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**NAVAL WAR COLLEGE
Newport, R.I.**

GIVING UP TERRAIN

The U.S. Armed Force's Failure to Control Inland Waterways in the 21st Century

by

Michael B. Baka

Major, U.S. Army

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

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

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Abstract

80 percent of the world's maritime agencies operate solely in the green or brown water environments, since these water routes serve as the primary lines of communication for many nations around the globe. Since the end of the Vietnam War, the U.S. armed forces have effectively abandoned the ability to control inland waterways by failing to build or maintain a force capable of projecting seapower into the brown water environment. By ceding this decisive terrain to our adversaries, during this extended period of irregular warfare, the United States risks failure in future operating environments. This paper examines the U.S. Navy's most recent exploit in the brown water environment of Iraq and discusses their severe force-space imbalance with a comparison to the Vietnam-era riverine force. It also sheds light on what it means to control inland waterways, who should take on this responsibility, and how the Iraq insurgency held this decisive terrain. Finally, the paper draws conclusions concerning future brown water environments; and recommends ways the Navy can grow a suitable riverine force and potential ways to improve joint training opportunities.

Think of the vast areas of the world covered by shallow water – those connected to the oceans by rivers, and harbors, and rugged shorelines. These are the decisive strips of sea that make all the difference. And we need to be there.

–ADM Michael Mullen
Naval War College, 31 August 2005

INTRODUCTION

For many years, the global maritime community has classified navies as blue, green, and brown to describe the maritime environment of which they are willing and able to operate. Simply stated, a “blue water” navy, like that of the United States, Great Britain, or France, is able to sustain itself for long deployments across vast miles of ocean and project seapower into other nation’s littoral regions.¹ Most recently the “green water” navy emerged from maritime lexicon to describe navies that operate beyond their coastline into the littoral region, an area previously classified as “brown water.” In contrast, a brown water navy operates inland from the coastlines along a vast network of waterways comprised of rivers, canals, and lakes.² In fact, 80 percent of the world’s maritime agencies operate solely in the green or brown water environments, since these water routes serve as the primary lines of communication for many nations around the globe.³

Although U.S. history records the military’s intermittent role in conducting joint brown water operations, the U.S. Navy almost entirely left this mission for its more traditional operations on the high seas. Since the end of the Vietnam War, the U.S. armed forces have effectively abandoned the ability to control inland waterways by failing to build or maintain a force capable of projecting seapower into the brown water environment. By ceding this decisive terrain to our adversaries, during this extended period of irregular warfare, the United States risks failure in future operating environments.

¹ (Hope and Rogers 2006).

² (Benbow, et al. 2006), 1.

³ (Golden 2006), 3; and (Benbow, et al. 2006), 44-45.

CONTROLLING THE INLAND WATERWAYS

Other than the Vietnam War, the American Civil War is the only comparable large-scale joint riverine campaign undertaken in U.S. history. During this period, both the Union and Confederate navies deployed a significant number of small river craft in close coordination with their respective armies.⁴ For the 100 years that followed, the U.S. Navy continued to participate in small-scale riverine operations in countries like China, Korea, Mexico, Venezuela, Peru, Philippines, Russia, and Germany.⁵ In the '60s, the U.S. military took part in its largest joint riverine campaign ever. From 1968 to 1970, ADM Elmo R. Zumwalt Jr. served as Commander of the U.S. Naval Forces Vietnam and was considered “the Father of Brown Water Navy.”⁶ The U.S. Navy took the lead by deploying several riverine task forces with more than 500 craft and 9,000 Sailors to operate in the inland waterways of South Vietnam, supported by over 22,500 personnel from the Army’s 9th Infantry Division, as well as Air Force, Coast Guard, and Marine Corps personnel.⁷

Soon after the Vietnam War, however, the U.S. Navy effectively abandoned the ability to control inland waterways for the pressing Cold War mission of nuclear deterrence and blue water power projection. It was the Navy’s foremost brown water veteran, Admiral Zumwalt, who began shifting the Navy’s focus back to blue water in 1970. As the Chief of Naval Operations (CNO), Admiral Zumwalt argued that the Navy’s four missions during the Cold War should be “deterrence, power projection, sea control, and peacetime presence.”⁸ In 1974, his successor, ADM James L. Holloway III, combined these missions into simply

⁴ (Benbow, et al. 2006), 88.

⁵ Ibid., 90-95.

⁶ (Pacific Stars & Stripes 1970).

⁷ (Benbow, et al. 2006), 14; and (Pacific Stars & Stripes 1970).

⁸ (H. K. Ullman 2001), 503.

“power projection and sea control.”⁹ By the early-‘70s, the Navy reduced the riverine capability to approximately 100 craft split between two coastal riverine squadrons – one per fleet. These squadrons eventually evolved into special boat units (SBUs).¹⁰ By the mid-‘80s, the Navy Special Warfare Command (NAVSPECWARCOM) assumed control of the Navy’s brown water mission and deployed a small force to Panama in order to train Latin American navies in riverine operations.¹¹ In August 1990, NAVSPECWARCOM published the Worthington Study advocating that the U.S. Navy and Marine Corps field a battalion-sized riverine assault force from within the existing Navy’s organizational structure. However, due to increasing budgetary constraints and the loss of 30 blue water ships a year, the U.S. Navy continued to rank brown water operations as a low priority. On the other hand, the Marine Corps saw the Worthington Study as an opportunity to gain credibility with the Department of Defense and built a small-scale riverine force to match the capability offered by NAVSPECWARCOM.¹²

Thus, with the exceptions of the Civil War and Vietnam, the U.S. armed forces focused very little on controlling inland waterways. One of the primary reasons the U.S. Navy neglects the brown water environment is due to their service culture. The U.S. Navy’s culture is summed up by the four B’s: Big ships, Blue water, British traditions, and Brazen.¹³ This predominately blue water culture focuses most of their attention and resources on preparing the Navy for its next fleet-on-fleet ocean battle, with few resources remaining for green and brown water operations. If the U.S. Navy is unwilling and incapable of controlling inland waterways, then what service is more appropriate for this mission?

⁹ (H. K. Ullman 1991), 134.

¹⁰ (Benbow, et al. 2006), 113.

¹¹ Ibid., 96.

¹² Ibid., 18-20.

¹³ (Naval War College 2010), 9.

Some may argue that the U.S. Army maintains a sizeable force inland that is capable of taking on this mission. Indeed the U.S. Army Corps of Engineers (USACE) maintains a robust bridging capability, most recently tested during Operation JOINT ENDEAVOR on the Sava River in Bosnia and Herzegovina and during Operation IRAQI FREEDOM on the Tigris River in Iraq. In both cases, the U.S Army deployed bridging units to hostile areas, built float bridges nearly 600 meters in length under adverse conditions, and successfully secured these bridges for extended periods of time through waterway patrols.¹⁴ Although the Army maintains a limited patrol boat capability, it traditionally handles inland waterways as natural obstacles serving as easily identifiable boundaries between adjacent ground units.¹⁵ This was a common occurrence during Operation IRAQI FREEDOM where many tactical boundaries corresponded with rivers, canals, and roadways in Iraq. If inland waterways typically serve as boundaries for ground forces, then who really owns the water between opposing riverbanks? The Army's view of rivers and canals in Iraq certainly allowed for seams in the battle space, providing insurgents freedom of maneuver to transport weapons, munitions, supplies, and personnel. The span of the Tigris and Euphrates Rivers measure up to 600 meters, making it is highly unlikely that ground forces can control this terrain.

The answer to this problem naturally lies with a maritime force, making the U.S. Navy the most likely candidate. Even though the Navy has a clear history of brown water operations they face an internal battle against a deeply-rooted blue water culture. It took the Navy two years to recognize Iraq's waterways as a problem and accept responsibility for the mission. In 2005, the CNO Admiral Mullen publicly called for his service "to close the seams that existed between the Navy and conventional ground forces by extending the

¹⁴ (130th Engineer Brigade Lineage 2008).

¹⁵ (U.S. Army. Training and Doctrine Command 2008), 5.6.

United States' maritime reach into the region's brown water rivers and canals."¹⁶ Despite Admiral Mullen initiating the Navy's latest brown water movement, it still took his service over a year to build, resource, and deploy a riverine force to Iraq.

In 2005, the U.S. Navy argued that they finally took the necessary steps to control inland waterways by assuming this mission from the Marine Corps along with 20 riverine craft.¹⁷ In fact, on 13 January 2006, the Department of the Navy established the Navy Expeditionary Combat Command (NECC) in support of the Navy's increasing role in the Global War on Terror; and shortly thereafter, the NECC established Riverine Group 1 to oversee three future riverine squadrons with a total of 700 Sailors and 36 riverine craft.¹⁸ By March 2007, the Navy was able to build, train, and deploy Riverine Squadron One (RIVRON 1) to Iraq. Unfortunately, operating in the brown water environment became a lost skill in the Navy. The NECC overcame this gap by tapping into the knowledge and experience of Vietnam riverine veterans. These veterans, assisted by an experienced Marine Corps riverine company from Iraq, acted as the primary advisory group to Riverine Group 1.¹⁹ Still, after all of these efforts, the Navy's riverine force operating in Iraq was less than 3 percent the size of Admiral Zumwalt's Naval Forces in Vietnam with a task to control inland waterways one-third the size of Vietnam's.

If the Navy were really focused on brown water, then why has so little been done to build and deploy a suitable riverine force over the past six years? When RIVRON 1 finally deployed in support of Operation IRAQI FREEDOM, their force was so small they were only able to take part in a static security mission at the Haditha Dam on the Euphrates

¹⁶ (Diaz 2010).

¹⁷ (Scutro, *Rebuilding the Riverine Fleet* 2007).

¹⁸ (O'Rourke, *Navy Irregular Warfare and Counterterrorism Operations: Background and Issues for Congress* 2010), 5, 10.

¹⁹ (Ackerman 2007).

River.²⁰ This is a far cry from actually controlling the 5,275 km of navigable inland waterways in Iraq, consisting of the Tigris and Euphrates Rivers with all supporting branches and canals.²¹ Additionally, the Navy waited until February 2007 to start training RIVRON 2; and followed the same model in July 2007 when standing up RIVRON 3.²² This model allows little room for error to ensure trained forces are prepared to relieve the deployed force prior to the conclusion of their 6-month tour.

After three and half years of riverine operations in Iraq, the Navy's brown water mission concluded as abruptly as it began. RIVRON 1 ended its third tour in October 2010 after successfully conducting "more than 250 security missions and training of more than 300 Iraqis to continue providing maritime security on the rivers and lakes of Iraq."²³ From the Navy's perspective, this mission was a great success. According to the *2010 Quadrennial Defense Review (QDR) Report*, the Department of Defense assessed the future maritime operating environment to include more riverine and coastal regions. As a result, the Navy will be adding a fourth riverine squadron to their force structure by FY 2011.²⁴ When finally facing an opportunity to project seapower into the contentious brown water environment of Iraq, the Navy was unprepared and did too little, too late to be effective.

During the same period of time that the NECC deployed riverine forces to Iraq, the Department of the Navy commissioned their first two Littoral Combat Ships (LCSs), with a plan to procure 20 LCSs by 2016 at a total cost of \$11.8 billion.²⁵ In comparison, the Navy poured minimal resources into brown water operations with the procurement of 37 riverine

²⁰ (Ma 2006).

²¹ (Benbow, et al. 2006), 150.

²² (Scutro, 'Riverines' Get Ready To Go To Iraq 2007).

²³ (Diaz 2010).

²⁴ (Office of the Undersecretary of Defense (Policy) 2010), 24.

²⁵ (O'Rourke, Navy Littoral Combat Ship (LCS) Program: Background, Issues, and Options for Congress 2011), 1, 55.

boats in 2006 consisting of 12 assault boats, 19 patrol boats, and 6 command boats at a total cost of \$61 million.²⁶ In summary, one riverine boat costs \$1.6 million compared to the \$590 million it costs to produce one LCS. Not to mention, only four LCSs will be built per year compared to the ability to build six times the number of riverine boats in the same period.

PROJECTING SEAPOWER INTO THE BROWN WATER ENVIRONMENT

The U.S. Navy has a long history behind the term “seapower.” Originally coined by RADM Alfred T. Mahan in the nineteenth century, he went to great length to describe seapower but never really defined it.²⁷ When discussing seapower most navy theorists do so in the context of blue water and pay little attention to the projection of seapower in the green and brown water environments. Prof. Geoffrey Till, a recognized authority on past and present maritime strategy, explains the confusion surrounding the concept of seapower in his book *Seapower: A Guide for the Twenty-First Century*. Professor Till gathers definitions from both the past and present to define seapower as an extension of both the civil and military components of national power that take place in the maritime domain.²⁸ Although Professor Till pays little attention to the littorals in his writing, he does acknowledge their importance by saying: “Navies confront hard choices in force development about where they should put their emphasis – on this capability rather than that, on independent operation rather than interoperability with others, on green or brown waters rather than blue. . . . The balance they strike in these key areas of choice will reflect their size, strategic circumstance and national priorities and will be demonstrated by their particular concept of what a ‘balanced fleet’ means to them.”²⁹ Although Professor Till briefly suggests green and brown

²⁶ (Copsey 2009 Fall), 4.

²⁷ (Till 2009), 20.

²⁸ Ibid., 21-23.

²⁹ Ibid., 357.

water in the future context of how navies should balance their fleets, he pays little attention to the projection of seapower beyond the littoral region into the brown water environment. He alludes to the many challenges navies will face in the twenty-first century, but never defines seapower beyond the green water environment.

Just like in the early days of the Cold War, when Admiral Zumwalt and Admiral Holloway redefined the Navy's mission, similar discussions occurred immediately following the fall of the Soviet Union. It was during these post-Cold War years that naval theorists and leaders began challenging the traditional understanding of seapower projection. One of the first authors to propose a modern-day definition of seapower was Dr. Harlan Ullman, a Senior Fellow at the Center for Naval Analyses (CNA). In his book, *In Harm's Way: American Seapower and the 21st Century*, Dr. Ullman argues that one of the primary reasons for changing the traditional role of the Navy is that the likelihood of "the U.S. Navy squaring off against another major navy is extremely implausible, because, absent a Soviet threat, no other navy will be large enough to pose a major threat . . . for a long time to come."³⁰ Dr. Ullman also argues that "as the future operating environment clarifies, the bulk of naval capabilities that formed the principal power-projection instruments [of the Cold War] may assume a supporting role and the Marine Corps and ground forces . . . may become the new principal projectors of power."³¹ In 2001, Dr. Ullman built on his original work with a chapter titled *Influencing Events Ashore* for the National Defense University's publication *Challenges of the Global Century*, where he stated: "Over the next 30 years, the effects of globalization on naval forces will be . . . to influence events ashore. This requirement will extend well beyond seeking and winning command of the seas by sending enemy fleets to the

³⁰ (H. K. Ullman 1991), 131.

³¹ Ibid., 142-43.

bottom, and beyond projecting naval power on the littorals and nearby oceans in wartime.”³²

Although Dr. Ullman seemed to be on to something revolutionary with the projection of seapower ashore and potentially into the brown water environment, his publication from 2001 ended with the disclaimer that “the term *naval forces* applies principally to the Navy and Marine Corps.”³³ When rereading his chapter in this context it is obvious that the projection of seapower ashore Dr. Ullman refers to is nothing more than landing of Marines on beaches, deploying carrier aircraft to destroy land-based targets, and employing naval gunfire to soften targets on land – concepts that have been in place since World War II.

Since the early-‘90s, the U.S. Navy and Marine Corps have continued this pattern of redefining seapower in the context of green and blue water, while neglecting the brown water environment. In September 1992, the Navy and Marine Corps published the white paper *From the Sea* to provide a post-Cold War vision to carry their services into the twenty-first century. Both service chiefs, ADM Frank Kelso and Gen Carl Mundy, defined “power projection from the sea” as “bombs, missiles, shells, bullets, and bayonets. When Marines go ashore . . . [they] can maneuver and build up power rapidly; deep in the objective area to disorient, divert, and disrupt the enemy.”³⁴ The white paper concluded with an explanation that the Navy and Marine Corps are “changing in response to the challenges of a new security environment . . . [which] means that Naval Forces will concentrate on littoral warfare and maneuver from the sea.”³⁵ In 1994, the Department of the Navy published *Forward . . . From the Sea* to expand the strategic concept presented two years prior. According to this revision, the Navy’s “fundamental and enduring role in support of the

³² (H. K. Ullman 2001), 494.

³³ Ibid., 520.

³⁴ (Kelso and Mundy 1992).

³⁵ Ibid.

National Security Strategy” is “projection of power from sea to land.”³⁶ Again, the Navy’s enduring understanding of projecting seapower ashore excluded the brown water environment beyond the littorals.

In 2005, the Navy changed their focus when the CNO, ADM Michael Mullen, publicly announced the formation of a U.S. Navy riverine force to project seapower into the brown water environment of Iraq.³⁷ In his comments to the Naval War College at Newport, Rhode Island on 31 August 2005, Admiral Mullen challenged the students and faculty to “think more broadly about this thing we call ‘seapower’ . . . a naval force floating off the continental shelf with no impact on shore is not decisive.”³⁸ For the first time in recent history, the U.S. Navy redefined its traditional understanding of seapower projection ashore. On 1 October 2007, six months after the U.S. Navy deployed its first riverine squadron to the brown water environment of Iraq, Admiral Mullen became the Chairman of the Joint Chiefs of Staff. Two weeks later, on 17 October 2007, the three service chiefs of the Navy, Marine Corps, and Coast Guard released *A Cooperative Strategy for 21st Century Seapower* at the International Seapower Symposium also at Newport, Rhode Island. Surprisingly, ADM Gary Roughead, Gen James T. Conway, and ADM Thad W. Allen failed to address Admiral Mullen’s vision of seapower extending deep into the brown water environment in their strategy. Instead, the three service chiefs described the “maritime domain” as “the world’s oceans, seas, bays, estuaries, islands, coastal areas, littorals, and the airspace above them [which] supports 90% of the world’s trade.”³⁹

³⁶ (Dalton, Boorda and Mundy 1994), 10.

³⁷ (Diaz 2010).

³⁸ (Mullen 2005).

³⁹ (Roughead, Conway and Allen 2007), 4.

In this one statement, the Navy, Marine Corps, and Coast Guard jointly omitted inland waterways from the maritime domain, allowing the primary focus of future maritime operations to be the green water environment. In his address to the House Armed Services Committee in December 2007, Admiral Roughead reinforced this green water focus by emphasizing the Navy's littoral threats and the future procurement of the LCS. Yet Admiral Roughead gave no credit to his riverine Sailors deployed in harm's way to Iraq's brown water environment, attempting to retake the "decisive strips of sea" from the insurgency.

On 1 March 2010, the three maritime services released Naval Doctrine Publication (NDP) 1 to describe "how the Naval Service – the Navy, Marine Corps, and Coast Guard team – operates as an integrated force in joint and multinational operations."⁴⁰ This publication clearly emphasizes the joint-nature of future operations and redefines the maritime domain "from the deep waters of the open ocean through coastal areas, rivers, and estuaries, and landward portions of the littorals, including associated airspace."⁴¹ The service chiefs asserted that "Naval forces are also capable of operating in a riverine environment,"⁴² however, they did not elaborate how effective their services really are in operating in the brown water environment. The insurgency in Iraq would probably argue that the Navy's riverine capability was extremely limited and far from effective on the Tigris and Euphrates.

CEDING DECISIVE TERRAIN TO OUR ADVERSARIES

Even though the U.S. Navy moved forward with Admiral Mullen's vision to commence riverine operations along the inland waterways of Iraq by March 2007,⁴³ the insurgency had already claimed this decisive terrain. With 75 percent of the population

⁴⁰ (U.S. Navy. Office of the Chief of Naval Operations 2010), i.

⁴¹ Ibid., 16.

⁴² Ibid., 16.

⁴³ (Ma 2006).

living and working along Iraq's extensive inland waterways, these canals and rivers are essential to the sustainment of over 23 million Iraqis.⁴⁴ According to Field Manual (FM) 3-0, *Operations*, the U.S. Army views terrain in the context of METT-TC: Mission, Enemy, Terrain and weather, Troops and support available, Time available, and Civil considerations.⁴⁵ Terrain and weather are considered natural conditions that profoundly influence operations. While these natural conditions are neutral in nature and rarely favor a side, they certainly offer a unique advantage to the side that is more familiar and better prepared to operate in the given physical environment.⁴⁶ This holds true for the Taliban operating in the Hindu Kush Mountains of Afghanistan or Al Qaeda blending in with the local population on the Tigris and Euphrates Rivers of Iraq.

Most U.S. bases in Iraq were built along major inland waterways for ease of logistical sustainment, yet U.S. ground forces never truly owned the water between riverbanks. In fact, the waterways served as uncontested zones where the insurgents were free to operate with little to no opposition. Based on the Army and Marine's proximity to inland waterways, they certainly had the capability of delivering effects on the waterways in the form of shore-based firepower, unmanned aerial vehicles, and overhead rotary wing attack aviation. However, in a counterinsurgency environment, the rules of engagement usually hinder air and ground forces from engaging suspicious watercraft unless the craft display hostile intent or a hostile act. Even if an air or ground unit identifies such an act and successfully neutralizes a suspicious watercraft, they have no real means of maneuvering to the target area to conduct an accurate battle damage assessment and take prisoners. Thus in many cases, the rivers

⁴⁴ (Palka, Galgano and Corson 2005), 380.

⁴⁵ (U.S. Army. Training and Doctrine Command 2008), 5.5.

⁴⁶ Ibid., 5.14.

become neutral territory between two land-based units and the insurgency is quick to recognize this opening.

Sometimes it helps when an indigenous force, like the Iraqi Army, identifies a “seam” in the battle space. This is exactly what happened near Camp Habbaniyah, Iraq on the Euphrates River in January 2006. Col Juan Ayala, a Marine Corps senior advisor to the 1st Iraqi Army Division, reported that his Iraqi Army soldiers believed “the insurgency was maneuvering around the area of operation not only on land, but also on the Euphrates River . . . transporting supplies, IED-making materials, and other forms of sustainment to support the insurgency in the Caldea, Abu Fleice, and Habbaniyah area, to include Fallujah and Ramadi.”⁴⁷ These supplies and arms were potentially used against U.S. ground forces; however, the U.S. Navy had no capability to interdict the insurgents on the Euphrates. In fact, the 1st Iraqi Army Division was the only unit willing and able to assume this mission. These inexperienced Iraqi soldiers commandeered a number of decrepit boats, received limited training from a Marine Corps reserve unit, and deployed on the Euphrates River to “deny the insurgency that line of communication.”⁴⁸ Ironically, the Marines training the Iraqis had little experience in riverine operations, since their primary mission was static security of the Haditha Dam.⁴⁹

Dr. Milan N. Vego, the U.S. Naval War College’s leading modern-day theorist and author of *Joint Operational Warfare: Theory and Practice*, states that “the art of warfare is to obtain and maintain freedom of action . . . achieved primarily by properly balancing the factors of space, time, and force.”⁵⁰ Dr. Vego considers the “force-to-space ratio” as one of

⁴⁷ (Schwind 2006).

⁴⁸ Ibid.

⁴⁹ (Benbow, et al. 2006), 126.

⁵⁰ (Vego 2007), III, 3.

the most important relationships when planning for a major operation. There are a number of ways to improve the force-space balance. One way that Dr. Vego suggests is to employ naval forces into forward areas with more mobility and endurance, while reducing the footprint of naval forces conducting secondary missions.⁵¹

To demonstrate the force-space imbalance present in 2007, one can compare the naval forces' ability to control decisive terrain in Iraq with the naval forces' ability to do the same in South Vietnam in 1969. There were 9,000 Sailors with 500 riverine craft occupying 17,702 km of inland waterways in South Vietnam.⁵² In comparison, the U.S. Navy deployed only one riverine squadron consisting of 200 Sailors with 12 riverine craft to occupy 5,275 km of inland waterways in Iraq.⁵³ That means naval forces in Vietnam experienced an acceptable force-to-space ratio of 1:2 compared to the grossly imbalanced force-to-space ratio of 1:26 in Iraq. In summary, today's Navy would have to deploy 12 more riverine squadrons consisting of 2,400 Sailors and 144 riverine craft to effectively take Tigris and Euphrates from the insurgency.

However, the U.S. Navy argues that one riverine squadron was more than suitable to control Iraq's brown water environment. Although there is little information published on the progress of riverine forces in Iraq, the NECC released a *Riverine Force Fact Sheet* in 2010 replete with assertions that seem far from factual. On 21 January 2010, the NECC quoted ADM Jonathan W. Greenert, the vice CNO, who argued that the Navy riverine forces "moved from protection of the Haditha Dam up the Tigris and Euphrates, and through our sixth deployment, have really taken out the insurgent water routes and returned those

⁵¹ (Vego 2007), III, 51.

⁵² (Benbow, et al. 2006), 14, 147.

⁵³ (Diaz 2010); (Ma 2006); and (Benbow, et al. 2006), 145.

riverways to the people for commerce.”⁵⁴ It is hard to believe that one riverine squadron, about the size of a mechanized infantry company, was able to “take out” the insurgency along the entire span of the Tigris and Euphrates. This would be as outrageous as sending only one Army or Marine Corps infantry company to clear, hold, and build Fallujah in 2004.

LtGen Gary North, Commander of CENTCOM Air Forces, shared another example of how the insurgency used Iraq’s inland waterways to their advantage. He described a nighttime raid where an Army unit flew in by helicopter to capture a few high value targets. As the Soldiers approached the front door of their objective, with an Air Force F-16 three miles overhead observing the operation, four insurgents peeled out the back and slid into the river just behind the building. Lieutenant General North ended his story by describing how the ground forces were completely unaware that the insurgents escaped. Fortunately, the F-16 pilot was able to guide their quick reaction force two miles downstream to capture them.⁵⁵ With most of Iraq’s population and an active insurgency living and working near the inland waterways, a Vietnam-sized joint riverine force would have certainly gone a long way to assure mission success.

CONCLUSIONS AND RECOMMENDATIONS

Since Operation IRAQI FREEDOM has now come to a close, the U.S. Navy must consider its future operating environment in the context of brown water. In March 2006, the CNA gathered data for river systems and road networks from the Marine Corps Intelligence Agency and the CIA’s World Fact Book to identify “the potential scope of riverine operations [in countries of interest] by the ratio of waterways to paved roads.”⁵⁶ Some of the countries, with a significant reliance on brown water, include Syria with 900 km of inland

⁵⁴ (Navy Expeditionary Combat Command 2010)

⁵⁵ (Smith 2007).

⁵⁶ (Benbow, et al. 2006), 141-42.

waterways; North Korea with 2,250 km; Egypt with 3,500 km; Sudan with 4,068 km; Republic of the Congo with 4,385 km; Venezuela with 7,100 km; Nigeria with 8,600 km; Democratic Republic of the Congo with 15,000 km; and China with 121,557 km.⁵⁷

If the U.S. Navy was to deploy their current riverine force to Syria, the best force-to-space ratio the Navy could achieve is 1:4. This is still half the force-to-space ratio that was present in Vietnam. This severe force-space imbalance is unacceptable and the Navy must remedy this prior to sending their riverine forces into brown water environments. If the Navy cut only one LCS from their 20-ship LCS program, they would save enough money to produce 144 riverine boats to field 12 more riverine squadrons, both suitable and capable of controlling inland waterways around the globe. Of course, the Navy would have to man these 144 boats with 2,400 Sailors from their existing force structure.

Another aspect severely lacking with today's riverine force is the space available to train for future operations. The U.S. has one of the largest backyards in the world for riverine training with over 40,000 km of navigable inland waterways, yet the U.S. Navy limits Riverine Group 1 to conduct their brown water training on a small 170 sq km parcel of land at Fort Pickett, Virginia with a mere 10 km of waterways.⁵⁸ If the Navy built 12 more riverine squadrons, they would have to establish new training areas outside of Virginia.

Currently the U.S. Army Corps of Engineers maintains over 19,000 km of navigable inland waterways, including the Mississippi River and many of its associated branches.⁵⁹ In fact, Fort Leonard Wood is the U.S. Army's premier location to train bridging units along the Missouri River.⁶⁰ The Navy should consider basing their additional riverine forces at

⁵⁷ (Benbow, et al. 2006), 148-51.

⁵⁸ (Internal Revenue Service 2011); (Jean 2007); and (ITAM GIS Office Fort Pickett 2006).

⁵⁹ (U.S. Army Corps of Engineers 2000), 1.

⁶⁰ (U.S. Army Engineer School 2011).

preexisting installations located along the Arkansas, Missouri, and Mississippi Rivers. The proposed locations include Offutt Air Force Base, Nebraska and Pine Bluff Arsenal, Arkansas on the Arkansas River; Fort Leonard Wood, Missouri and Fort Leavenworth, Kansas on the Missouri River; and Rock Island Arsenal, Illinois on the Mississippi River.⁶¹ These bases would provide riverine forces more space for training and joint opportunities.

With all riverine forces currently stateside, the U.S. Navy must review their failures in Iraq and balance the fleet for brown water operations. As CAPT Christopher Halton, Commander of Riverine Group 1, states his force “is the premier conventional naval force capable of conducting irregular warfare through the full spectrum of operations, from security force assistance to offensive combat missions, in any riverine environment throughout the globe.”⁶² Captain Halton expects his force to have great success on their next mission, but he is incapable of accomplishing this mission alone. It is time for the U.S. armed forces to embrace a new understanding and appreciation for joint brown water operations and for the U.S. Navy to take the lead in fielding the best trained and equipped brown water fleet the world has to offer.

⁶¹ (Military Times 2011), 7, 11, 14-15, 45; and (U.S. Army Corps of Engineers 2000), 1.

⁶² (Navy Expeditionary Combat Command 2010).

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