced into small puddles on the tarp.[3] The "War Record of the Fifth Naval District" states that "the reason for the death of the 29 was

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[3]Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide No. 129, pp. 355-61, Operational Archives, Naval Historical Center, Washington, D.C.

given as drowning." The Navy Intelligence report, however, clearly indicates that the deaths were caused by concussion. The bodies and their effects were examined at the Naval Operations Base in Norfolk, Virginia. A detailed report of the condition of the bodies indicated that the skin of the bodies was discolored due most likely to the broken capillaries just under the skin. For example, the report on body number four, Erich Degenkolb, described his face as blue, ears purple, and his neck and chest as spotted pink.[4] As water conducts sound better than air, these men did not have to be next to the explosions to be killed. The shock wave, or concussion, was more than enough to rupture organs in their bodies.[5]

On 15 April 1942, at 2000, the bodies were laid to rest in the National Cemetery in Hampton, Virginia. Services were read by both a Catholic and a Protestant Chaplain. A firing party of 24 seamen fired three volleys, followed by the playing of taps.[6] To disarm any potential protest by the local citizens, the Navy reported that they were burying merchant seamen who had been killed in the current sinkings

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[4]Fifth Naval District, "Sinking of German Submarine U-85, Report on the Disposition of Bodies and Effects," n.d., copy of report in possession of Frank Shield, Virginia Beach, Virginia.

[5]Stanley H. Powell, M.D. Interview with the author, Portsmouth Virginia, 15 May 1990.

[6]Fifth Naval District Intelligence Office, "Sinking of U-85."

and whose bodies had washed upon the shore or were picked up at sea.[7]

Other successes against the U-boats followed the sinking of the U-85. On 9 May 1942, the U-352 was sunk by the Coast Guard Cutter Icarus under the command of Lieutenant Morris P. Jester. The U-352 was sunk approximately 25 miles southeast of Beaufort Inlet. The crew of the Icarus picked up the then unknown U-352 on their sonar, which was estimated at 100 yards ahead. They immediately pursued the target. Moments after the chase began, a torpedo exploded approximately 200 yards off the Icarus' port aft quarter. Like the U-85, the U-352 had fired a torpedo at their pursuer. It was conjectured that the torpedo was riding too close to the surface and "porpoised," or rose out of the water, throwing off its guidance system. The torpedo then plummeted to the bottom where it detonated. The Icarus immediately laid down several patterns of depth charges. The U-352 was damaged and forced to surface. The crew of the Icarus opened fire with its machine guns, and 3-inch guns, devastating the doomed U-352, which had risen within range. The crew of the U-352 swiftly abandoned their now sinking ship, as they filed out of the hatches and dove into the water. In a matter of minutes, the U-352 sank. Captain Jester of the Icarus radioed to shore, "Spotted sub,

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[7]Rollin L. Tilton, "History of Chesapeake Bay Sector," Fort Monroe, Virginia, 1 March 1945, p. 33, Copy in possession of Lieutenant Colonel Fielding L. Tyler, U.S. Army retired, Virginia Beach, Virginia.

sank same."

Unlike the attack by the Roper on the U-85, the Icarus did not follow up with additional depth charge attacks as it was not believed a second U-boat was in the vicinity. Consequently, 33 survivors were taken aboard the Icarus alive, including the captain, Hollmut Rathke.[8]

The crew of the U-701 had a far more difficult time trying to survive when their U-boat was sunk on 7 July 1942 by an Army A-29 bomber and its five man crew. Piloted by Second Lieutenant Harry J. Kane of the 296th Bombardment Squadron, the A-29 spotted the U-701 approximately 30 miles east of Cape Hatteras, riding on the surface. Spotting the plane, the U-701 submerged, but Kane promptly attacked, dropping three 350-pound depth bombs, two of which were on target. Kane later described what he saw immediately after the attack:

> When we turned to look back and check what happened, we could see a terrific bubbling, I mean big bubbles, the size of a house, coming up out of the water. We saw some men come up in the center of where these bubbles were, and at that time we knew we had sunk a submarine because they might try to fool us by sending up oil and stuff like that, but they wouldn't send up men.[9]

The captain of the U-701, Horst Degen, plus 26 other men, escaped from their doomed ship, which had suffered a ruptured

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[8]Commander in Chief, U.S. Atlantic Fleet, Office of Naval Intelligence, "Information on German U-boats No. 1," 1942, Report in possession of Frank Shield, Virginia Beach, Virginia; Tilton, 39.

[9]Harry Kane, U-701: A Real Life "Das Boot," n.d., Virginia Beach Life Saving Museum, Virginia Beach, Virginia, Videocassette.

pressure hull and plummeted to the bottom. Settling in 200 feet of water, the air inside the U-boat was extremely compressed, with the water level up to approximately halfway inside. Consequently, when they opened the hatches, they shot out of the U-boat like a cork from a champagne bottle, riding massive air bubbles to the surface.

No ship was anywhere near them to pick them up. Caught in the Gulf stream they drifted over 100 miles for 49 hours. When Navy seaplanes finally spotted them, only seven survivors, including Captain Degen, were found. They were taken to the Naval Hospital at the Naval Air Station in Norfolk, Virginia. They were all exhausted, extremely sunburned, and starved. Two days later, Captain Degen was visited by the man who sunk his ship, Harry Kane. When he entered the room, Degen, who was seated at a table, stood up, saluted, and said, "Congratulations, Good Attack!"[10]

The survivors of the U-701 were good at keeping a secret. During their internment, they never told they were the ones who had laid mines near Virginia Beach the month before. They had not yet learned the damage their mines had caused.[11]

Another U-boat, the U-521, was sunk on 2 June 1943 by the Navy patrol craft, PC-565. At 1235, approximately 142 miles east, north east of Cape Henry, the sonar operator on the PC-

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[10]Ibid.; Commandant, "History," 425-32.

[11]Ed Offley, "Confrontation in the Atlantic — The Death of the U-701," The Virginian-Pilot and The Ledger-Star, 9 July 1982.

565 picked up the submerged U-521 at a range of 1600 yards. Captain Flynn of the PC-565 ordered general quarters. When they neared 100 yards to the target, they dropped a pattern of depth charges. The U-521 was rocked and damaged by the blast, which forced the crew to surface. Lt. Commander Klaus Bargsten, in command of the U-521, came up into the conning tower. The PC opened fire with their heavy machine guns and proceeded at 15 knots to ram the U-boat.

With his U-boat severely damaged, including a useless diving rudder, Bargsten decided the situation was hopeless. With the PC bearing down on them again, he yelled down the hatch, "Flood all tanks, abandon ship!" The U-boat plunged, however, with unexpected swiftness, trapping the entire crew inside. Only Bargsten, by virtue of being in the conning tower, survived. He was later picked up by the PC.

Despite his statement that his ship had been sunk, the PC continued to patrol the area. At 1338 they found among the floating wreckage a section of a human torso. After retrieval, it was identified as a segment of a man's chest and stomach. As the U-boat sank in 1700 fathoms it was never positively located; however, it must be on the bottom, an iron coffin containing its entire crew except her captain.[12]

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[12]Fifth Naval District, "War Record," 539-41.

CHAPTER V

ARMY AND NAVY COOPERATION: THE HECP AND UNDERWATER DEFENSES

Before the entry of the United States into the war, both the Army and the Navy knew that their cooperation would be crucial to successfully protect the Virginia Capes and the Chesapeake Bay. Neither the Army with its forts, nor the Navy with its fleets could repel an all-out enemy offensive alone. Together, they would have to control the sea traffic in the region and provide an efficient way to give warnings of enemy vessel intrusions as well as to deliver appropriate retaliation.

On 22 April 1941, the Local Joint Planning Committee drew up plans for a joint Army and Navy Harbor Entrance Command Post (HECP). Construction of a protected harbor defense command post was under way by the Army at Fort Story. As it was still incomplete, the Local Joint Planning Committee opted to establish the HECP in the U.S. Weather Bureau building at Fort Story.[1] On 30 June 1941, the HECP was commissioned and put into operation under the command of Commander E. F. Clement, USN. The Army and Navy jointly occupied an office in

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[1]Rollin L. Tilton, "History of Chesapeake Bay Sector," Fort Monroe, Virginia, 1 March 1945, p. 13, Copy in possession of Lieutenant Colonel Fielding L. Tyler, U.S. Army retired, Virginia Beach, Virginia.

the building with watch officers from both services. Together, they filtered information to their respective military commands. At this time, the approaches to the Chesapeake Bay were finally under a joint command.[2] This operation coordinated both the Harbor Defense and Inshore Patrol Forces. The Harbor Defense Commander and the Inshore Patrol Commander both received pertinent information immediately from the HECP enabling them to make appropriate decisions on the action needed.[3]

The HECP remained in the U.S. Weather Bureau Building until the following summer of 1942. With the permanent, underground facility at Fort Story now completed, the HECP moved by stages into its new home. In early 1943, the facility was enlarged to accommodate an emergency center for the Fifth Naval District Commandant and the Navy's command operations. Known as "Battle Station Three," this expansion contained an exact replica of the Joint Operations Center located at the Naval Operations Base. Should the Joint Operations Center have been destroyed by an enemy attack, this alternate command could have been activated immediately.[4]

By 1943, the HECP had reached its highest state of development. By this time the HECP was also the joint command

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[2]Commandant, Fifth Naval District, "History of the Fifth Naval District, 1939-1945," vol. 2, 1946, Guide No. 112, p. 527, Navy Library, Naval Historical Center, Washington, D.C.

[3]Ibid., 525.

[4]Ibid., 536-37.

post of the Harbor Defense Commander, and the Approach and Entrance Force Commander. Throughout the war, both Army and Navy personnel manned the HECP 24 hours a day. The Army operated their own operations room which enabled them to coordinate control of the harbor defenses along with the joint control of the port entrance. Navy personnel also operated an adjoining Navy Operations Room. The Navy's intelligence officers who served as field agents for the Fifth Naval District, were also stationed there. Both the Army and the Navy had close to 100 enlisted men assigned to carry out their operations. These men consisted of "observers, radar operators and maintenance men, signalmen, radiomen, and teletype, and telephone operators, with necessary assisting and supervisory personnel."[5]

The Army and Navy personnel at the HECP had immediate control over six types of formidable weapons. The first of these was the Army mines. From Cape Henry to Cape Charles, 59 ground-controlled mines had been placed to form an outer mine field. Furthermore, inside the Thimble Shoals Channel at the entrance to Hampton Roads itself were placed four groups of mines of the same type to form an inner mine field.[6] The use of Navy mines had been abandoned following a revision of the Army and Navy Underwater Defense System in November 1942.

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[5]Ibid., 59.

[6]Ibid., 61.

(See Figure 3 highlighting these defenses.)[7]

The second was the Army and Navy Hydrophones. These were underwater listening devices which enable an operator to distinguish such sounds as those made by the propellers of an approaching ship. The Army had seven hydrophones equally spaced across the entrance of the Chesapeake Bay from Cape Henry to Cape Charles. These were positioned in front of the outer mine field described above. The Army hydrophones plus their mines were both operated from their mine casemates. The Navy had placed 14 hydrophones approximately 5,000 yards east of the Army's outer mine field and hydrophones. The Navy hydrophones were controlled, and their signals evaluated, in the Navy Operating Room in the HECP.

The third was the three Navy magnetic loops. These were underwater cables that detect the magnetic field put off by a passing ship. The Navy loops were installed just east of the Navy hydrophones, thus forming the first layer of protection for the entrance to the Chesapeake Bay. The loops roughly paralleled the hydrophones. The loops were laid in three sections of roughly equal length stretching from Cape to Cape. Until late 1943, only the southern section, near Cape Henry, and the midsection were in place. The northern section consisted at that time of a Navy mine field which was replaced by the Northern loop.

The fourth was radar. The HECP had control over both

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[7]Commandant, "History," 534.

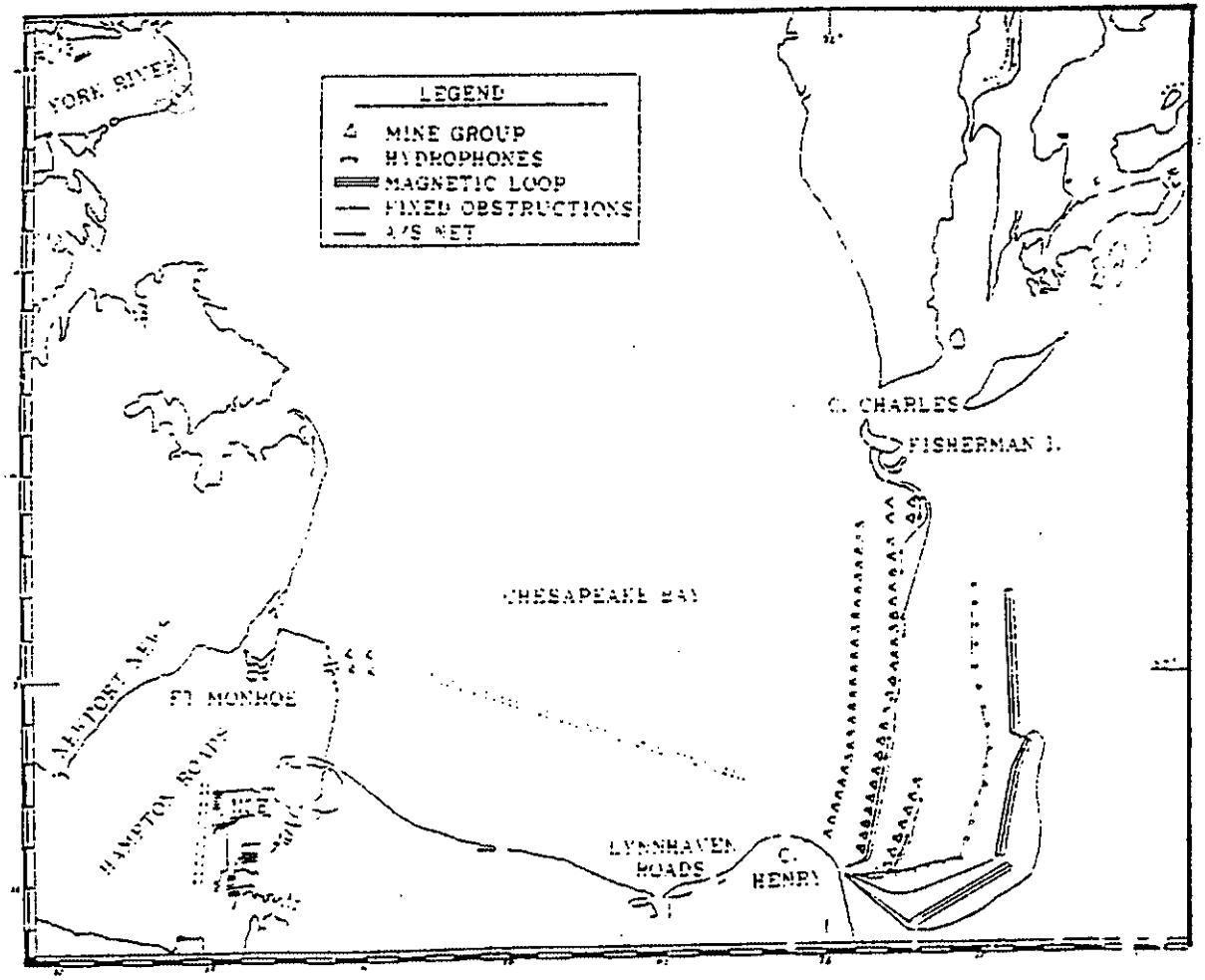

Figure 3. Underwater and Other Fixed Defenses of the Hampton Roads-Chesapeake Bay Area as Finally Installed

Source: Commandant, Fifth Naval District, "History of the Fifth Naval District, 1939-45," vol. 2, 1946, Guide No. 112, p. 59, Navy Library, Naval Historical Center, Washington, D.C.

surveillance and fire control radars. Surveillance type radar was that which gave a picture of all the surface craft in and about the region. Surveillance radar was provided by the Navy's patrol craft as well as the Army's command posts at Fort Story and Fort Monroe. The Army radar swept an area covering their artillery's field of fire and beyond. Each of the Army's six-inch batteries at Fort Monroe, John Custis, and Story had Fire Control radar. Each of these radar sets could be operated in an emergency from the Army's Operating Room in the HECP.

The fifth was Navy patrols. These operated out of the Little Creek Base and were controlled by the Navy Watch Officer. (See the patrol stations diagram Figure 4.) Patrols usually kept on station included the examination vessel, the Inner and Outer Guards, Nude North and South, Sold, Jake and Fair. Of course, these patrols would be augmented by others should a U-boat be detected in the district. These patrol craft were expected to function not just as a defensive element, but as an offensive force, with the goal of destroying any intruder.

The sixth was the Navy airplanes. These aircraft were used by the HECP for additional patrols to investigate incidents, and to aid the Harbor Defense Commander.[8] Having such forces as these available, enabled the HECP to protect the Bay and the maritime traffic in the area. Some of the

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[8]Tilton, 61.

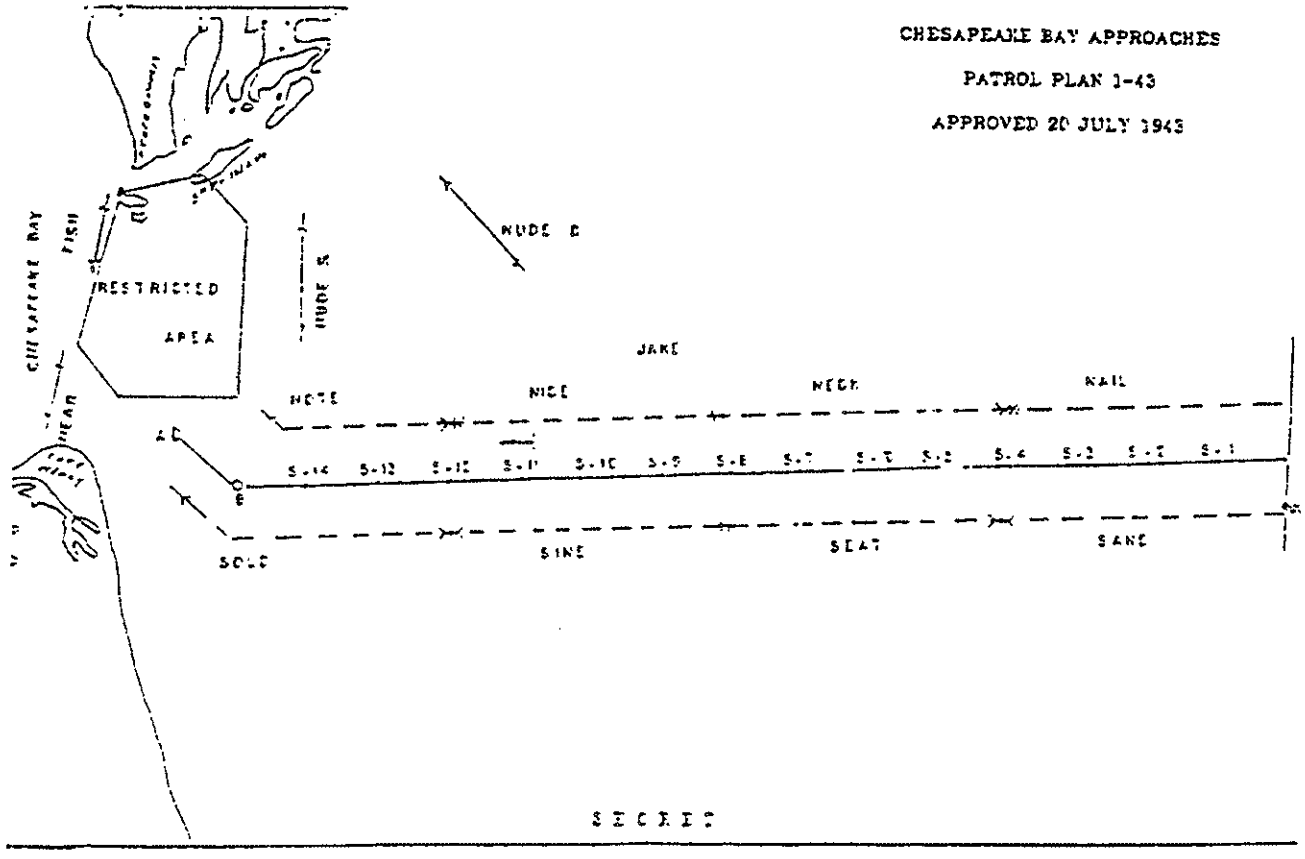

Figure 4. Chesapeake Bay Approaches, Patrol Plan 1-43
Source: Rollin L. Tilton, "History of the Chesapeake Bay Sector," Fort Monroe, Virginia, 1 March 1945, p. 60, Casemate Museum.

major operations at the HECP for the Army and Navy included the gathering, and proper distribution of intelligence data, the operation and maintenance of military communication channels, the control of mines, access control of the port, firing warning shots on vessels recklessly off course, and giving protection to convoys.[9]

Working closely with the HECP at Fort Story was a similar operation called the HECP Number Two, located at Fort Monroe in the Groupment Command Post. Operated by the Army's Groupment Commander, the HECP Number Two operated as virtually an independent station directing traffic in and out of Hampton Roads. The Army and Navy had a similar close working relationship involving the HECP Number Two. The post maintained contact with the Joint Operations Center in the Naval Operations Base. This was necessary as it was the Navy which operated the inner patrols, and maintained the nets across the entrance to Hampton Roads, and the gate.

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[9]Ibid., 62.

CHAPTER VI

THE ROLE OF NAVY INTELLIGENCE OPERATIONS

A key element in the successful and efficient use of the forces in the Fifth Naval District was the availability of useful information provided by the Operational Intelligence Unit of the District Intelligence Office. This operation had three interrelated activities which included coastal information work, anti-submarine warfare (ASW) work, and operational intelligence work. Of these, the coastal information work was the backbone of the intelligence effort as it involved the painstaking work of collecting information, evaluation, and dissemination to the various military departments. Such work was complex and detailed, involving the establishment of an entire network of contacts, informants, and observers. Work in this area began long before the war in anticipation of eventual hostilities.

Coastal information work enabled efforts in ASW work, the second part of the Operational Intelligence Unit, to begin immediately after the war began. Those involved in ASW work organized a method of providing information on enemy U-boat movements in and around the Fifth Naval District to all available forces. A plot room was installed in the Coastal Information Office. Here, the courses of the U-boats were

plotted with continuous updates from reports on sightings. In addition, the courses of all friendly vessels in the district were plotted so as to determine if their paths would cross with those of a U-boat.

Operational intelligence work, the third part of the Operational Intelligence Unit, involved the swift, final evaluation of the information collected and plotted for distribution to all friendly vessels in the region. Such information could provide warnings to merchant ships and targets to patrol craft. Every effort was made to furnish complete information before distribution. If not, a patrol craft, with incomplete information, might fire on a merchant ship, thinking it was an enemy, or likewise, let a hostile craft pass, missing an opportunity for a kill. To help achieve this, operational intelligence officers were placed in each section base and air station. These officers not only gave information on the sea traffic, both friendly and enemy, to the outgoing pilots and skippers, they received information in return from those coming in, making them a vital part of the information collection process.

The number of sources used by the Operations Intelligence was staggering both in its number and diversity. Virtually anyone who had any contact whatsoever with the area was a potential source of information. Typical sources included public and private citizens who flew aircraft, sailed the seas, operated radio communications, and those who visually

monitored the area, such as Army Watch Officers. As mentioned in Chapter II, most of the vessels fishing in Fifth Naval District waters were equipped with radios to transmit information on any U-boat sighting, making them a tremendous asset to the Operational Intelligence Unit.[1]

Another fascinating source of information was found in flotsam which spoke volumes in unwritten words about some unanswered mystery. Pieces of wood, empty lifeboats, or life preservers were often found, which confirmed the identity of a ship that was missing and presumed sunk. Occasionally, a more macabre means of identification appeared on the beaches in the form of bodies. For example, ten days after the 500-ton, HMS Bedfordshire was sunk 11 May 1942, two water-logged corpses washed ashore on the Outer Banks of North Carolina. They were later identified as members of the crew. Several days later, two more members of the crew were found. The names of these men were never discovered.

Flotsam also provided an occasional bit of information on the enemy. For example, on 4 June 1942, the trawler Sue Lawson presented to the District Intelligence Office a large piece of metal that was snagged in their net while fishing near Winter Quarter Shoals Whistle Buoy. This metal fragment turned out to be a German electric torpedo motor. This was one of the most advanced motors of its kind at the time.

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[1]Fifth Naval District, "War Diary of Operational Intelligence," n.d., Box no. 390, pp. 9-13, Operational Archives, Naval Historical Center, Washington, D.C.

Flotsam sometimes had good salvage value. Some of the material collected in intelligence gathering operations were later resold. Many items were salvaged such as sweep cables, sono-buoys, and even 100 feet of copper cable.[2]

One of the greatest supporters the U-boats had was simple ignorance. Operational intelligence obviously sought to remove this support with the pertinent information it provided. Included in the data distributed on the U-boat's potential locations, were warnings on the tactics employed by the enemy. For example, it was discovered that a surfaced U-boat, on 11 January 1942, had successfully simulated the flashing light of the Hatteras lightship, which lured the American ore carrier SS Venure in close, which enabled it to be easily sunk.[3] The U-boat commander waited for the lightship to be taken into port, and simply took its place. The Venure's captain was ignorant of this trick, which led to the loss of is ship. Another tactic discovered was the way U-boat commanders liked to stalk a ship, waiting to strike when the night watch was changed, as it took a while for the eyes of the replacements to adjust to night vision.

The U-boats' tactics changed throughout the war, and operational intelligence did its best to keep everyone informed. For example, in the fall of 1943, operational

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[2]Ibid., 33-35.

[3]Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide No. 129, pp. 51-54, Operational Archives, Naval Historical Center, Washington, D.C.

intelligence reported that aircraft on patrol should be more careful in their attacks on U-boats, as the enemy was no longer crash diving at the sight of an airplane, but was remaining on the surface, using impressive anti-aircraft guns to fight it out.[4]

As mines were used in the Fifth Naval District, both enemy and friendly, an accurate account of all their locations had to be maintained to warn vessels operating in the area. Operational intelligence trained approximately 500 observers who monitored the waterways searching for "friendly" mines that had "walked," as well as enemy laid mines. On many occasions, these observers accurately reported the location of mines which were quickly removed.

When a U-boat mined the entrance to the Chesapeake Bay in September 1942, the investigation conducted by operational intelligence uncovered some disturbing facts. During August and September, intelligence officers found papers aboard Spanish, Portuguese, Greek, and Swiss neutrals warning them to take an alternate route through the Virginia Capes, avoiding a specific area of the swept channel where mines were later found. Fortunately, no American ships slammed into one of these mines before they were found and removed.[5]

During the first months of the war, the number of ships sunk in the Fifth Naval District, and off of the Chesapeake

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[4]Fifth Naval District, "Operational Intelligence," 21-22.

[5]Ibid., 22-24.

Bay, grew. Many ships were sunk in shallow water and constituted a hazard to navigation. Consequently, the Operational Intelligence Unit had the duty of informing traffic in the area of these potential hazards. These wrecks also created headaches for patrol craft as they were difficult to distinguish from a submerged U-boat sitting on the bottom. Many depth charges were wasted in needless attacks on wrecks.

Lieutenant (j.g.) H. R. Wood, the District Wreck Officer, was placed in charge of the "collection, evaluation, and dissemination of wreck data in the Fifth Naval District." Under the direction of Lt. Wood, a survey of the wrecks in the water of the Fifth Naval District, within the 100 fathom curve was conducted. This survey was performed with the use of the USCG Gention, which began operations on 17 July 1943. During the summer months of 1943 and 1944, the survey continued. When the operation was completed on 30 September 1944, 418 reported positions of wrecks had been investigated with a total of 65 wrecks positively identified. Although this information came late in the war, it still provided invaluable data years after the war to maritime traffic.[6]

Another important operation performed by the Operational Intelligence Unit was to check all possible collaborators with the enemy. Following the advent of the war, rumors began that collaborators were in the area who took food, water, oil, and information out to the U-boats. Such operations seemed

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[6]Ibid., 47-50.

possible to the Operational Intelligence Unit as the history of the region was full of accounts of bootleggers and smugglers who operated out of the many inlets and bays along the coast. The Department of Naval Intelligence received numerous reports of such collaborations. Fishermen in Morehead City, N.C., were reported to discuss openly how they were either willingly, or unwillingly stopped by a U-boat and relieved of their supplies. One report from the Fourth Naval District discussed information from a "reliable" source that described how large amounts of oil was stored in the Lower Delaware Bay, N.J., for refueling submarines. It also described a U-boat hideout and repair facility located somewhere in the same vicinity or down farther near Norfolk, Virginia. Many of the rumors reported to Naval Intelligence were quickly dismissed as false. Some, however, did warrant further investigation, and were taken as serious potential threats by the Operational Intelligence Unit. The District Intelligence Office was assigned the task of first preventing the success of such espionage, and second, verifying or disproving such reports to the Coastal Information Section.

The District Intelligence Office undertook the extensive monitoring of all ships entering and leaving the district. Five methods were employed to accomplish this. 1) Reports were made to the coastal information section by the locktenders on the C & D, Chesapeake and Albemarle, and the Dismal Swamp Canals. 2) Intelligence officers boarded every small

vessel, including fishing boats, both entering and leaving the Chesapeake Bay. 3) Daily Coast Guard reports were prepared on all craft entering or leaving any and all inlets along the coast. 4) Informants were to monitor all points where a boat could enter or leave that was not monitored by the Coast Guard. 5) All outgoing craft had to give their expected operating area which was later checked by patrol craft and airplanes. If a ship failed to radio in a deviation from their plan it was subject to disciplinary action such as the revocation of their operator's license.

All of the small craft in the district were screened, and those considered posing a danger were placed on a "suspicious small craft list." This list was constantly changed with ships being taken off, while others were added. At one time, this list numbered over 200, but by 1943 it was reduced to less than a dozen, due to "negative investigations, gas rationing, and in a few cases, revocation of operating license."[7]

The above efforts kept any collaborator from having an easy time giving aid and comfort to the enemy. Their second objective, however, verifying or disproving reports on such collaborators, proved more difficult. Intelligence officers could never track down the source of a rumor. If they asked a waterman for the source of a rumor, the typical response was that they had just "heard" it. Such talk about U-boats and

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[7]Ibid., 36-39.

local craft made a lot of good gossip, some of which was picked up and printed as fact in the newspapers. One story published in a North Carolina newspaper was investigated thoroughly by Naval Intelligence Officers. The story, which dealt with a chance encounter between a fishing boat and a submarine, was found to be groundless. As a result of this, most of the papers in the Fifth Naval District agreed not to publish such stories in the future without first checking with Naval Intelligence for verification. As a result, the flood of rumors was greatly reduced as the newspapers no longer gave their seal of approval by writing stories from them.

Other reports of collaborators on shore attempting to communicate with the enemy at sea were equally difficult to confirm. The coastal information unit prevented the needless running around by intelligence officers by evaluating the legitimacy of many of these reports. Literally hundreds were disproved, but on occasion, there were legitimate reports of communication. For example, communication through visual signals was confirmed in several districts. One was confirmed in the Fifth Naval District when a series of flashes were seen going from the coast to seaward. Upon investigation, it was found that the number of flashes corresponded exactly with the number of ships in a convoy awaiting departure.[8] Most of the reports of flashing lights, however, were dismissed as shooting stars, flashing buoys, and running lights on small

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[8]Ibid., 19-20.

vessels bobbing up and down on the waves.[9]

Collaborators were also suspected of communicating with the enemy by radio. Most of these "suspicious" radio signals, however, were explained as non-hostile. In fact, no tangible results were ever uncovered in the Fifth Naval District. Most signals were attributed to such things as garbled Army and Navy transmissions, radio beacons, allied naval vessels using foreign codes, enemy propaganda, and even enemy operational transmissions. The cause of one of the most frequently reported locations of an enemy radio transmitter was the occasional presence of the mobile Federal Communications Commission (FCC) monitoring station. Typically, these were large trucks or vans loaded with electronic gear. Occasionally they can be seen today verifying that all local radio and television stations are broadcasting on their licensed frequency and output capacity. During the war, the Federal Bureau of Investigation accidentally raided one of these FCC units, as they thought it was transmitting messages to the enemy.[10]

In conjunction with all these fears of collaborators, both ashore and at sea, were fears that enemy agents were clandestinely dropped ashore in the Fifth Naval District. Navy intelligence has no irrefutable evidence that enemy agents were ever dropped ashore here. During the war, foot

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[9]Ibid., 24.

[10]Ibid., 45-47.

patrols were maintained along the shore to prevent just such an occurrence, or at least to record their landing so a pursuit could be made. Both the Army and the Coast Guard provided personnel for these patrols, which monitored all of the beaches and the harbors. In late 1943, with more Army personnel being transferred overseas, the Coast Guard, in agreement with the Navy, took over all the beach patrols except for Virginia Beach and a few of the other service elements, which were still patrolled by Army personnel. With these continuous foot patrols throughout the war it is unlikely, although not impossible, that an enemy landing occurred.[11]

Perhaps the crowning achievement of the Navy's Operational Intelligence Unit was its direct contribution towards the sinking of several U-boats in Fifth Naval District waters. As described in Chapter III, the USS Roper sank the first U-boat, the U-85, off of Nags Head on 14 April 1942. The Roper did not just stumble upon the U-85; rather, accurate intelligence reports guided it to its fateful rendezvous. The crew of the Roper received all of the acclaim for this first kill in the press, but it was the men behind the scenes, those involved in Naval Intelligence, who made it possible. Indeed, the district's Operational Intelligence Unit accurately plotted

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[11]Rollin L. Tilton, "History of Chesapeake Bay Sector," Fort Monroe, Virginia, 1 March 1945, pp. 66, 72, Copy in possession of Lieutenant Colonel Fielding L. Tyler, U.S. Army retired, Virginia Beach, Virginia.

the movements of the then unknown U-85 from 1 April until its destruction on 14 April. Using reports from aircraft, and ships at sea, which spotted the U-boat, its location was continually updated. The U-85 was one of three U-boats known to be operating in the Fifth Naval District at the time. The U-85 was known, however, to be remaining on station in a small area just off of Nags Head. The last report on its location came on 13 April from Captain Quinn of the fishing trawler Sea Romer. As one of the ships participating as an observer, Captain Quinn radioed in the sighting to the Naval Operations Base. His sighting corresponded with the estimation already made of the U-boat's location. District operations sent the Roper to the location with the dispatch, "Something suspicious due east of Currituck in 15 fathoms of water." In the early hours of 14 April, the Roper was right on target and the U-boat was destroyed.[12]

Navy Intelligence aided in a similar fashion with the destruction of the U-701 on 7 July by an Army A-29 bomber 37 miles east of Cape Hatteras. The captured Captain, Horst Degen, gave the Navy a description of his ship's activities in the Fifth Naval District which matched exactly with the times and locations estimated in operational intelligence reports. Indeed, the Navy's Operation Intelligence Unit would be behind the scenes on all of the hundreds of attacks made on enemy U-boats in the Fifth Naval District. Not all attacks were

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[12]Fifth Naval District, "Operational Intelligence," 14-17.

successful, but due to the efforts of such men behind the scenes, the waters of the Fifth Naval District became a very dangerous place for a U-boat.

CHAPTER VII

DEFENSES PROVIDED BY THE ARMY

As highlighted in Chapter IV, both the Army and the Navy worked together to protect the Chesapeake Bay from the intrusion of U-boats or any other Axis vessel. In addition to cooperative efforts with the Navy such as the Harbor Entrance Control Post, the Army provided formidable defenses with their complement of mines, forts, artillery, aircraft, and mobile forces. If an enemy U-boat had been caught in the shallow waters of the Chesapeake Bay, the Army's guns could have destroyed it.

U-boats were but one of the targets the Army defenses were prepared to meet. The Army defenses were considered adequate to destroy or at least cripple any invasion force sent by the Axis powers. In the early days of the war, this was considered a possibility as it was feared England might surrender. An invading force would have had a difficult task. The Germans would not have the advantage of a close assembly point for an invasion like the Allies did with "aircraft carrier England" for the liberation of Europe.[1] Consequently, a German invasion force would have to sail direct from Europe

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[1]Michael Gannon, Operation Drumbeat (New York: Harper & Row, 1990), 74.

or from some conquered assembly point in the Caribbean, Bahamas or Cuba for example. In addition, they would have had to bring sufficient aircraft carriers and planes to soften up the shore installations prior to their attack. With so great a distance to cover, and the minimizing of surprise, the Army defenses would have been sufficient to protect the region. It is possible the Germans could have successfully invaded, but the effort required would have been massive and costly. Provided they were able to penetrate the Navy's outer defenses, they would have had to dodge the shells from the Army forts which had a range of approximately 25 miles. Should part of the invader's force have survived to enter the Chesapeake Bay, they would have been caught in a crossfire of weapons firing from both Cape Henry and Cape Charles. The defenses, however, were never challenged in such a way. The Army had to be content with aiding the Navy in keeping the U-boats out of the Bay. The Germans must have respected the weaponry they faced in the Chesapeake Bay, as no U-boat is believed to have entered the Bay itself, despite rumors to the contrary.

The Army was responsible for an area known as the Chesapeake Bay Sector which was organized 12 December 1942 according to guidelines in the Joint Action of the Army and Navy. The Sector's parent organization was the Third Coast Artillery District, which was reorganized as part of the mobilization effort. The seaward boundary of the Sector was

the same as the Fifth Naval District. Consequently, the Army was responsible for the coast from the Maryland-Delaware boundary to the southern tip of Onslow County, North Carolina.[2] The Defensive Coastal Area around the entrance to the Chesapeake Bay was dictated in part by the range of the weapons at the Army's disposal. The outer limits of this area were determined by the radii of the projected arcs from the Fort Story batteries at Cape Henry with 24,500 yards, and the Kiptopeke batteries at Cape Charles on Fisherman's Island with 24,200 yards.[3]

The Army considered the Virginia Capes and the Chesapeake Bay an area second only to New York in its importance to the war effort and the national defense. Protecting this area also meant they were protecting the approaches to Washington, D.C., and Baltimore, Maryland. In addition, they also protected the Norfolk Naval Shipyard, the Navy Operations Base, the Newport News Shipyard, the Hampton Roads Port of Embarkation, in addition to many other smaller industrial facilities. Should the Axis have taken over the region, they would have had the use of some of the best port facilities in the world, plus immediate access to some of the prime centers

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[2]Rollin L. Tilton, "History of Chesapeake Bay Sector," Fort Monroe, Virginia, 1 March 1945, p. 4, Copy in possession of Lieutenant Colonel Fielding L. Tyler, U.S. Army retired, Virginia Beach, Virginia.

[3]Commandant, Fifth Naval District, "History of the Fifth Naval District, 1939-1945," vol. 2, 1946, Guide No. 112, p. 619, Navy Library, Naval Historical Center, Washington, D.C.

of the country. Recapture of the region would have been extremely difficult.

As the potential for direct involvement of the United States in the war became increasingly obvious, plans were made for the role the Army would play in defending the Sector. The Army's Operating Defense Plan was given final approval by the Commanding General, First Army, of the Northeastern Theater, on 8 July 1941. Under this plan, the sector commander was given the task of defending the Sector from attacks from the sea, land, and air. This involved providing screens with their aircraft, such as the ones at Langley field, their artillery located at the forts and on mobile platforms, and their troops located at bases throughout the Sector. Furthermore, they were expected to provide anti-aircraft defense, covering such potential targets as Federal buildings, Langley Field, the Norfolk Naval Base, Newport News Shipbuilding, and the Ammunition and fuel depots located in Nansemond, Norfolk, and Yorktown. In addition, the Army was expected to work closely with the Navy with the joint operation of the Harbor Entrance Control Post and the placement of Army mines to augment the underwater defenses protecting the entrances to the Chesapeake Bay, and Hampton Roads.[4]

The man responsible for the successful execution of these plans, Brigadier General Rollin L. Tilton, took over the Chesapeake Bay's Harbor Defenses on 9 November 1940. To

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[4]Tilton, 1, 4-6.

assume this post, Tilton left his command in San Francisco of the 6th Artillery where he had been promoted to Brigadier General on 1 October 1940. Following his services to the Chesapeake Bay Sector during the war, he served as Inspector General of the Army Ground Forces and headed the War Department Seacoast Defense Armament Board. In 1948 he retired.[5]

The Army defenses under Tilton's command were divided into two groups comprised of the outer defenses, protecting the entrance to the Chesapeake Bay, and the inner defenses, guarding the entrance of Hampton Roads and the surrounding inner area of the Chesapeake Bay. The outer defenses consisted of Fort Story at Cape Henry, and Fort John Custis at Cape Charles. Fort Story had ten batteries plus control over 46 groups of mines guarding the entrance of the Bay. The batteries included the following:

Battery Ketcham	2 - 16" Guns
Battery 121	2 - 16" Guns
Battery Pennington	2 - 16" Howitzers
Battery Walke	2 - 16" Howitzers
Battery Worcester	2 - 6" Guns
Battery Cramer	2 - 6" Guns
Battery 226	2 - 6" Guns
Examination Battery	2 - 3" Guns
Battery AMTB (Anti-Motor Torpedo Boat) No. 21	2 - 90mm Guns
Battery AMTB No. 22	2 - 90mm Guns[6]

Originally, Fort John Custis, located near Kiptopeke on

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[5]Richard P. Weinert, and Colonel Robert Arthur, Defenders of the Chesapeake — The Story of Fort Monroe (Annapolis: Leeward Publications, 1978), 242.

[6]Lieutenant Colonel Fielding L. Tyler, "Fort Story, Virginia, World War II Armament Tour," n.d., Life Saving Museum of Virginia, Virginia Beach, Virginia.

Cape Charles and Fisherman's Island, was known as Fort Winslow. It was renamed Fort Custis in February 1942, with the name later expanded to Fort John Custis in October to avoid confusion with Fort Eustis, which was not part of the Sector's defenses.[7] Fort John Custis had control of the remaining 13 groups of mines guarding the entrance of the Bay in addition to five batteries. These batteries included:

Battery Winslow	2 - 16" Guns
Battery 123	2 - 16" Guns (Canceled)
Battery 227	2 - 6" Guns
Battery 228	2 - 6" Guns
Battery AMTB No. 24	2 - 90mm Guns[8]

The inner defenses consisted of Fort Wool, and Fort Monroe. Fort Wool was located on a small, artificial, debris filled island in the entrance to Hampton Roads known as the Rip Raps. Fort Wool had three batteries which included:

Battery Gates	2 - 6" Guns
Battery Hindman	2 - 3" Guns
Battery Lee	4 - 3" Guns[9]

In addition to Fort Wool, there was the much larger Fort Monroe, which not only had eight batteries but controlled four groups of mines which protected the entrance to Hampton Roads. The batteries included:

Battery 124	2 - 16" Guns (Canceled)
Battery Parrott	2 - 12" Disappearing Guns (Disarmed)
Battery De Russey	2 - 12" Disappearing Guns (Disarmed)
Battery Anderson	4 - 12" Mortars (Disarmed)

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[7]Weinert and Arthur, 220.

[8]Tyler.

[9]Ibid.

Battery Ruggles	4 - 12" Mortars (Disarmed)
Battery Church	2 - 10" Disappearing Guns (Disarmed)
Battery Montgomery	2 - 6" Guns
Battery AMTB No. 23	2 - 90mm guns[10]

As the war situation improved, continual manning and maintenance of some of the batteries was discontinued as noted above by those designated as disarmed. Disappearing cannons were supported on an hydraulic framework, which enabled them to be kept hidden behind a massive concrete embankment and raised only for firing. Upon firing, the concussion would help lower the weapon back down, making it disappear from view.

To augment the outer defenses of Fort Story and Fort John Custis, the Army decided an additional fortification was needed in the middle of the 12-mile entrance to the Chesapeake Bay. The Army came up with three possible plans. The first was to construct an artificial island upon which a fort could be built. The second was to build a tower in the middle from which artillery could be placed and fired. The third was to anchor a huge hulk, laden with artillery on its deck, in the middle. The first two ideas were too lavish and expensive. The third, however, idea was supported by the War Department and the Navy. The old gunboat Annapolis was acquired for this project, and preparations were made for her to be equipped with cannons and manned by coast artillery personnel. Although the project seemed needed in early 1942, support waned by 1943 as the war situation significantly improved.

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[10]Ibid.

Consequently, the Navy withdrew support and the project was abandoned.[11] The necessity was further weakened by the modernization of the Army's weapons on Fisherman's Island and Cape Henry. As a result the "middleground" of the Bay entrance was brought into more accurate range.[12]

Activity within Tilton's Chesapeake Bay Sector increased significantly just before hostilities broke out. The coastal observation system was inaugurated on 24 March 1941. At this time a permanently manned observation post was in operation at Fort Story for Harbor Defense. It was feared, that even without a declaration of war, the Axis powers might already be targeting the Chesapeake Bay Sector. The first permanent, 24-hour, harbor defense alert was established on 22 May 1941. That meant that, in addition to the surveillance system, many of the guns of the outer and inner defenses, including the anti-aircraft guns, were on alert. The requirements of this alert were continually intensified as the threat intensified. On 4 November 1941, secret orders were given to all Army commanders in the Sector to not only maintain their surveillance and cooperation with the Navy but to attack with lethal force any German or Italian forces that dared to enter the area.[13] On 7 December 1941, after word was received that Pearl Harbor had been attacked, the entire Chesapeake Bay

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[11]Tilton, 45.

[12]Commandant, "History," 619.

[13]Tilton, 12.

Sector went on alert status with every gun and station manned and the troops ready to move if necessary. The Sector was now in a war-time mode, which was made official on 12 December 1941, when General Order Number One formally placed the Sector in operation.[14]

The alert status of the Sector was gradually loosened as the perceivable threat to the region grew more remote. The efforts of the Army must have seemed anticlimactic as the enemy never really challenged their defenses.

Toward the end of the war, the Army operations within the Sector were dramatically scaled down, and a large number of soldiers were transferred to the west coast for service overseas. The Sector was now classified as virtually free from attack and required only a minimal defense force. Plans were even made to deactivate the Sector and incorporate it into a new Southeastern Bay Sector which extended from New York to Florida. Orders implementing this plan went into effect on 29 February 1944. All of the defenses in the area were removed, including the formidable artillery pieces which had been rendered obsolete by the increased range and accuracy of rockets.

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[14]Ibid., 21.

CHAPTER VIII

NIGHTMARES FOR THE U-BOATS: AIRCRAFT, "KILLER TEAMS," AND NEW WEAPONS

One of the best offensive weapon against the U-boats was the airplane, the very sight of which would cause the U-boats to crash dive. With speed, maneuverability, and force, the airplane proved itself as a more than adequate adversary. As mentioned in the Chapter I, few airplanes were available at the start of the war. Consequently, the first air patrols were extremely limited with little potential as a deterrent. Like the Navy ships, many planes had been redirected to battle zones overseas in Europe and the Pacific, where the need was considered greater. When the war came, the Navy found it had virtually no bombers on the east coast. Primarily, it was left with only Catalina seaplanes, good primarily for rescues and observations. Multi-engine bombers, capable of dropping depth bombs, were the tools needed to destroy U-boats.

The Navy knew it needed help, so they called on the Army on March 1942. The Army cooperated by releasing a directive on which gave Rear Admiral Andrews operational command of all Army Air Force units designated for use in the protection of shipping. With that coordination of resources, an effective air defense was born. At this time, 83 Navy planes, 4 Navy

blimps, and 84 Army planes were located at 18 different fields along the east coast. Both the Army and Navy knew that these numbers of airplanes were inadequate. More airplanes were found for anti-submarine warfare (ASW), and by the end of July 1942, the Navy had a total of 178 planes and 7 blimps, while the Army had 141 planes. These airplanes were stationed at 26 airfields along the coast from Argentina to Jacksonville, covering the entire Eastern Sea Frontier. Many of these were not helpless surveillance craft but formidable attack craft like the Army's A-29 bomber. An additional benefit at this time was the advent of training in anti-submarine air warfare and research by the Seasearch Attack Development Unit at Langley Field, Virginia.[1]

To improve communications between the Army, Navy, and the different air bases, an Anti-Submarine Army Command was organized in October 1942 with Brigadier General Westside T. Larson in command. Under his administration, this Air Command created two new air squadrons, the 25th, headquartered in New York, which served the Eastern Sea Frontier, and the 26th, headquartered in Miami, which served the Gulf area. The 25th Squadron reached full strength by 26 February. At this time, it had 124 Army planes, and 174 Navy planes, and 17 Navy blimps, all available from 20 different bases located between

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[1]Samuel Eliot Morison, History of U.S. Naval Operations in World War II, vol. 1, The Battle of the Atlantic, September 1939 – May 1943 (Boston: Little, Brown, and Company, 1947), 240-41.

New Brunswick, Maine, and Jacksonville, Florida. The 26th Squadron had 96 Navy planes and 62 Army planes, based at 14 different fields between Banview River in Florida, and the Grand Cayman Island. Due to administrative problems, the Navy eventually assumed full control over the air defenses off the Atlantic, as the Army Anti-Submarine Air Command was disbanded in 1 September 1943.[2]

During this development, the flying hours logged by Army and Navy aircraft in the Eastern Sea Frontier went from approximately 5,000 hours in January 1942, to a peak of approximately 25,000 hours in July 1942. During the first four months of 1942, aircraft attacks averaged about 12 per month, increasing to approximately 45 a month over the next five months, giving an average of about 30 attacks a month for the period. Of these attacks, approximately 20 percent resulted in at least some damage to the U-boats, while about 2 percent resulted in the sinking, or at least the probable sinking, of a U-boat.[3]

Many such air attacks were made in the Fifth Naval District. When airplanes were not covering a convoy, or attempting to locate and rescue survivors of a U-boat attack, they usually flew patrols hoping to catch a U-boat on the

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[2]Ibid., 242-46.

[3]Chief of Naval Operations, "Antisubmarine Warfare in World War II: OEG Report No. 51," (Charles M. Sternhill and Alan M. Thorndike), 1946, Guide No. 435, p. 29, Operational Archives, Naval Historical Center, Washington, D.C.

surface. As described in Chapter III, an Army A-29 bomber caught the U-701 on the surface and sank it. Other, similar attacks were made, most of which did not sink the U-boats, but they undoubtedly drove the submariners crazy, with many of the attacks inflicting damage, which was time consuming to repair at sea, or ruinous to their entire mission.

In addition to the performance of the fixed-wing aircraft, the contribution of Navy blimps must not be ignored. They served many functions such as going out on patrols, searching for and retrieving survivors at sea, and providing escorts for convoys. Although their offensive capabilities were limited, the very presence of one of these behemoths, hovering next to a convoy, gave comfort and reassurance to the merchant seamen.

One airship in the Fifth Naval District proved that it was capable of making an attack on a U-boat on 8 June 1943. The non-rigid Navy airship K-7, commanded by Lieutenant Commander G. E. Pierce, U.S.N. was escorting a convoy when, at 1020, a strong contact was made using the magnetic airborne detector with an apparent U-boat. The contact was maintained with a bearing and location determined. At 1115, the K-7 dropped a depth charge over the apparent location of the submerged U-boat which brought up a quantity of bubbles. At ten-minute intervals, two more depth charges were dropped, these, however, did not bring up bubbles. The object, with which they had contact, stopped moving after the first attack.

Following the K-7's attack, two Navy planes, also providing air coverage for the convoy, decided to assist in the attack. They dropped two charges each, neither of which raised any telltale bubbles or wreckage. An hour later, two more Navy planes arrived, also attacking with two depth charges each, which likewise produced negative results. There was no further contact established with the U-boat. The Navy reported, "it is probable that slight damage was inflicted on a marauding submarine in this case."[4]

Although the K-7, and the airplanes did not sink the U-boat, their actions undoubtedly rattled the nerves of the crew of the stalking U-boat. Regardless of the slight damage they may have caused, the U-boat was kept preoccupied with self defense while the convoy being escorted sailed away unmolested. The U-boats now knew they could no longer operate at will in the waters of the Fifth Naval District as they had done during the first days of the war.

As mentioned in Chapter V, successes with the use of aircraft caused the Germans to change their U-boat tactics. Rather than crash diving at the sight of an aircraft, the U-boats stayed on the surface to fight it out, using their improved antiaircraft guns. The Navy and Army aircraft were quickly modified to meet this threat. The planes were given more forward firepower and additional armor. Regardless of

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[4]Fifth Naval District, "War Diary of Operational Intelligence," n.d., Box no. 390, p. 360, Operational Archives, Naval Historical Center, Washington, D.C.

how brave the U-boat crews were, or how stirring the bravado speeches of their leaders, this new tactic proved a folly because the surfaced U-boats were quite vulnerable, and even if they were not sunk, they could easily suffer enough damage to force them to return to base.[5]

This new tactic could not be taken lightly as the U-boats' new antiaircraft guns proved quite lethal. One U-boat made an impressive showing for during the early morning hours of 7 August 1943. A PV-1, twin engine bomber, flying out of Floyd Bennett Field, was on patrol approximately 200 miles east of the Virginia's eastern shoreline when at 0730 it made radar contact with an apparently surfaced U-boat only 12 miles away. The PV-1 pursued the contact and found a fully surfaced U-boat sitting stationary. The ship did not seem to care that it had been found, which made the plane's crew question whether it was really an enemy submarine. After circling the U-boat once, it was identified as a German Type VII U-boat, with three men positioned around her aft antiaircraft gun. The PV-1 decided to make a run on the U-boat. The plane descended and began to strafe the target with its machine guns. Then, just as the plane dropped four depth bombs, the U-boat's antiaircraft guns roared to life. The U-boat's gunner was on target and repeatedly hit the PV-1, which blasted off its starboard engine and damaged the port one.

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[5]Commander in Chief, U.S. Atlantic Fleet, "Air Force Atlantic Fleet History," vol. 7, 1946, Guide No. 142, p. 12, Navy Library, Naval Historical Center, Washington, D.C.

Catching on fire, the plane filled with smoke, which made it impossible for the crew to tell if the detonating depth bombs did any damage. The pilot was hit and severely wounded, yet he managed to keep the plane airborne for another 15 miles before making an emergency landing in the ocean, which was extremely rough with big swells. The hard landing, marked by an extremely violent deceleration as the water grabbed the fuselage, apparently knocked out the two enlisted men in the tail section who went down with the plane, which sank moments after landing. The pilot, co-pilot and radioman managed to escape into the sea. The strain, however, was too much for the wounded pilot, as he drowned a few minutes later. About two hours later, the co-pilot, Lieutenant (j.g.) Thomas J. Aylward, and radioman, James A. Welch, were rescued by a Navy seaplane, a PBM-p4 from the Norfolk Naval Air Station, which made a dangerous landing in the rough seas to rescue them.

The drama of this daring U-boat was not yet over as another PV-1 was dispatched to the same area of the fight. The U-boat was again found on the surface. The U-boat decided to crash dive this time after discharging a few bursts from its guns. The U-boat had just submerged, when the plane dropped four depth bombs over it, causing it to immediately resurface. The U-boat crew immediately manned their antiaircraft guns again. Just before the attack, a seaplane, a PBM-3s, from Elizabeth City was also approaching to attack. Following the PV-1's attack, the PBM began its own, sustaining

several hits as it approached through the U-boat's antiaircraft fire. The plane's bombs refused to drop, and its bow machine guns also jammed after firing only ten and five bursts. On a third pass the plane dropped all eight of its depth bombs by using an emergency salvo. The U-boat was again trying to submerge as the charges went off, damaging the vessel as it was again forced back to the surface. Temporarily, the U-boat appeared out-of-control running wildly on the surface. Nevertheless, the Germans quickly manned their antiaircraft guns, firing at the PV-1, which followed the seaplane's attack with several strafing runs of its own. The U-boat continued to run out of control as the two planes circled above, their ammunition exhausted. After an hour, control over the U-boat was regained. It immediately headed out to sea and submerged. The two planes then returned to their respective bases.

It is possible that a second plane was shot down that day, possibly by the same U-boat. Another PV-1, from Floyd Bennett Field, never returned from its patrol. No trace of the plane, or its crew was ever found, and the Navy later stated, "It is considered not unlikely that this plane, too, was shot down by the same enemy submarine, its entire crew sinking with her."

Regardless of the punishing defense demonstrated by this U-boat, it did not get away undamaged. The Navy believes that it successfully made it back to its home base for repairs.

Whatever mission the U-boat had off the east coast, it had to be canceled following the damage received by remaining on the surface to "fight it out."[6]

In conjunction with the use of the airplane, the Navy came up with a new anti-submarine tactic called the "Killer Team Doctrine." Developed by Rear Admiral Simons, Commandant of the Fifth Naval District, and initiated by the Navy in April of 1942, this doctrine entailed the combined use of both airplanes and surface ships to track down a U-boat. Using preferably one Destroyer and three aircraft, with at least one on station at a time, the objective was to exhaust the U-boat.[7] As a U-boat only has the existing air in the pressure hull for life support, it must eventually surface to replenish its air. At the end of 24 hours the oxygen content in the air would become so low that she must surface. Furthermore, the range of a submerged U-boat is limited as its batteries would be exhausted, depending on their speed, within 50 hours. The U-boat would then have to surface to run on its diesels to recharge its batteries. Consequently, as the range and endurance of a submerged U-boat is limited, its probable surfacing area can be plotted within a 100-mile diameter.

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[6]Fifth Naval District, "War Diary," 539-41; Fifth Naval District, "War Diary – Eastern Sea Frontier Chesapeake Group," n.d., Operational Archives, Naval Historical Center, Washington, D.C.

[7]Commandant, Fifth Naval District, "History of the Fifth Naval District, 1939-1945," vol. 2, 1946, Guide No. 112, pp. 699-700, Navy Library, Naval Historical Center, Washington, D.C.

Also referred to as the "Ripple Method," this system is like monitoring a wave of ripples originating from the first U-boat contact, as the vessel must appear again within one of the expanding circles due to its limitations.

The sinking of the U-85, as described in Chapter III, was part of a Killer Team effort. The position of the U-85 was spotted by aircraft on several occasions enabling its position, following the first contact, to be accurately estimated. This careful surveillance enabled the USS Roper to find the U-boat on the surface and sink it.[8]

Innovations such as the combined use of airplanes and surface ships to form Killer Teams helped to make a mission to the waters of the Fifth Naval District something to be feared by the U-boats. Another field of innovation they undoubtedly learned to hate was in the area of weapons. One of the traditional weapons dreaded by the U-boats was the depth charge, the earliest ones being easily recognizable by its "ash-can" shape. The Mark 6 and Mark 7 depth charges, with 300 and 600 pound charges respectively, were the only type in use when the war began. Of these, 35,586 had been delivered to the Navy by 30 November 1941. These charges were detonated with hydrostatic (water pressure) triggers. One disadvantage of these early charges is that they had a maximum depth setting of 300 feet. This was fine for the U-boats of World

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[8]Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide No. 129, p. 461, Operational Archives, Naval Historical Center, Washington, D.C.

War I, but not for the ones of World War II with their increased diving depths and thicker pressure hulls. Consequently, the triggering mechanisms were redesigned to allow settings to be made up to 600 feet. Further refinements, produced a firing trigger adjustable to 1,000 feet. In addition, an improved deployment method came about with the introduction of the K-gun, a relatively accurate depth charge launcher which could place the charges in more controlled patterns, unlike the less accurate Y-gun launcher which it replaced.[9]

The shape of the depth charges themselves was also experimented with. The streamlined Mark 9 depth charge was more accurate as it could sink 100 feet in only 8.6 seconds. Furthermore, the charge was composed of Torpex which was one and a half times as powerful as TNT.[10]

Before the war was over, depth charges were relegated to a secondary position. They were replaced by the more accurate and deadly ahead-thrown weapons. These were small rockets which could be launched directly onto a U-boat's suspected location. These projectiles sank very fast, detonating only if they hit the target. Without unnecessary explosions, it was easier for the sonar operator to maintain a fix on the U-boat. The Navy reports that these weapons were from 300 to

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[9]U.S. Naval Administration in World War II, "BUORD Underwater Ordnance," vol. 9, 1940, Guide No. 78, pp. 252-55, Navy Library, Naval Historical Center, Washington, D.C.

[10]Morison, History 1:211.

800 percent more effective than conventional depth charges.[11] Two such weapons, implemented by the Navy in 1943, were the hedgehog and the mousetrap. The hedgehog, of British design, employed a launcher containing six rows of spigots (long metal rods), of four each, upon which the projectiles were placed. All 24 rocket projectiles were launched in a cluster to a targeted area. The mousetrap was a smaller version, of American design, for use on smaller craft that could not withstand the recoil or accommodate the size of the hedgehog. The mousetrap fired four or eight rocket projectiles at a time.[12]

Developments in other areas also helped by making the deployment of these weapons as accurate and efficient as possible. Sound equipment was greatly improved during the war. Both America, with its "sonar," and England, with its "asdic," perfected echo-ranging. These systems employed a loud "ping" which echoed off of a U-boat to betray its presence. Radar also was greatly improved. The first bulky model, with an enormous radar scanner which looked like a huge vertically mounted bedspring, was installed aboard a ship in October 1941. By December, at least one ship in each convoy had one. The size of the units kept getting smaller while the range was improved. Eventually a small enough model, the SCR-517, was fitted into Army airplanes. The ability of airplanes

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[11]U.S. Naval Administration, "BUORD," 256.

[12]Morison, History 1:212.

to locate U-boats was also aided by the installation of the Magnetic Airborne Detector or "MAD" as it was called. Equipment was also perfected to determine the location of a U-boat from its radio transmissions. This device was the High Frequency Direction Finder, the HF/DF, called "Huff-Duff" by the men in the Navy.[13]

Through such innovations as these in weapons, support equipment, and the use of airplanes and surface craft, the U-boats were generally put on the defensive the moment they arrived on the east coast by the summer of 1942. A lot had changed since the U-boats first arrived at the war's beginning. The changes must have been startling to those captains and crews returning, who suddenly found that their bold and brazen tactics were no longer applicable. Stealth became the tactic of necessity that they employed. Indeed, the Germans began innovations of their own such as the introduction of the schnorkel, a breathing apparatus enabling the U-boats to run on their diesels at periscope depth while also drawing in fresh air for the cabin. U-boats equipped with these did not appear until 1944, and there were so few that they posed little threat to the east coast.[14]

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[13]Ibid., 213, 225-26.

[14]Commandant, "History," 746.

CHAPTER IX

FINDINGS

The use of convoys, underwater defenses, air and sea patrols, Army fortifications, killer teams, new weapons, and intelligence operations worked together to make the Fifth Naval District and the Chesapeake Bay an unprofitable hunting ground for U-boats. When America became involved in World War II many of these defenses, although planned, had not been implemented. The result was an appalling lose in shipping as the U-boats operated with little resistance. Michael Gannon referred to this as the "Atlantic Pearl Harbor" in his Operation Drumbeat. He criticized the Navy for failing to respond to the threat even after British military intelligence had communicated that U-boats were on their way to the east coast. As explained in this thesis, the establishment of such defenses was a complex undertaking which took time to achieve with the scarce resources available. It is unfortunate that the U-boats were permitted to do the damage they did, but the Navy did respond and established defenses that repulsed the U-boats.

Please note the chart below (Figures 5A, 5B, and 5C). These summarize with a solid line U-boat activity in the Fifth Naval District, and, with a dashed line, the attacks on the

enemy. The chart illustrates a week by week reporting of this activity for all of 1942. In January, there is a sharp peak during the third week as the first wave of U-boats attacked during operation Paukenschlag. In February, activity subsided when many of the U-boats returned to their home bases for fuel and torpedoes. The U-boats returned to the east coast with heavy activity in March, especially during the third week when they sank 13 ships. With few ships for patrols and district convoys just beginning, the U-boats operated with only minimum resistance. This situation soon changed as U-boat successes began to decline during the last week in March. This continued with a rise only in June, which resulted from the use of mines by the U-701. In July, only three vessels were attacked which were the last in 1942.[1] Appendix A of this thesis shows that U-boat attacks were restricted to only three in 1943 and only one in 1944.

The chart shows the attacks on the enemy which mirrored those on shipping. The maturation of the district's defenses can be seen beginning in April as the number of attacks on U-boats exceeded those on shipping. Attacks on U-boats continued to exceed the number enemy attacks for the duration of the war. The U-boats lost the offensive and never regained it.[2] (Note the chart of cumulative attacks on U-boats and shipping

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[1]Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide No. 129, p. 8, Operational Archives, Naval Historical Center, Washington, D.C.

[2]Ibid.

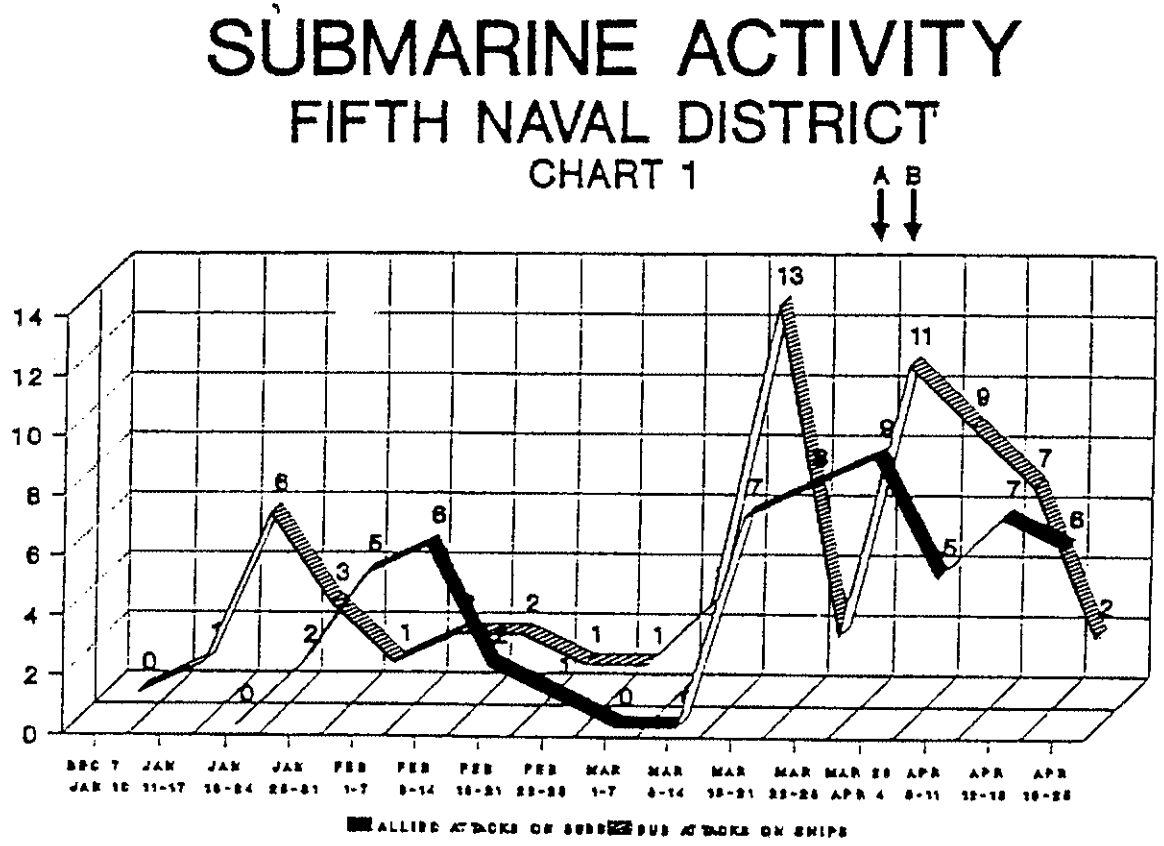


Figure 5A. Submarine Activity, Chart 1

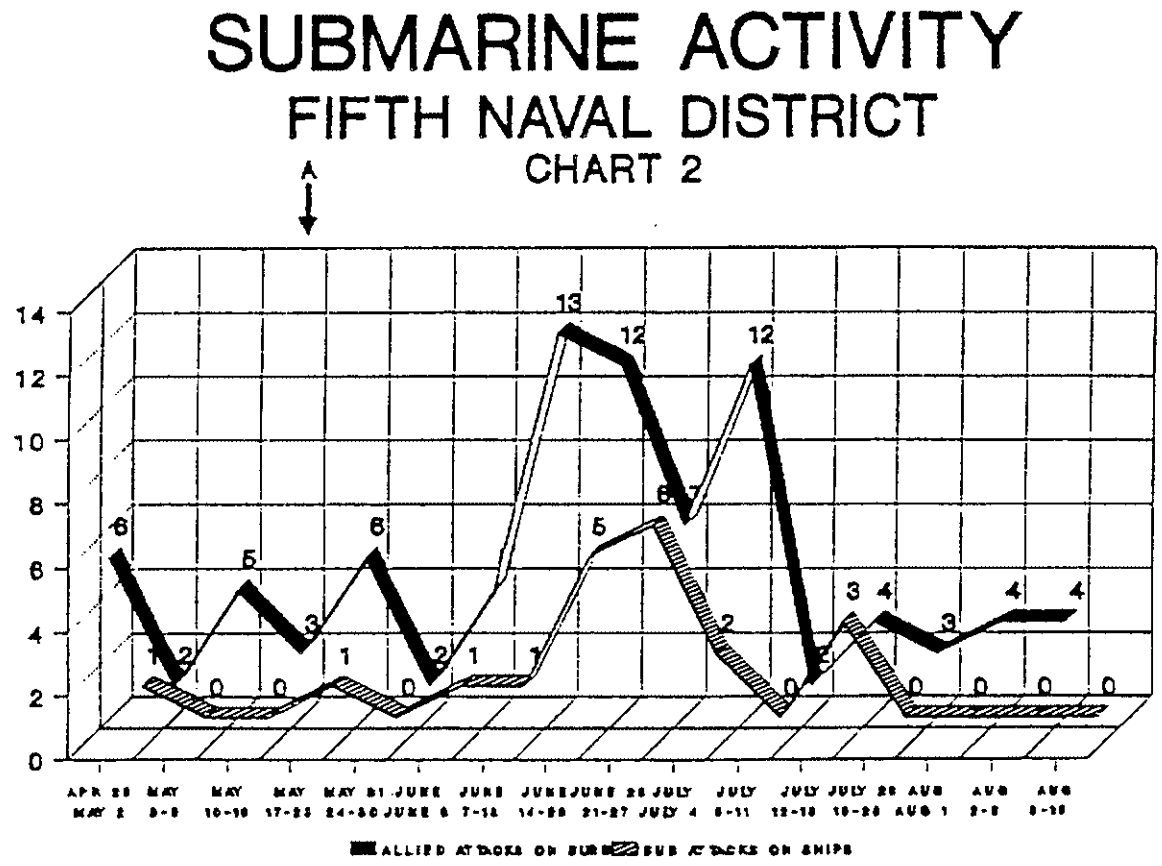
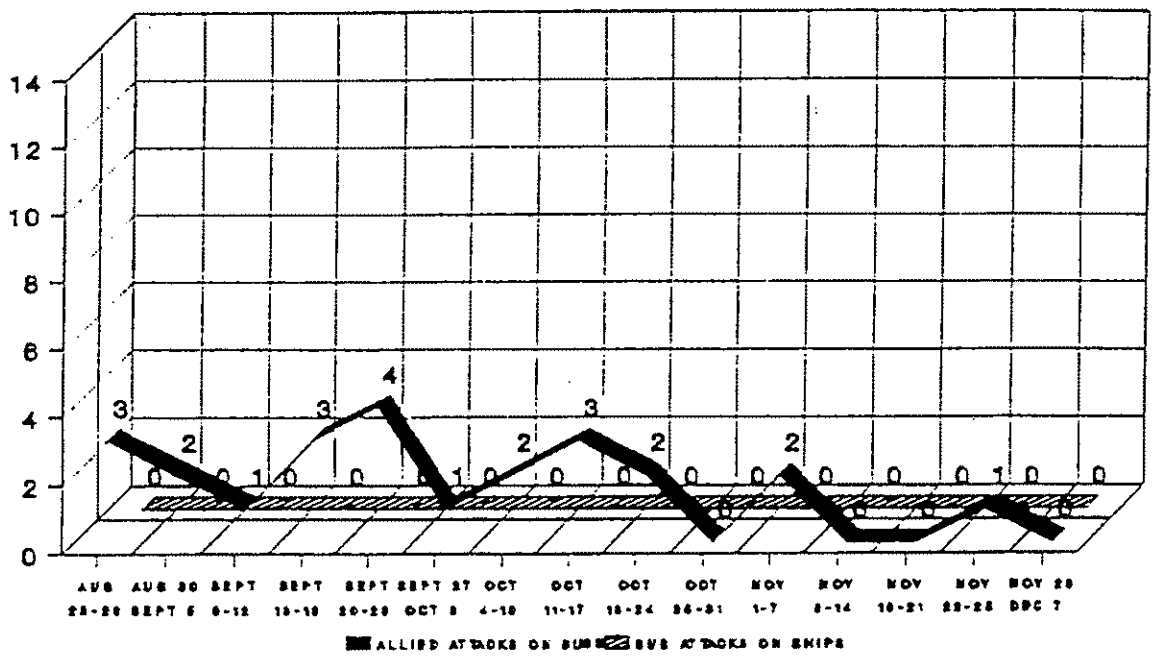


Figure 5B. Submarine Activity, Chart 2

SUBMARINE ACTIVITY
FIFTH NAVAL DISTRICT
CHART 3



AUG 23, 1942 - DEC 7, 1942

Figure 5C. Submarine Activity, Chart 3
Source: Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide No. 129, p. 9-10, Operational Archives, Naval Historical Center, Washington, D.C.

in Appendix B.)

Grand Admiral Karl Doenitz noted in his memoirs this change in the defenses along the east coast. He noted that by the end of April his U-boat successes had dropped dramatically. He attributed this to the introduction of convoys, which he considered a turning point in their offensive. For long periods the U-boats could not find shipping to attack.[3] As a result, Doenitz sent his U-boats after easier targets in the Caribbean, but successes there began to decline by the end of June with the gradual establishment of a convoy system.[4] Doenitz, therefore, began to emphasize the use of his U-boats in wolf packs for attacks upon mid-atlantic convoys.

Air power, however, proved disruptive to the wolf pack tactics. Aircraft kept the U-boats on the defensive, which made it difficult for them to pursue convoys. In every convoy region air patrols became a constant menace.[5] Doenitz found that in conjunction with the convoys along America's east coast, air and surface attacks on U-boats continued to increase during the summer of 1942. (See Figure 6.) With the loss of several U-boats during July, he decided to withdraw most of his U-boats from America's coast.[6] A few U-boats

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[3]Karl Doenitz, Memoirs: Ten Years and Twenty Days (Annapolis: Naval Institute Press, 1990), 220.

[4]Ibid., 221-22.

[5]Ibid., 242.

[6]Ibid., 250.

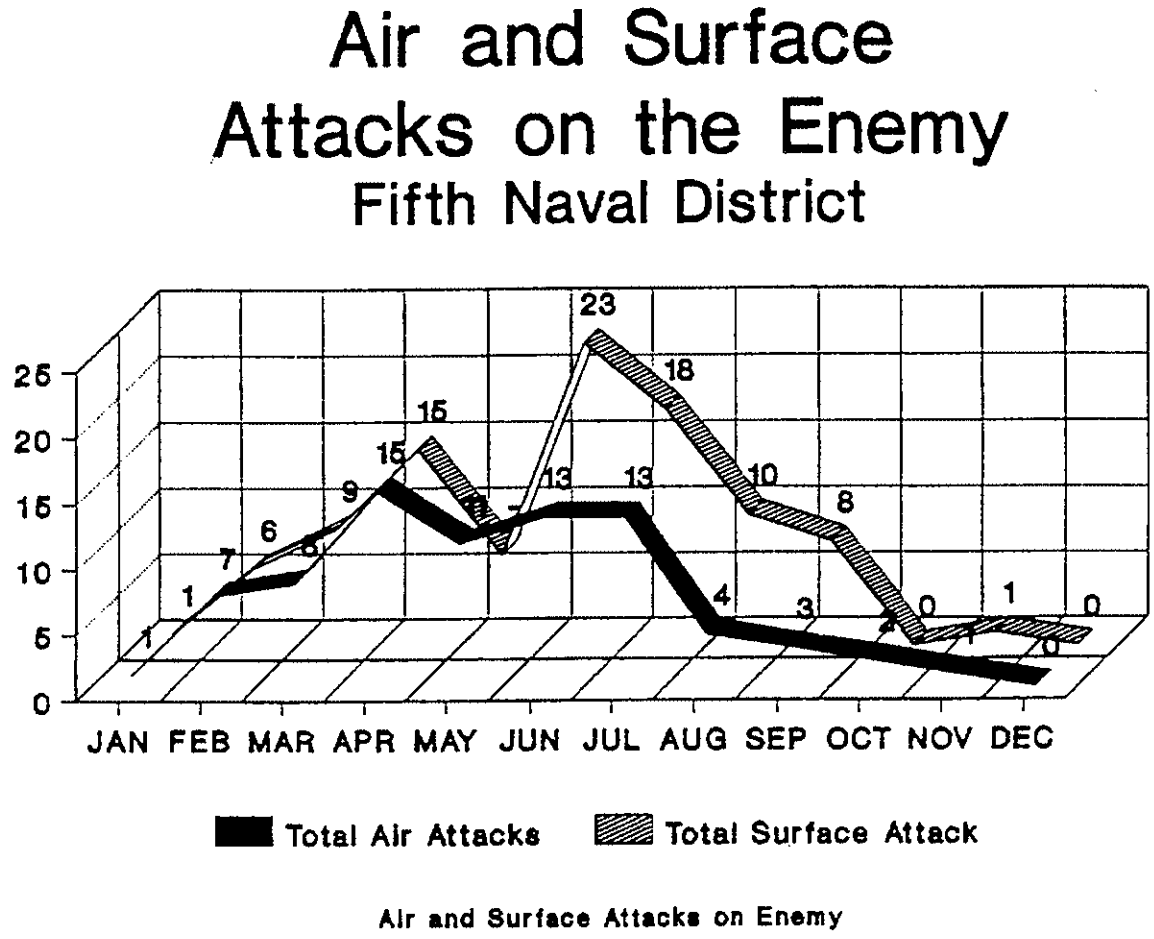

Figure 6. Air and Surface Attacks on the Enemy, Fifth Naval District
Source: Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide No. 129, p. 12, Operational Archives, Naval Historical Center, Washington, D.C.

continued to prowl off the east coast but their level of activity and success was reduced.

Doenitz commented that the course of the war could have been dramatically different had he received the men and resources to produce U-boats in the numbers he wanted. He charged that Hitler was too oriented to land campaigns and failed to realize the importance of sea power even though they were at war with two of the greatest sea powers of the world. He added that his leaders had failed to learn from World War I when they entered a conflict without sufficient U-boats to crush enemy sea traffic. By entering World War II unprepared they quickly lost the advantage and the offensive.[7]

Near the end of the war, plans were made to deploy more U-boats against America's east coast. This plan died along with Adolf Hitler who killed himself on 30 April 1945 in his dreary bunker in Berlin. Doenitz found that ironically, he would be the one to call a final end to the U-boat campaign, as he was elevated to the position of supreme command in Germany after Hitler's suicide. In a broadcast on 4 May 1945 he instructed all U-boats to cease hostilities and return to their bases. Following the signing of the formal capitulation on 7 May, all of the U-boats at sea were ordered to surrender to any Allied vessel. When the month was over, a total of 49 U-boats had surrendered at sea, while another 211 were scuttled, mostly in the Baltic, to avoid capture. Of the U-

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[7]Ibid., 333.

boats which surrendered, seven did so in the western Atlantic to the U.S. Fleet.[8]

The battle of the Atlantic had come to an end. Germany's operation Paukenschlag had been silenced with grim finality. Of the U-boats deployed, including the Type VII series, plus numerous other varieties, approximately 820 participated in the battle of the Atlantic, of which 781 were destroyed. Furthermore, of the approximately 40,000 German sailors who went to sea in U-boats, 30,000 never returned, instead experiencing the suffocating horror of death within a stench ridden U-boat. For these men, entombed within the ships they served, they shall forever be on patrol.[9]

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[8]Commander in Chief, U.S. Atlantic Fleet, vol. 1 (bound in 2 vols.), 1946, Guide No. 138, pp. 766-67, Navy Library, Naval Historical Center, Washington, D.C.

[9]Peter Cremer, U-boat Commander (Annapolis: Naval Institute Press, 1984), xi.

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Compilation of post mortem reports on the sinkings of various German submarines. [P.C. of Frank Shield]

Degen, Horst. Letter from Luxembourg, Germany, to Mr. I.M. Punnett, and Mr. Anthony Hancox, in Birmingham, England. 14 November 1965. Copy in possession of author.

Personal account by Horst Degen of how he and the crew of the U-701, which he commanded, deployed mines near the entrance of the Chesapeake Bay. This is a copy of his own typed letter. Contains his own drawings. His own penned notes are in the corners of the pages. [P.C. of author]

Fifth Naval District. Office of Naval Intelligence. "Sinking of German Submarine U-85, Report on the Disposition of Bodies and Effects." n.d. Copy of report in possession of Frank Shield, Virginia Beach, Virginia.

This Navy report describes the sinking of the U-85 and the results of the examination of the dead crewmen who were in the water when depth charges detonated near them. [P.C. Frank Shield]

Kane, Harry. U-701: A Real Life "Das Boot." n.d. Virginia Beach Life Saving Museum, Virginia Beach, VA. Videocassette.

Video presentation describing the mining off of Virginia Beach by the U-701. Also includes a description of the sinking of the U-701 by an Army bomber, with comments by the pilot Harry Kane. [Life Saving Museum]

Powell, Stanley H, M.D. Interview with author. Portsmouth, Virginia. 15 May 1990.

A medical doctor. Gave insights into the effects of a depth charge's concussion on a human body while in water. [P.I.]

"Record of Proceedings of a Court of Inquiry Convened At The Naval Operating Base, Norfolk, Virginia, By Order of the Secretary of the Navy To Inquire Into the Loss of the H.M.S. Ceylonite, on or about June 15, 1942." 30 July 1942. Virginia Beach Life Saving Museum, Virginia Beach, VA.

Inquiry examines all of the pertinent facts surrounding the sinking of H.M.S. Ceylonite after it struck a German mine near the coast of Virginia Beach. It determined that this loss was an unavoidable casualty of war. [Life Saving Museum]

Tilton, Rollin L. "History of Chesapeake Bay Sector." Fort Monroe, Virginia, 1 March 1945. Copy in possession of Fielding L. Tyler.

Declassified. Good report. Tilton was a Brigadier General, U.S. Army, in command of the Chesapeake Bay Sector. Excellent first hand account of the administration and operation of the forts and other harbor defenses during World War II. Good maps and charts. Some mention of the Navy's cooperative role in these defenses. [P.C. of Fielding L. Tyler]

Truver, Dr. Scott C., ed. United States Naval Institute Professional Seminar. "ASW: The Navy's Top Warfighting Priority?" 27 February 1990.

U.S. Navy seminar which discussed the current status of antisubmarine warfare. References were made to the lessons learned from the German U-boat offensive during World War II.

Tyler, Fielding L. "Fort Story, Virginia, World War II Armament Tour." Copy in possession of Fielding L. Tyler.

A detailed history of Fort Story which contains a complete listing of all armament used in each of the batteries. Originally part of a tour package. [P.C. of Fielding Tyler]

_____. "Ships Attacked By U-boats In The Fifth Naval District During Operation Drumroll." Copy in possession of Fielding L. Tyler.

Personal record compiled by local historian and retired Army Lt. Colonel, Fielding L. Tyler. Lists all ships that he knows were sunk in the Fifth Naval District. [P.C. of Fielding Tyler]

Articles and Newspapers

Belke, T.J. "Roll of Drums." USNI Proceedings, United States Naval Institute, April 1983.

Brief but substantial Navy article on the devastation wrought by a handful of German U-boats off the east coast during operation, "Paukenschlag." [Journal V1.U8 109(4)]

Blackford, Frank. "When War Was At Our Doorstep." The Virginian-Pilot and The Ledger-Star, 17 October 1971.

Detailed account of the first days of the German submarine menace off of Virginia. Describes how unprepared the region was. The laying of mines off of Virginia Beach by the German submarine, U-701, and the sinkings that followed are also described. A good source. [P.P.L. M.F.]

Bond, Sharon. "A Bit of England on Outer Banks." The Ledger Star, 27 December 1979.
Article describes the burial site in North Carolina for several British sailors whose bodies washed up on shore following the sinking of their ship by a U-boat.

"Crowds at Virginia Beach Hear Sound of Explosions at Sea — Navy Withholds Information." Norfolk Virginian-Pilot, 16 June 1942.
Very brief description of the reaction to the explosions caused by mines left by the U-701 on the crowds at Virginia Beach. Paper notes that the Navy failed to release any information on the incident. [ODU M.F.]

Galuska, Peter. "Huge Guns Watched the Bay When Nazi Push Was Feared." The Virginian-Pilot, 25 September 1977.
Article gives a good overview of the harbor defenses during World War II. Mentioned convoy that struck mines off of Virginia Beach in June of 1942. Interesting that it did not relate this to the mines laid by the U-701. Mentions Werner's book, Iron Coffins, which records a mine-laying incident within the Bay in 1943.

"No Information on Explosions." The Portsmouth Star, 16 June 1942.
Similar account as in The Virginian-Pilot. Navy withheld information on explosions occurring off of Virginia Beach. Source given as the Associated Press. [P.P.L. M.F.]

Offley, Ed. "Chesapeake Bay Mined — War Came Close to Home." The Virginian-Pilot and The Ledger-Star, 8 July 1982.
Good recounting of the mining of the Chesapeake Bay by the U-701. Contains good diagrams. [P.P.L. M.F.]

_____. "Confrontation in the Atlantic — The Death of U-701." The Virginian-Pilot and The Ledger-Star, 9 July 1982.
Fine recounting of the sinking of the U-701 by an Army bomber. Also tells how several members of the submarine's crew, including the Captain, Horst Degen, managed to survive. [P.P.L. M.F.]

_____. "Wartime Foes Reunite as Friends." The Virginian-Pilot and The Ledger-Star, 7 July 1982.
Good article which describes the reunion of two wartime adversaries: German Submarine Captain Horst Degen, and American Army Pilot Harry Kane. Degen's submarine, the U-701, was sunk by Kane in an Army A-29 medium attack bomber. [P.P.L. M.F.]

Pearson, Irene. "Sub Hits Two Merchantmen Off the Coast, 46 Aboard Sunk Ship Reach Base — One Crewman is Killed." The Portsmouth Star, 17 June 1942.

Good details on ships sunk off of Virginia Beach by mines laid by U-701. Like The Virginian-Pilot, it assumes the ships were torpedoed. Interesting note is that the paper acknowledged that they were in possession of details regarding the incident the day before. However, under a voluntary censorship agreement with the Navy, they withheld the information. [P.P.L. M.F.]

Py, Ray. "The Deep: Sub Wreckage is Popular With Divers." The Virginian-Pilot and The Ledger-Star, 29 June 1986.

Interesting article describes how wrecks, such as the U-85, sunk off of Cape Hatteras, have become popular with sport divers. [P.P.L. M.F.]

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Report by retired Vice Admiral Harry Sanders. Fleet Admiral Ernest J. King's achievements during World War II are chronicled in this Navy article. Author was a member of King's wartime staff. [Journal V1.U8 100(8)]

Sullivan, Frank. "Battle of Atlantic Pushes Virginia's Shores — Two Merchant Ships Torpedoed Before Eyes of Thousands Who Line Resort Front to See Grim War Drama." The Virginian-Pilot, 17 June 1942.

Good details on the reactions of the crowd at Virginia Beach when a convoy struck mines laid by the U-701. Interesting account of how and why they believed the ships were torpedoed. Only a brief note suggesting that mines may have been involved. Good details on sinkings and response by aircraft and Navy vessels that dropped depth charges in the area. Details on those injured and the one casualty. No follow up to correct their assumption that torpedoes were responsible for the sinkings. [ODU M.F.]

"Warfare Against Subs In Area Is Planned By Navy." The Portsmouth Star, 19 June 1942.

Overly brief report on antisubmarine warfare in the Fifth Naval District. Includes comments from Captain Russell S. Crenshaw, U.S.N., who was just assigned at that time to the Norfolk Naval Operations Base as assistant to the Commandant. [P.P.L. M.F.]

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Books

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Account of the German frogmen and midget submarines. Illustrates the K-force, the organization responsible for creating and operating the small sea weapons for the German Navy. In America, it was feared such weapons could be used to infiltrate the defenses of the Fifth Naval District. [D 781 .B4313 1973]

Blueprint for Survival: A Plan for the Development of Fort Wool. Norfolk: Old Dominion University, 1976.
Contains a short but informative history of Fort Wool. [F 232 .F66 .B58]

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Translated from German. A chronological history of the German U-boat offensive against all her enemies. Special section describes their offensive off America's east coast. [D 781 .B713]

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Gives an overview of America's level of readiness during the early days of World War II. [V 210 .C66]

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480 .C64]

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Good overview of the value of science in warfare. Description of the development of radar, highlighting the achievements of such men as Sir Robert Alexander Watson-Watt. Last section describes scientific developments in Naval warfare such as sonar. [UG 145 .C7 1948]

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Interesting details on the creation of the Tenth Fleet, "The Fleet without a ship." Chronicles how unprepared the east coast was during the first days of the U-boat offensive. Describes how improvements were made. [Dx783 .F3]

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Story about Robert Whitehead who invented the torpedo driven by compressed gas. This invention by the British scientist twice nearly defeated his own country. Weapon is described as the dominant weapon at sea for over half a century. Good photographs of the early torpedoes. First Successful demonstration in 1870. [V 855 .W5 .G7 1975].

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throughout the war. Details given on Italian submarines. Details also given on the development and success of escort groups. Description of German developments in U-boat technology. Included is a rare diagram of a German schnorchel which explains its operation. [D 781 .H678 1988]

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Good description of how a wide variety of military measures must be used in conjunction with each other to create an effective submarine defense. [REF AE 5 .B58 V.21]

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Appendix A.

LIST OF ATTACKS BY THE ENEMY IN WATERS OF THE FIFTH NAVAL DISTRICT

No.	Date	Time	Position		Name	Nationality	Type	Tonnage	How attacked	Results
1.	01-17-42	2040	35-16 N 74-00 W	SS	ALLAN JACKSON	Am.	Tkr.	6635		Sunk
2.	01-19-42	0150	35-00 N 72-30 W	SS	LADY HAWKINS	Br.	Cgo. Pass.	7988	T	Sunk
3.	01-19-42	0215	35-24 N 75-21 W	SS	CITY OF ATLANTA	Am.	Cgo.	5269	T&S	Sunk
4.	01-19-42	0340	35-27 N 75-22 W	SS	MALAY	Am.	Tkr.	8207	T&S	Damaged
5.	01-19-42	0500	35-26 N 75-20 W	SS	CILTVAIRA	Lat.	Cgo.	3779	T	Sunk
6.	01-23-42	1945	34-54 N 75-13 W	MV	EMPIRE GEM	Br.	Tkr.	8139	T	Sunk
7.	01-23-42	1955	34-50 N 75-20 W	SS	VENORE	Am.	Ore carr.	8016	T	Sunk
8.	01-27-42	0245	37-45 N 74-53 W	SS	FRANCIS E. POWELL	Am.	Tkr.	7096	T	Sunk
9.	01-30-42	1105	37-10 N 73-58 W	SS	ROCHESTER	Am.	Tkr.	6836	T&S	Sunk

Appendix A. continued

No.	Date	Time	Position	Name	Nationality	Type	Tonnage	How attacked	Results
10.	01-31-42	2135	37-33 N 69-21 W	SS TACOMA STAR	Br.	Cgo.	7924	T	Sunk
11.	02-01-42	2020	36-00 N 74-00 W	MV AMERIKALAND	Swd.	Ore carr.	15355	T	Sunk
12.	02-08-42	0330	37-05 N 74-46 W	SS OCEAN VENTURE	Br.	Cgo.	7174	T	Sunk
13.	02-11-42	2050	35-00 N 72-27 W	SS BLINK	Nor.	Cgo.	2701	T	Sunk
14.	02-15-42	0030	36-31 N 75-30 W	SS BUARQUE	Brz.	Cgo.	5152	T	Sunk
15.	02-16-42	2032	36-56 N 75-56 W	SS E.H. BLUM	Am.	Tkr.	11615	M ?	Damaged
16.	02-18-42	1245	37-30 N 75-00 W	SS OLINDA	Brz.	Cgo.	6400	T	Sunk
17.	02-27-42	0030	35-36 N 75-16 W	SS MARORE	Am.	Ore carr.	8215	T&S	Sunk
18.	03-07-42	1510	35-15 N 73-50 W	SS ARABUTAN	Brz.	Cgo.	7800	T	Sunk
19.	03-11-42	0200	34-37 N 76-17 W	SS CARIBSEA	Am.	Cgo.	2609	T	Sunk

Appendix A. continued

No.	Date	Time	Position		Name	Nationality	Type	Tonnage	How attacked	Results
20.	03-13-42	1135	37-35 N 72-34 W	SS	TREPCA	Yug.	Ore carr.	5042	T	Sunk
21.	03-14-42	2323	34-25 N 76-29 W	SS	OLEAN	Am.	Tkr.	7118	T	Damaged
22.	03-15-42	0122	34-21 N 76-37 W	SS	ARIO	Am.	Tkr.	6970	T&S	Sunk
23.	03-16-42	1400	35-07 N 75-22 W	MS	AUSTRALIA	Am.	Tkr.	11628	T	Sunk
24.	03-16-42	2017	36-59 N 74-05 W	MV	SAN DEMETRIO	Br.	Tkr.	8703	T	Sunk
25.	03-16-42	2045	35-50 N 73-58 W	SS	CEIBA	Hon.	Cgo.	1698	T	Sunk
26.	03-17-42	1750	35-05 N 75-21 W	SS	ACME	Am.	Tkr.	6878	T	Damaged
27.	03-17-42	1915	35-05 N 75-23 W	SS	KASSANDRA LOULOUDIS	Grk.	Cgo.	5106	T	Sunk
28.	03-18-42	0235	34-50 N 75-35 W	SS	E.M. CLARK	Am.	Tkr.	9647	T	Sunk
29.	03-18-42	2210	34-22 N 76-48 W	SS	W.E. HUTTON	Am.	Tkr.	7076	T	Sunk

Appendix A. continued

No.	Date	Time	Position	Name	Nationality	Type	Tonnage	How attacked	Results
30.	03-18-42	2230	34-25 N 76-44 W	SS PAPOOSE	Am.	Tkr.	5939	T	Sunk
31.	03-19-42	1015	35-06 N 75-23 W	SS LIBERATOR	Am.	Cgo.	7720	T	Sunk
32.	03-19-42	2250	34-27 N 76-31 W	SS GULF OF MEXICO	Am.	Tkr.	7807	S	Escaped
33.	03-20-42	0005	34-21 N 76-32 W	MV MERCURY SUN	Am.	Tkr.	8893	S	Escaped
34.	03-20-42	1430	37-00 N 69-00 W	SS OAKMAR	Am.	Cgo.	9000	S	Sunk
35.	03-26-42	0858	34-53 N 75-22 W	SS DIXIE ARROW	Am.	Tkr.	8046	T	Sunk
36.	03-26-42	1930	36-36 N 74-45 W	SS EQUIPOISE	Pan.	Cgo.	6210	T	Sunk
37.	03-29-42	1345	35-16 N 74-42 W	MV CITY OF NEW YORK	Am.	Cgo. Pass.	8272	T	Sunk
38.	03-31-42	0210	37-34 N 75-25 W	ALLEGHENY	Am.	Barge	914	S	Sunk
39.	03-31-42	0210	37-34 N 75-25 W	ONTARIO	Am.	Barge	490	S	Damaged

Appendix A. continued

No.	Date	Time	Position		Name	Nationality	Type	Tonnage	How attacked	Results
40.	03-31-42	0210	37-34 N 75-25 W		BARNEGAT	Am.	Barge	914	S	Sunk
41.	03-31-42	0210	37-34 N 75-25 W	SS	MENOMINEE	Am.	Tug	441	S	Sunk
42.	04-01-42	0017	36-50 N 75-49 W	SS	TIGER	Am.	Tkr.	5992	T	Sunk
43.	04-01-42	0920	35-16 N 74-32 W	SS	RIO BLANCO	Br.	Cgo.	4086	T	Sunk
44.	04-02-42	0123	34-13 N 76-11 W	SS	LIEBRE	Am.	Tkr.	7057	S	Damaged
45.	04-02-42	2115	37-46 N 75-04 W	SS	DAVID H. ATWATER	Am.	Col.	2438	S	Sunk
--.	04-02-42	2210	35-54 N 75-26 W	MV	ESSO AUGUSTA	Am.	Tkr.	11237	-	Escaped
46.	04-03-42	0555	36-25 N 72-22 W	SS	OTHO	Am.	Cgo. Pass.	4832	T	Sunk
47.	04-04-42	2140	36-08 N 75-32 W	SS	BYRON D. BENSON	Am.	Tkr.	7953	T	Sunk
48.	04-06-42	0200	34-36 N 75-55 W	MV	BIDWELL	Am.	Tkr.	6837	T	Damaged

Appendix A. continued

No.	Date	Time	Position		Name	Nationality	Type	Tonnage	How attacked	Results
49.	04-06-42	2215	35-07 N 75-19 W	MV	BRITISH SPLENDOUR	Br.	Tkr.	7138	T	Sunk
50.	04-07-42	0435	35-08 N 75-22 W	SS	LANCING	Nor.	Tkr.	7866	T	Sunk
51.	04-09-42	0158	34-28 N 75-56 W	SS	MALCHACE	Am.	Cgo.	3516	T	Sunk
52.	04-09-42	0350	34-27 N 76-16 W	SS	ATLAS	Am.	Tkr.	7058	T	Sunk
53.	04-09-42	2300	35-35 N 75-06 W	MV	SAN DELFINO	Br.	Tkr.	8702	T	Sunk
54.	04-10-42	0020	34-25 N 76-00 W	SS	TAMAULIPAS	Am.	Tkr.	6943	T	Sunk
55.	04-11-42	0721	34-25 N 76-30 W	SS	HARRY F. SINCLAIR	Am.	Tkr.	6151	T	Damaged
56.	04-11-42	1633	34-23 N 75-35 W	SS	ULYSSES	Br.	Cgo. Pass.	14647	T	Sunk
57.	04-14-42	0920	35-08 N 75-18 W	SS	EMPIRE THRUSH	Br.	Cgo.	6160	T	Sunk
58.	04-16-42	1203	35-35 N 72-48 W	SS	DESERT LIGHT	Pan.	Cgo.	2231	T	Sunk

Appendix A. continued

No.	Date	Time	Position		Name	Nationality	Type	Tonnage	How attacked	Results
59.	04-16-42	2150	35-34 N 70-08 W	SS	ALCOA GUIDE	Am.	Cgo.	4834	S	Sunk
60.	04-18-42	1835	35-32 N 75-19 W	SS	AXTELL J. BYLES	Am.	Tkr.	8955	T	Damaged
61.	04-20-42	1830	36-11 N 75-07 W	SS	CHENANGO	Pan.	Cgo.	3106	T	Sunk
62.	04-24-42	1745	36-39 N 70-52 W	SS	EMPIRE DRUM	Br.	Frt.	7340	T	Sunk
63.	04-29-42	2150	34-21 N 76-24 W	SS	ASHKHABAD	Rus.	Cgo.	5284	T	Sunk
64.	05-18-42	0611	34-45 N 75-38 W	SS	C.J. BARKDULL	Pan.	Tkr.	6733	T	Escaped
65.	06-01-42	0615	36-16 N 69-08 W	SS	WEST NOTOS	Am.	Cgo.	5492	S	Sunk
66.	06-11-42	0640	34-52 N 75-45 W	SS	F.W. ABRAMS	Am.	Tkr.	9310	M ?	Sunk
67.	06-15-42	1705	36-51 N 75-51 W	SS	ROBERT C. TUTTLE	Am.	Tkr.	11615	M	Sunk
68.	06-15-42	1733	36-51 N 75-51 W	MV	ESSO AUGUSTA	Am.	Tkr.	11237	M	Damaged

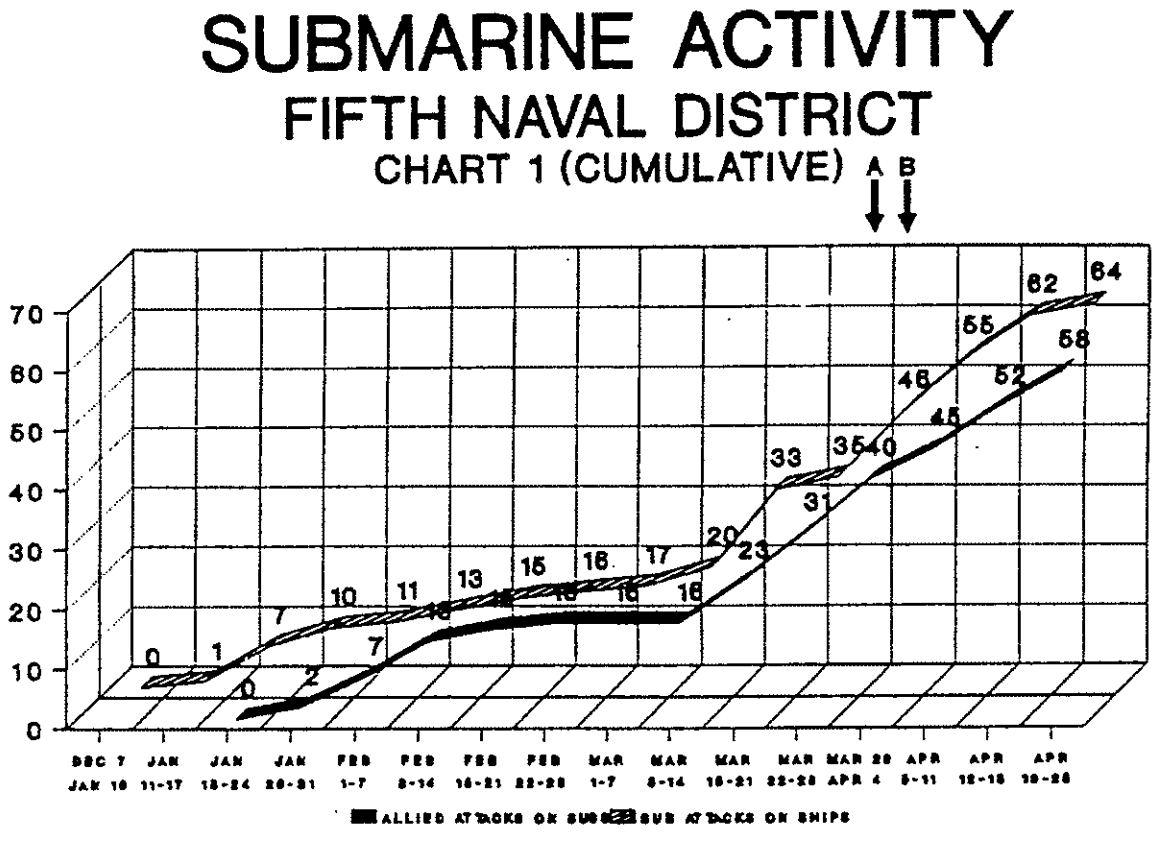
Appendix A. continued

No.	Date	Time	Position	Name	Nationality	Type	Tonnage	How attacked	Results
69.	06-15-42	1915	36-50 N 75-55 W	HMS KINGSTON CEYLONITE	Br.	Trawl.	500	M	Sunk
70.	06-17-42	0745	36-52 N 75-49 W	SS SANTORE	Am.	Ore Carr.	7117	M	Sunk
71.	06-19-42	0220	34-53 N 75-31 W	USS YP-389	Am.	Armed Trawl.	165	S	Sunk
72.	06-24-42	0330	34-30 N 75-40 W	SS LJUBICA MATKOVIC	Yug.	Cgo.	3289	T	Sunk
73.	06-24-42	1923	34-30 N 75-40 W	SS NORDAL	Pan.	Cgo.	3845	T	Sunk
74.	06-24-42	1927	34-30 N 75-40 W	SS MANUELA	Am.	Cgo.	4749	T	Sunk
75.	06-25-42	2010	34-59 N 75-41 W	MV TAMESIS	Nor.	Cgo. Pass.	7256	M	Damaged
76.	06-27-42	1615	36-50 N 69-22 W	MV MOLDANGER	Nor.	Cgo.	6827	T	Sunk
77.	06-27-42	1107	34-45 N 75-22 W	MV BRITISH FREEDOM	Br.	Tkr.	6985	T	Damaged
78.	06-28-42	1216	35-01 N 75-05 W	SS WM. ROCKE-FELLER	Am.	Tkr.	14054	T	Sunk

Appendix A. continued

No.	Date	Time	Position		Name	Nationality	Type	Tonnage	How attacked	Results
79.	06-30-42	1925	35-04 N 70-46 W	SS	CITY OF BIRMINGHAM	Am.	Cgo.	5861	T	Sunk
80.	07-15-42	1620	34-51 N 75-22 W	SS	CHILORE	Am.	Cgo.	8310	T&M	Sunk
81.	07-15-42	1621	34-51 N 75-22 W	MV	J.A. MOWINCKEL	Pan.	Tkr.	11148	T&M	Damaged
82.	07-15-42	1622	34-51 N 75-22 W	MV	BLUEFIELDS	Nic.	Cgo.	2063	T	Sunk
83.	05-04-43	0825	34-10 N 76-05 W	SS	PANAM	Pan.	Cgo.	7277	T	Sunk
84.	08-05-43	1542	37-22 N 74-25 W	SS	PLYMOUTH	Am.	Cgo.	2265	T&M	Sunk
85.	12-04-43	0400	34-30 N 74-32 W	SS	LIBERTAD	Cuban	Cgo.	5441	T	Sunk
86.	09-12-44	0030	33-30 N 75-40 W	SS	GEORGE ADE	Am.	Cgo.	7176	T	Damaged

Legend:
T = Torpedoed
S = Shelled
M = Mined



DEC 7, 1941 - APR 25, 1942
A-MARCH 27-START OF DISTRICT CONVOYS
B-APRIL 1-ORGANIZATION OF "KILLER TEAMS"

Figure 7A. Submarine Activity, Chart 1 (Cumulative)

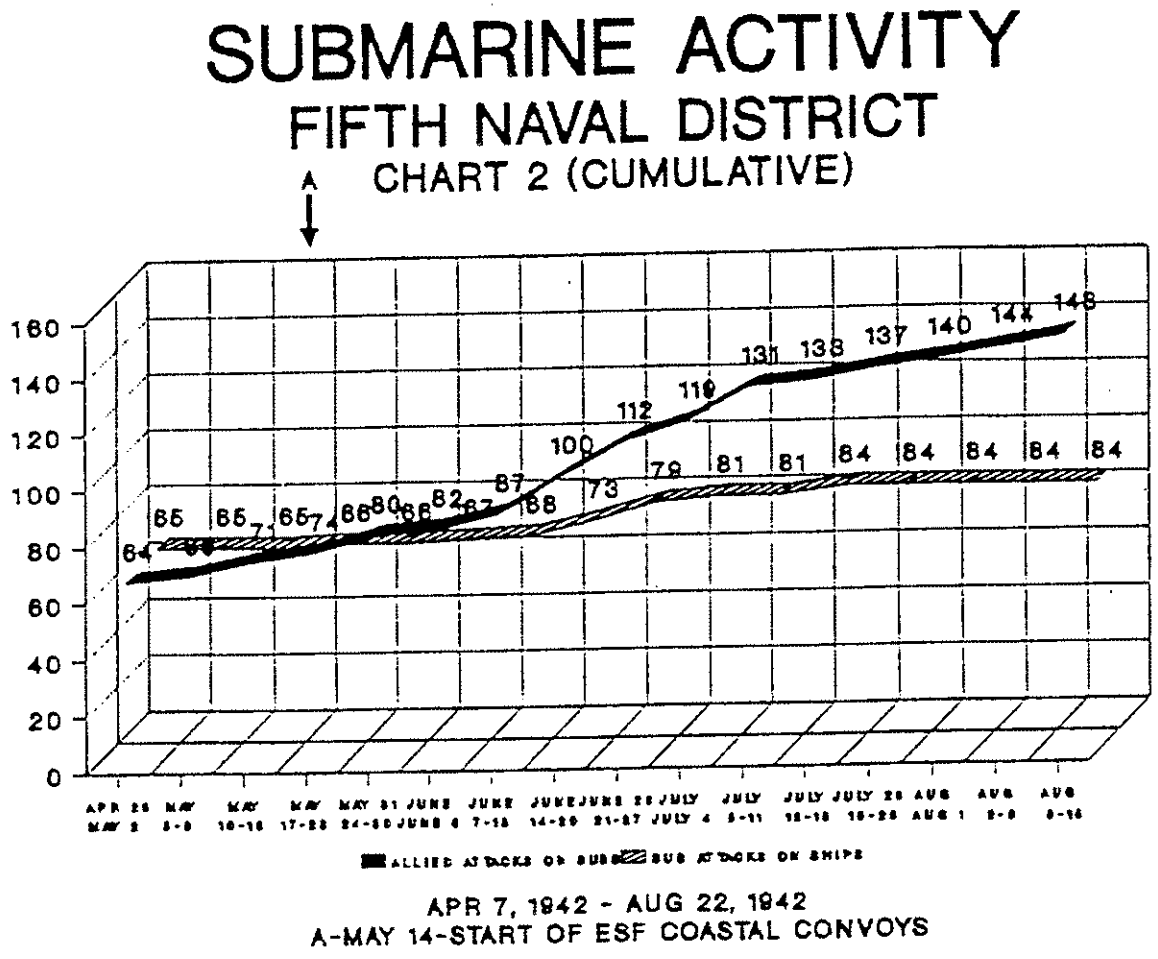


Figure 7B. Submarine Activity, Chart 2 (Cumulative)

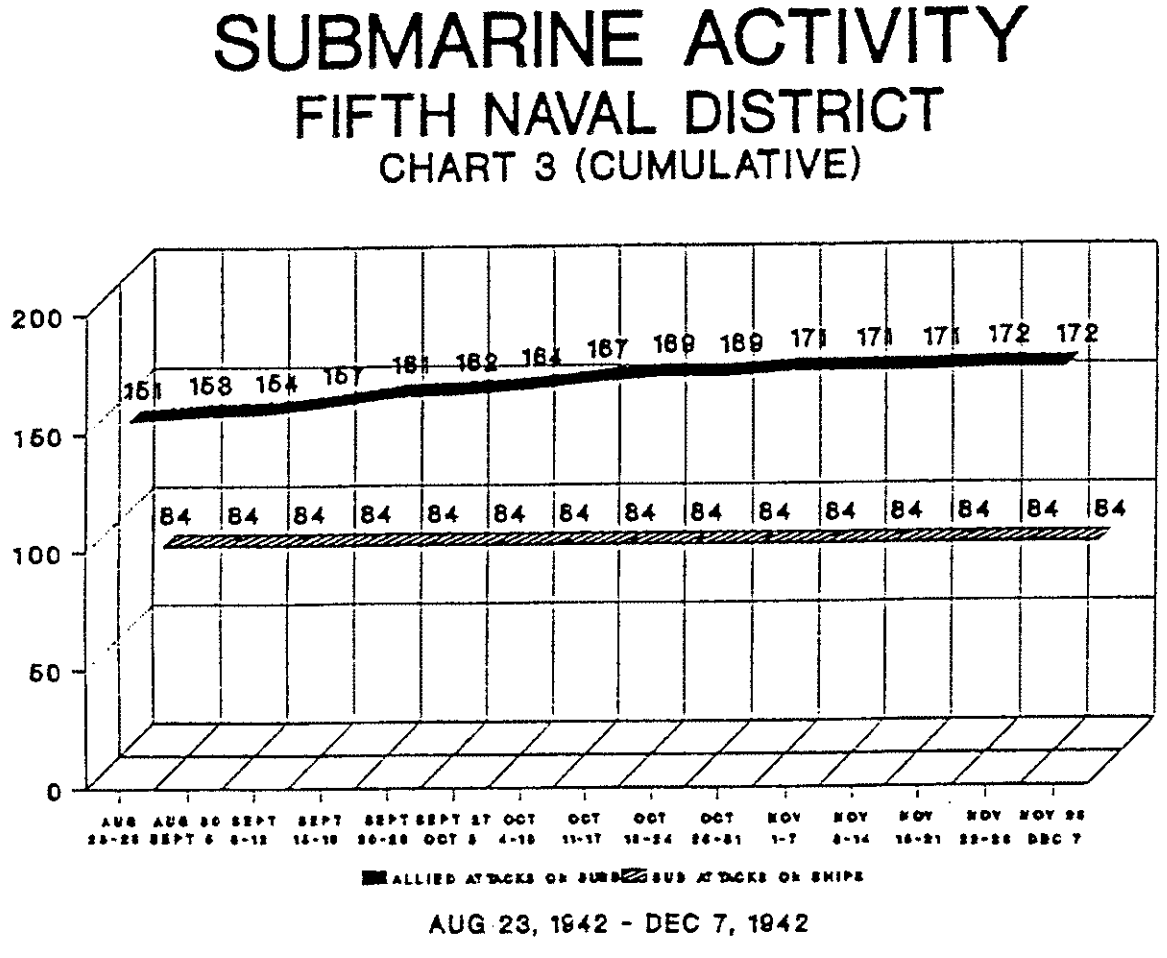


Figure 7C. Submarine Activity, Fifth Naval District, Chart 3 (Cumulative)
Source: Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide No. 129, pp. 9-10, Operational Achives, Naval Historical Center, Washington, D.C.

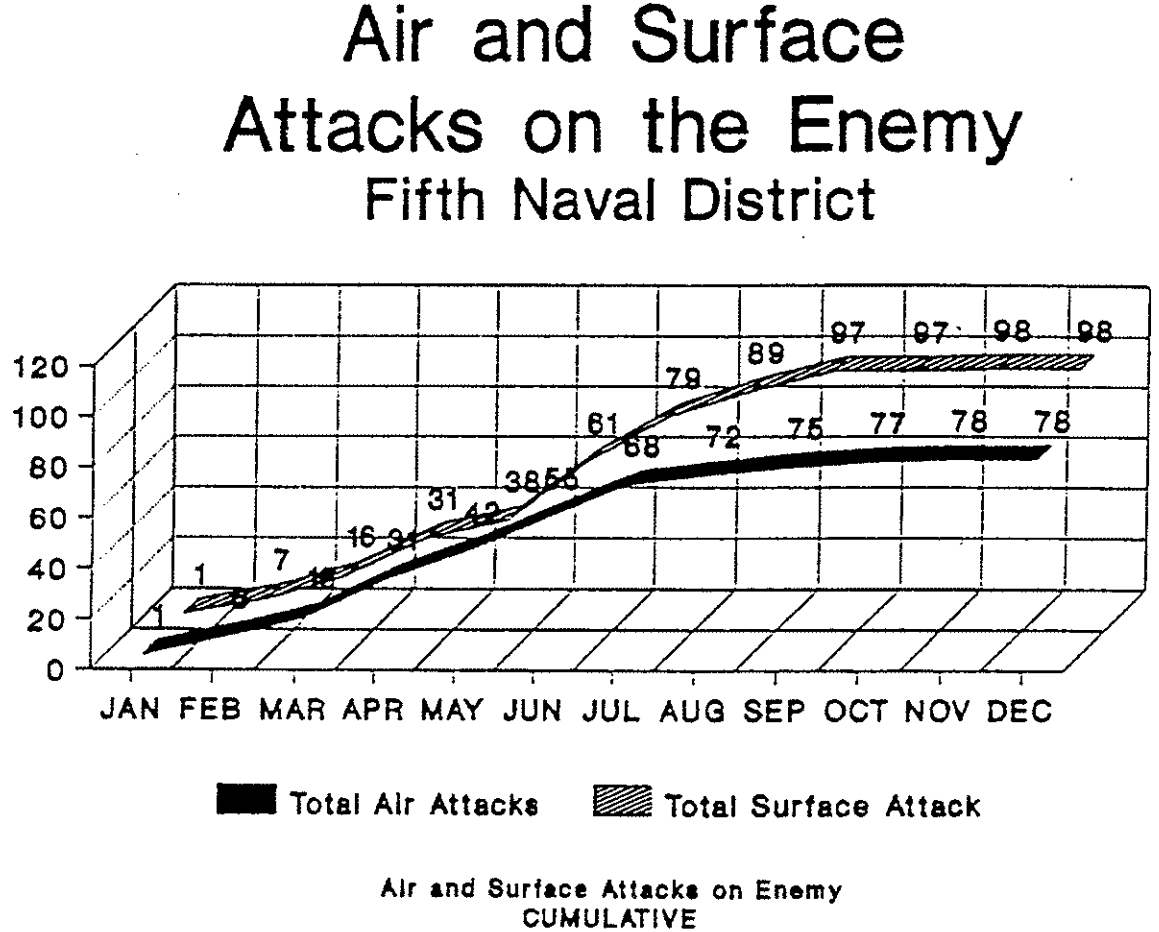


Figure 8. Air and Surface Attacks on the Enemy, Fifth Naval District (Cumulative)
Source: Fifth Naval District, "War Record of the Fifth Naval District, 1942," 1943, Guide No. 129, p. 12, Operational Archives, Naval Historical Center, Washington, D.C.

DATE DUE

DEC 22 1992			MAY 18 2010
AUG 21 1992			
DEC 22 1992			
MAY 09 1994			
APR 01 1995			
10312 1dav			
AUG 12 2000			
APR 18 2001			
APR 16 2008			
APR 26 2010			

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