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In modern naval writings, rarely is the Gulf of Mexico mentioned as a strategic area of combat operations. It seems that we have already forgotten the painful lessons learned by a previous generation of combat veterans who fought a war in our own backyard barely 44 years ago. For a German perspective of the strategic significance of a Gulf campaign, the eminent German historian, Dr. Jürgen Rohwer, explains that "for Admiral Karl Dönitz, the ultimate and decisive criterion for the use of the U-boat weapon was the quickest possible sinking of the greatest possible enemy tonnage, and tonnage that was potentially useful to the enemy. . . . He wanted his U-boats to be used economically, that is to say, at those points where they could sink the greatest possible tonnage of enemy shipping in the shortest possible space of time."[1]

This goal was certainly realized in the Gulf of Mexico from May through July 1942. As Admiral Samuel Eliot Morison stated in his epic 14-volume naval history of World War II, "unescorted merchant shipping received the full weight of this U-boat blitz, which gave the Gulf Sea Frontier the melancholy distinction of having the most sinkings in May (41 ships; 219,867 gross tons) of any area in any month during this war."[2] Yet, few people are aware of—or able to grasp—the significance of this naval campaign conducted along our Gulf of Mexico coast during the Second World War.

Rohwer reminds us that it was improved logistics that permitted the Gulf campaign: "operations of the Type IX U-boats in the Caribbean, the Antilles and the Gulf of Mexico were made practicable only when the first U-tankers came into service at the end of March 1942."[3] What is really impressive is that the Gulf U-boat campaign was conducted by not more than six submarines operating at one time, and usually not more than two, and as Morison states, "the sad thing is that at least half of these sinkings might have been prevented by the measures later adopted—coastal convoys for all merchantmen, and adequate air coverage."[4]

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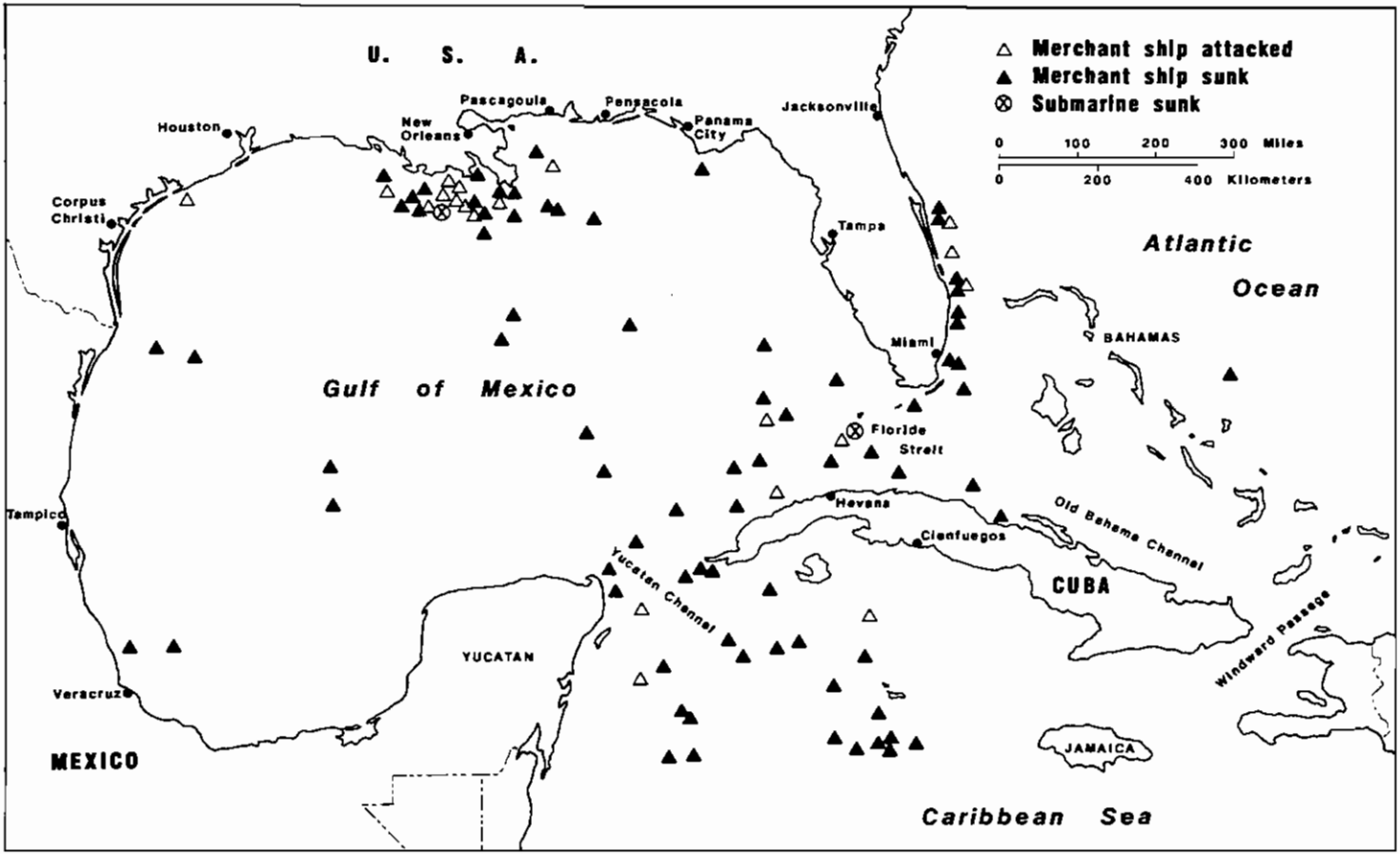
U. S. A.
Merchant ship attacked
Merchant ship sunk
Submarine sunk
0 100 200 300 Miles
0 200 400 Kilometers
Houston
New Orleans
Pascagoula
Pensacola
Panama City
Jacksonville
Corpus Christi
Tampa
Atlantic Ocean
Miami
BAHAMAS
Gulf of Mexico
Florida Strait
Tampico
Havana
Cienfuegos
Old Bahama Channel
Yucatan Channel
CUBA
YUCATAN
Windward Passage
Veracruz
MEXICO
JAMAICA
Caribbean Sea

The Gulf Sea Frontier was first organized by the Navy on 2 February 1942. Geographically, this command included the Florida coasts and straits, the Bahamas, the entire Gulf of Mexico, the Yucatán Channel, and much of Cuba. Supporting assets available to the Gulf Sea Frontier were not impressive—consisting of two 165-foot Coast Guard cutters, the 125-foot USCGC *Vigilant*, 19 Coast Guard aircraft, 14 Army 0-47 observation planes, and 2 intermittently flyable B-18 bombers.[5] This motley force was not only unprepared, but operationally inadequate in the face of an impending German U-boat threat. Even the Germans noted the ill-prepared state of U.S. readiness. According to Rohwer, "The U.S. defense system took unexpectedly long to adapt itself to the problems created for it by the presence of not more than between eight and fifteen U-boats operating from Halifax to Trinidad. It was weeks before the U.S. authorities even realized that all beacons should be doused; and it took months before any kind of blackout was introduced along the coasts, before U.S. merchant captains realized that their irresponsible wireless chatter was providing the U-boats with valuable information; and before there was any real evidence that something was at last being done to introduce some sort of wartime control."[6] However, by August of 1942 the implementation of an interlocking convoy system throughout the Gulf and Caribbean finally curtailed the U-boat campaign in the Gulf.

Assessing the overall damage done by the U-boats during this 3-month campaign reveals similar statistics by both the U.S. and German tallies. U.S. figures show 41 ships sunk in May (219,867 tons), 21 ships in June (91,277 tons), dropping off to 16 ships in July (65,924 tons), for a 3-month total of 78 ships destroyed.[7] German figures were somewhat smaller, reflecting the difference in geographic boundaries (the Gulf Sea Frontier, as defined by the United States, extended into the Atlantic along the Florida coast, through the Bahamas and into the Caribbean beyond the Yucatán Channel).[8]

Ship destruction was concentrated in three areas. The biggest kill area lay along the Louisiana coast in the sea-lanes that straddle the Mississippi Delta, where 26 ships were attacked and 16 sunk. The Straits of Florida and its approaches were second with 15 vessels sunk. Eleven ships were lost in the Yucatán Channel. The U-boats also found good hunting in the Caribbean Sea bordering the Yucatán Channel and along the Florida coast between Miami and St. Augustine.[9] As one would expect, most of the destruction occurred along coastal shipping lanes or at strategic chokepoints. While the latter should be expected—chokepoints are logical sea-lane bottlenecks for exploitation by submariners—the sinking of merchant ships along the shallow coastal waters of Texas, Louisiana, and Mississippi bears further examination.

During World War II, New Orleans was the major port on the Gulf coast. Prior to the war, merchantmen primarily carried raw industrial materials for industries, and agricultural and manufactured products to markets located along the Mississippi River. Tanker traffic consisted of some exported crude

and distribution of oil and refined products to east coast industries. An offshore oil industry did not yet exist and Houston was still many years away from becoming the Nation's third largest port. Naval defenses in the Gulf were nil, simply because of the absence of assigned units. Cuba was an ally, and the entire Gulf coast remained relatively undeveloped. The Nation's industrial economy was still firmly entrenched in the northeast and Great Lakes, and the Gulf was truly a backwater.

Today, all of this has changed. A massive petrochemical industry has emerged along the Gulf coast, stretching from Brownsville, Texas to Mobile, Alabama. Along the Texas and Louisiana Gulf coast, the daily refinery output stands at over 5.8 million barrels.[10] This growth onshore has been complemented by the creation of a mature offshore oil and gas production industry. For offshore Texas, this includes 70 gas fields and some 10 oil fields, supported by 7 offshore gas and 2 oil pipeline gathering systems. The figures have grown in offshore Louisiana to over 200 gas fields and 120 oil fields, supported by 14 gas trunk lines and 11 oil-gathering systems.[11] In the distribution of these petroleum products, Gulf ports support an enormous amount of tanker traffic: Baytown, Beaumont, Corpus Christi, Freeport, Galveston, Houston, Port Arthur, and Texas City in the State of Texas; New Orleans and Lake Charles are the big ports in Louisiana; Pascagoula in Mississippi; and Mobile in Alabama.[12] And not to be ignored are the vast amounts of agricultural and finished products that enter or exit through Gulf ports. Strategically, access to Gulf coast ports has become more important than ever.

It is common knowledge that the economic climate has changed along the Gulf rim. Florida and Texas now have mature, diversified economies supporting an increasing population. The entire Sunbelt of the southern United States has shared in this growth period which began in the 1960s and is just now showing signs of maturing. Some new high technology complexes are emerging, such as the Ingalls Shipyard at Pascagoula, and the research laboratories at Bay St. Louis, Mississippi. Like Texas and Louisiana, Mexico's Gulf coast enjoyed a boom of growth during the 1970s, fueled by the growing demand for Mexican crude produced from coastal and offshore fields that are among the world's largest. Instability in the world petroleum markets of the 1980s and the inability to market natural gas in the United States have raised havoc with the Mexican economy. Today, Mexico services one of the largest debts in the Third World. This, at a time when its population has mushroomed beyond 80 million, will surpass 100 million by the year 2000, and its own southern borders are threatened by instability from legions of refugees fleeing Guatemala, Belize, El Salvador, and Nicaragua.

Cuba, an ally in World War II, now stands as an adversary. Geographically, Cuba flanks two strategic Gulf chokepoints—the Yucatán Channel and the

Straits of Florida. As noted earlier, these two maritime points had one of the highest concentrations of ships sunk by U-boats during World War II. Along the north coast of Cuba, other significant shipping channels include the Old Bahama Channel, the Windward Passage, and the Nicholas and Santaren Channels. The Cuban Navy's 39 torpedo and missile patrol boats, complemented by 2 Soviet Koni-class frigates, could easily impede—if not control—access to many of these strategic maritime lines of communication.

While Nicaragua's 24-odd patrol craft would be of little use in any strategic blockade, Soviet submarines could be based out of Cienfuegos and would surely play a role.[14] Added to the Soviet submarine equation are Cuba's three relatively new Foxtrot-class diesel-electric submarines.[15] This fledgling submarine force could grow; indeed, growth is an interesting subject when addressing the Cuban Navy. An expansion trend that began in the late 1970s has transformed the Cuban Navy from a light attack craft force to a newer, more sophisticated operational fleet. This includes the introduction of mine countermeasures ships in 1977, submarines in 1979, frigates in 1981, and amphibious landing ships in 1982.[16]

In contrast, the U.S. naval capabilities in the Gulf have seen little change. A PHM squadron is based at Key West, but these craft are only lightly armed.[17] Destroyers from Mayport and Charleston could be available to assist in a Cuban campaign, but there are no significant ASW forces currently homeported in the Gulf. For that matter, there are no U.S. operational surface forces of significance maintained in Gulf ports. The Navy's proposed homeport plan, that would put a surface action group and a carrier group in the Gulf, faces budgetary pressures that may destroy or restrain the implementation of this strategically useful project.

Besides the six PHMs and three WESEs, what other surface assets would be available to protect the U.S. Gulf coast? There are six 210-foot *Reliance*-class cutters located at Brownsville, Galveston, Panama City, St. Petersburg (two cutters), and Key West (along with a 205-foot WMEC—the *Ute*—a former Navy fleet tug). Patrol boat assets include 2 Cape-class 95-foot cutters, and 13 Point-class 82-foot cutters. The 15 small cutters, along with 5 Gulf-based buoy tenders, could provide limited coastal interdiction and oil field security support.[18] (Besides one U-boat sunk by the Cubans, it is notable that the only U-boats sunk in the Gulf during the 1942 campaign were destroyed by Coast Guard assets.)

Available naval air power could include VA-204 and VP-94 from NAS New Orleans, and VF-201, VF-202 and VMFA-112 from NAS Dallas.[19] The availability of these combat assets rests on the assumption that they will not be committed elsewhere. In light of global commitments that best characterize the strategic burden of today's U.S. Navy, such an assumption could be wishful thinking. Coast Guard aircraft operating from six Gulf air stations

would provide some coastal surveillance capability. The mere operation of these patrolling planes and helos could provide a deterring presence and would be especially intimidating to daytime submarine activity in coastal waters.

In examining contemporary U.S. security interests in the Gulf of Mexico region, there are several key elements that one must keep in mind: What is at stake and what is the threat, and what military assets would be required to protect our interests? Of prime concern is unlimited access to our Gulf coast ports and shipping lanes. A key to their security lies in the broad continental shelves and shallow water that protect the approaches to most Gulf ports, and control of the Straits of Florida and Yucatán Channel.

As discussed, the Texas and Louisiana coasts support a massive offshore energy industry that, in itself, is a target-rich environment. The supporting infrastructure includes hundreds of offshore production platforms, subsea wellhead assemblies, gathering and trunk lines, as well as offshore tanker facilities for loading and off-loading oil. From a defensive perspective, the offshore energy infrastructure has some vulnerable tactical characteristics: They are complex and vulnerable to sabotage and overt attack; they are fixed, acoustically noisy and highly radar reflective. Small diesel submarines, such as the Soviet's new Kilo class, would be effective and difficult to detect amid the acoustical chaos of offshore oil production platforms. Cruise missile attacks would require only a simple active radar seeker to find an oil production platform, and gas flares found at many of these facilities provide attractive thermal signatures.

Once damaged, this infrastructure would require a great amount of time and money to replace. Since most production platforms are built in shipyards, their construction would compete with the scarce resources needed to support fleet and merchant ship construction and repair. If offshore production were halted, the Nation's oil production would be reduced by approximately a million barrels per day, or about 12 percent of its current production.[20] In the short haul, this loss could be offset by drawing from strategic petroleum reserves but, over the long term, this production loss would require rationing and other conservation measures.

Like the offshore production infrastructure, many large integrated oil refineries are situated within a few miles of the Gulf coast. These intricate facilities are huge and similar to offshore platforms in that they are highly radar reflective and vulnerable to submarine or air-launched cruise missile attacks. The explosive nature of refineries' products would add immensely to the destruction of such an attack. Loss of the Gulf coast's refining capabilities would reduce national petrochemical production capacity by at least one-third. Such a drastic loss would seriously impair the Nation's warfighting capabilities.

One diversionary Soviet option that few Americans consider is an assault from the sea. (The Japanese occupation of Kiska and Attu diverted considerable U.S. resources to Alaska during early and critical periods of World War II.) From Cuba, a battalion or brigade could launch an assault against islands bordering the Straits of Florida and Old Bahama Channel. From these vantage points, occupying forces could use small mobile naval SSM launchers to harass shipping. An even more trying scenario would involve a Cuban force seizing a tactically limited and defensible objective such as Galveston Island or the naval shipyard at Pascagoula. Though the ultimate strategic effects of such amphibious landings might be minimal, the psychological and propagandistic effects would be devastating. It is no secret that our Gulf coast is lightly defended, and to dislodge and defeat even a limited but determined invasion force would require a substantial relieving force.

Finding an uncommitted ground force that is both adequate and suitable for defense could be a problem. Given that access to Gulf ports may have already been denied in the initial stages of a conflict, CONUS-based divisions and corps may move to Atlantic and Pacific ports to improve deployment posture. This would leave the Gulf coast vulnerable. Air power could be called upon, but it could also be hazardous as aerial bombing and strafing may ultimately support the enemy's objectives and cause further destruction of an industrial facility.

U.S. Gulf coast assets are also vulnerable to surface forces. At its current level, the Cuban Navy has a limited blue-water capability, although the Koni-class frigates and other surface attack craft could operate in the Gulf and harass coastal shipping or launch attacks against offshore oil production facilities. Should Cuba become combative in the Gulf, it is highly probable that it would be at the initiative and direction of Stavka. It would follow that Cuban combat assets would act in concert with, and with reinforcement from, Soviet military forces. Reinforcing assets would include Soviet submarines operating from Cienfuegos, and strike and surveillance aircraft operating from Cuban airfields. Early destruction of a combined Soviet-Cuban air threat in the initial stages of a conflict will be a key factor in neutralizing Cuban naval surface forces and in limiting enemy submarine movement above the continental shelf. (Visibility plays a role in visual sightings above the shelf. According to Morison, during the World War II Gulf campaign, ". . . in shallows, subs waited in patches of muddy shoal water, presumably to avoid detection from the air.")[21]

The increasing size of merchant vessels will restrict our deeper draft ships to ever narrower channels dredged along the shallow coastal waters of the Gulf. This will increase the vulnerability of these vessels to Cuban or Soviet mining efforts. Both submarines and aircraft can be used in mining operations. Covert mining could also be accomplished by fishing trawlers or

by merchantmen departing ports, as a prelude to the outbreak of hostilities—merchantmen from the Eastern bloc routinely visit most Gulf ports.

The Soviets have developed considerable special operations forces based upon successful employment of rear area partisan operations in World War II. An inexpensive and effective combat capability can be employed by conducting covert special operations from infiltrating fishing trawlers. The most likely route of infiltration would involve crossing the Yucatán Channel and moving north along Mexico's Gulf coast. Discrimination of these covert trawlers among Mexican and U.S. fishing activity would be difficult and best accomplished by a dedicated naval interdiction flotilla.

Increasing deployment of cruise missiles by the Soviets could find practical, tactical application in the Gulf operational environment. Offshore production platforms, petrochemical and port complexes are not easily concealed, and flat topography makes the Gulf coast a target-rich environment. By using cruise missiles, the Cubans can pursue an offensive campaign with standoff forces, while preserving their limited air and naval power assets necessary for prolonging the Gulf campaign.

Given an understanding of the current threat, what actions can best deal with it and yet conserve our combat strength for operational theaters that girdle the globe? Serious consideration must be given to the Navy's proposal for homeporting a carrier battle group and a surface action group in the Gulf. This plan would bring into the area one carrier, a battleship, three cruisers, five destroyers, and four frigates. At the initial stages of a war, these naval battle groups would be sufficient to neutralize Cuban naval and air power. However, a prolonged commitment of these forces to the Gulf would play into Soviet planners' hands by inhibiting the reinforcement of the Atlantic and Pacific Fleets.

Accepting the fact that the U.S. Navy could conduct a rapid and successful naval campaign in the Gulf and Caribbean, there is still no assurance that a threat would not exist. Special operations forces could still be infiltrated and submarines would remain a threat to coastal shipping and our offshore oil industry. Cruise missiles, which can be transported by a variety of covert means, would still continue to pose a significant tactical and psychological threat.

There are several options open to U.S. naval planners that will minimize the use of scarce naval combat assets. In a tradition begun with the placement of the Naval Armed Guard aboard merchantmen in World War II, CIWS systems—such as the Phalanx or the less expensive NATO Goalkeeper—can be emplaced temporarily aboard merchantmen. The CIWS systems could also be provided to outlying production platforms in the offshore oil fields for cruise missile and air strike defense and would be a suitable retrofit for

As any sonar operator knows, shallow water ASW is a difficult business. However, a Reserve squadron of P-3 Orions based on the Gulf coast would provide adequate coverage of the Gulf and its approaches. A Reserve squadron of SH-60 LAMPS helicopters could provide a mobile, responsive, and effective coastal ASW capability. These could patrol from oil production platforms since most have operational helicopter flight decks. For complementary defensive capabilities, shallow water ASW forces need to be built and could be manned in peacetime by an increased force of Coast Guard and Naval Reservists. Simple weapons, such as the reliable depth charge and the hedgehog, would be sufficient for shallow ASW operations. Shipboard sonar arrays could feed data to shore processing facilities for analysis, minimizing the need for an elaborate shipboard computer capability. Finally, more patrol boats equipped for offshore interdiction work need to be procured. In peacetime, these PBs could be shared on drill weekends by Coast Guard and Naval Reserve personnel operating under the direction of the Atlantic Maritime Defense Zone commanders. The immediate cost could be justified by providing additional surface patrol and interdiction capabilities for the Nation's war on drugs. In time of war, these craft would be necessary in preventing coastal infiltration by small enemy vessels and trawlers performing covert mining, surveillance, and special operations missions.

Recognizing that the Gulf of Mexico is the only heavily populated coast facing an antagonistic and heavily militarized foreign power that is also a principal ally of the Soviet Union; that Cuban forces have performed effectively and aggressively in Africa, indicating a willingness to commit combat assets and manpower in direct support of Soviet aims; and, that a broad, shallow continental shelf and a mature maritime offshore oil industry make the Gulf of Mexico an operationally unique coastal environment of the continental United States; it follows that unique tactics and combat assets are required to defend the Gulf. These considerations affecting national security suggest the formation of a separate operational command for the defense of the Gulf of Mexico.

Using the Gulf Sea Frontier as a precedent and modeled after the current Maritime Defense Zones, a Gulf MDZ should be established to command and coordinate the defense of the Gulf. Besides the current active Navy and Coast Guard surface assets based in the Gulf, the MDZ should also control the following reserve assets:

- a Navy SH-60 Squadron;
- an independent, reinforced Marine Infantry Battalion;
- a P-3 Squadron;
- a Small Boat Unit (SBU) with PBs;
- an inventory of goalkeeper CIWS Systems for oil platform and merchant ship defense; and
- a new class of small inexpensive ASW Corvettes.

Peacetime procurement and pre-positioning of these reserve forces would ensure an in-place defensive capability adequate for the Gulf operational environment. The following chart details the location and mission of these reserve assets:

Unit	Location	Mission	Secondary Msn
P-3 Sqdn	NAS New Orleans	Gulf ASW	Ship Surveillance
SH-60 Sqdn	NAS Orleans	Coastal ASW	Convoy Escort
SBU (PB)	Texas Coast	Coastal Patrol	Oilfield Defense
Inf Batt	S. Florida	Coastal Defense	Reinforce BDF
Det'd Inf Co	Texas Coast	Coastal Defense	Reinforce Batt
ASW Corvettes	Primary Ports	Coastal ASW	Convoy Escort

These suggestions recommend the use of a mobile and integrated, yet inexpensive combat infrastructure that can respond to the potential threat environment off our Gulf coast. As envisioned, this combat infrastructure would require an investment in few fixed facilities. Upon successful culmination of combat operations in the Gulf, these forces could be deployed elsewhere in support of other U.S. Navy requirements. Implementation of a Gulf coast defense mission today would provide an exceptional operational environment for Reserve training in peacetime, and some assets (such as the surface interdiction craft) could be used by the Coast Guard to support current law enforcement requirements.

In the early days of World War II, we failed to anticipate the actions of our enemies. Thousands of Americans died as a result. Among these legions were many merchant mariners and civilians who lost their lives in an obscure operational backwater—ironically, a backwater that lies on the very shores of our continental United States. It would be painful to relearn these lessons from a new generation of enemy sailors by repeating the mistakes of our history. Through creative planning and use of our Reserve forces, we can prepare for a future enemy campaign in the Gulf of Mexico. This strategic imperative is crucial for our Nation's ability to maintain the industrial tempo that wartime will demand: a major loss of the vast resources of the Gulf coast could spell tragedy in any future, major conflict.

Notes

1. H.A. Jacobsen and J. Rohwer, eds., *Decisive Battles of World War II, The German View* (New York: G.P. Putnam, 1965), p. 269.
2. Samuel Eliot Morison, *The Battle of the Atlantic, September 1939—May 1943* (Boston, Mass.: Little, Brown, 1964), p. 142.
3. Jacobsen and Rohwer, p. 270.
4. Morison, p. 142.
5. *Ibid.*, p. 137.
6. Jacobsen and Rohwer, p. 271.
7. Morison, pp. 413-414.
8. *Ibid.*, appendix IV.

9. From Morison (p. 142), who in turn prepared his statistics from a chart produced in the Gulf Sea Frontier Headquarters during World War II.

10. From the statistics report featured regularly in the *Oil and Gas Journal* (Tulsa, Okla.: Penwell Publishing Co.). Statistics used are from 25 August 1986 issue, pp. 75-76.

11. *International Petroleum Encyclopedia-1980* (Tulsa, Okla.: Penwell Publishing Co., 1980), p. 79.

12. *Ibid.*, p. 331.

13. John Moore, ed., *Jane's Fighting Ships 1985-1986* (London: Jane's Publishing Co., 1986), pp. 118-121.

14. *Ibid.*, p. 363.

15. J.L. Couhat, ed., *Combat Fleets of the World 1986-1987* (Annapolis, Md.: Naval Institute Press, 1986), pp. 83-85.

16. *Ibid.*

17. Moore, p. 774.

18. U.S. Coast Guard Headquarters, *Commandant Notice 5605*, Std. Dist.: List No. 123 (Washington: 1 April 1986), pp. 5-11.

19. Norman Polmar, ed., *The Ships and Aircraft of the U.S. Fleet* (Annapolis, Md.: Naval Institute Press, 1981), pp. 271-283.

20. Production statistics are for March 1986 and were provided by the American Petroleum Institute.

21. Morison, p. 138.

The Naval Historical Center will host the annual meeting of the American Military Institute on 8-9 April 1988, at the Washington Navy Yard, Washington, D.C. The conference theme is Technology, Industry, and Sea Power. Papers that treat naval technological developments, naval-industrial relations, strategy, and other aspects of naval history are invited. Please send proposals to AMI Conference Coordinator, Naval Historical Center, Building 57, Washington Navy Yard, Washington, D.C. 20374, before 1 October 1987.